NATIONAL TRANSPORT RESEARCH CENTRE

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TRANSPORT ALTERNATIVES FOR SIXTH FIVE YEAR PLAN

NTRC - 68

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R O A D S

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Pakistan has a land area of approximately one million square kilometer out of which 0.85 million square kilometer is agricultural and the rest is either desert or mountaineous. The total population of the country, according to the 1981 Census, is 82.69 million, while the number of vehicle in the country at present (1981) is about 600,000. The total length of roads in the country amount to approximately 160,000 kilometer. This also includes 56,000 kilometers of canal roads out of which only about 16,000 kilometers are open to public. The net availability of public roads therefore amount to 120,000 kilometers. The break-down of the road kilometerage by category and under various agencies may be seen in Table 1.

The total investment in roads during the period (1955 to 1981) is estimated at Rs. 10,112 million as can be seen from the table below:

Table 2

Investment in Highways

(Rs. Million)

Period	Highway Allocation	Remarks
1955 - 60	198.500	First Plan
1960 - 65	347.500	Second Plan
1965 - 70	600.000	Third Plan
1970 - 75	1,142.500	Fourth Plan
1975 - 76	1,264.704	Annual Plan
1976 - 77	1,063.458	Annual Plan
1977 - 78	1,223.748	Annual Plan
1978 - 79	1,273.222	Annual Plan
1979 - 80	1,283.196	Annual Plan
1980 - 81	1,715.557	Annual Plan
Total :	10,112.385	

From amongst all the transport mode, roads have been receiving relatively higher priority of the total plan allocations during this period as can be seen from the Table 3.

Table 1

Road Kilometerage in Pakistan

(1979 - 80)

S. No.	Agency	Metalled Road	Un-Metalled	Total
1.	HIGHWAY DEPARTMENT:			
	Punjab	11,583	172	11,755
	Sind	6,591	2,093	8,684
	N.W.F.P.	3,700	3,543	7,243
	Baluchistan	3,019	8,841	11,860
	Sub - Total :	24,893	14,649	39,542
2.	DISTRICT COUNCIL:			
	Punjab	3,825	18,559	22,384
	Sind	193	19,172	19,365
	N.W.F.P.	178	3,871	4,049
	Baluchistan	76	3,228	3,304
	Sub - Total :	4,272	44,830	49,102
3.	FATA:	1,159	1,531	2,690
4.	AZAD KASHMIR:	821	954	1,775
5.	NORTHERN AREAS:	620	2,283	2,903
6.	CANAL ROADS:			
	Punjab	112	35,027	35,139
	Sind	27	17,620	17,647
	N.W.F.P.	187	2,071	2,258
	Baluchistan	-	801	801
	Sub - Total :	326	55,519	55,845
7.	MUNICIPAL ROADS:			
	Punjab	3,862	667	4,529
	Sind	3,190	304	3,494
	N.W.F.P.	205	72	277
	Baluchistan	304	86	390
	Islamabad	560	-	560
	Sub - Total :	8,121	1,129	9,250
8.	OTHERS	3,000	3,800	6,800
	GRAND TOTAL :	40,612	119,927	160,539

Table 3

CAPITAL INVESTMENT IN TRANSPORT

(1955 - 81) (Rs. Million)

PERIOD	ROADS	RAILWAY	PORTS	SHIPPING	CIVIL AVIATION	ROAD TRANSPORT	I.W.T.	RESEARCH	TOTAL
1955-60 (First Plan)	193.500	541.000	133.000	63.000	170.000	47.000	-	1.500	1,154.000
1960-65 (Second Plan)	347.500	775.000	124.000	103.000	340.000	627.000	-	-	2,316.500
1965-70 (Third Plan)	600.000	1,150.000	251.680	510.500	265.500	955.000	-	5.000	3,737.680
1970-75 (Fourth Plan)	1,142.50	1,080.000	470.000	500.500	571.000	1,200.000	20.000	25.000	5,009.000
1975-76 (Annual Plan)	1,264.704	620.000	264.200	5.000	49.000	140.867	-	0.877	2,344.648
1976-77 (Annual Plan)	1,063.455	682.000	486.550	257.000	592.600	162.147	-	3.000	3,246.752
1977-78 (Annual Plan)	1,223.748	660.000	791.500	-	296.366	35.472	-	0.827	3,007.913
1978-79 (Annual Plan)	1,273.222	820.000	1,271.340	-	360.445	175.003	-	0.660	3,900.670
1979-80 (Annual Plan)	1,283.196	853.000	1,062.622	722.926	3,220.820	354.300	-	0.967	7,547.831
1980-81 (Annual Plan)	1,715.557	1,115.000	1,083.380	826.380	1,013,540	379.000	-	0.906	6,133.383
TOTAL:	10,112.382	8,296.000	5,937.892	3,038.306	6,879.271	4,075.789	20.000	38.737	38,398.377

The Problem:

The past investigations have revealed two basic problems with roads in the country namely inadequate network coverage i.e. insufficient route length and unbalanced system i.e. disproportionately higher ratio of low cost roads. A detailed discussion of these two issues is contained in the following paragraphs:

Inadequate Length: The geographical coverage of the land by the highway network in Pakistan as compared with some of the developed countries of the world is quite low as can be seen from the following table :

Table 4

Highway Network Coverage

Country	Km/Sq. Km.
Japan	2.74
France	2.70
West Germany	1.68
Italy	1.25
England	1.25
U.S.A.	0.64
Brazil	0.15
India	0.13
Pakistan	0.12

Although the total route length of roads required in any country or region is determined by a number of factors, i.e. topography, vehicle ownership, industrial development, population size, per capita income, level of agricultural development, among other, the transportation planners have suggested a number of measures to determine the adequacy of basic highway network of any country or region. Some of these criteria are given below:

(i) Road Density Vs Topography: This criter is based on the assumption that the route length of highway network required for optimum conditions is determined by the topographical characteristics rather than socio-economic factors. This belief is supported by the fact that whereas during last three to four decades, the developed countries of the world have experienced a very rapid rise in socio-economic condition,but it has not affected the overall route length of road network. As a matter of fact, during all this period, the route length has remained fair stable and very very few kilometers of new roads have been added. The investment in roads have been mostly in the area of improvements and widening.

This has led the planners to suggest that the minimum length of roads in any country or region should average to 0.50 Km per sq.km of area. The actual figure may vary from 0.18 Km per sq.km for desert areas to 1.43 Km per sq.km in the highly developed areas, as per details below:

Type of Areas	Km/Sq.Km.
1. Highly developed industrial areas	1.43
2. Highly agricultural area	1.25
3. Semi developed agricultural area	0.93
4. Well developed hilly areas	0.87
5. Mountaineous areas developed	0.43
6. Mountaineous areas under developed	0.31
7. Desert areas	0.18

(ii) Distance of Population Centres from the Road: Some of the planners suggest that the route length and road coverage should be such that no point in the country

should be more than 160 kilometers from a high type road and all cities of 50,000 population or more should be within 8 kilometers of a high type road, or connected by a link of comparable specification. In the case of rural areas no village with a population of more than 500 shall be more than 8 kilometers and a main village having a population of 5,000 more than 3 kilometers from a main road.

(iii) Road Density in Cultivated Area: A predominantly agricultural country should have at least 1.25 kilometers of road for every sq.kilometer of cultivated area.

(iv) Road Density Vs Population: There should be at least 80 kilometers of high type road for every 10,000 population.

Of all these criteria, the one listed at (i) namely 0.5 km per sq.km is most commonly used. According to this criteria Pakistan should ultimately have at least 500,000 Km of roads against the existing length of 120,000 Km, thus having a shortfall of 380,000 Km of all types of roads.

Unbalanced System: The research has revealed that in order to obtain maximum return from the investment in roads the network should be a balanced one. Taking the U.S. as an example. In the U.S. the distribution of various types of roads is as follows :

Roads in the United States of America

Road Type	TYPE OF PAVEMENT				
	Non-Paved	Low Type	Intermediate Type	High Type	Total
Main Rural	1.3%	3.0%	6.4%	8.2%	18.9%
Local Rural	26.0%	32.4%	8.9%	2.7%	70.0%
Urban Street	1.?%	2.2%	3.6%	4.0%	11.1%

Source : Messers Howard Needle Tammen and Bergendoff International, Lahore.

According to generally accepted standards, the Highway network of any country should have the following heirarchical arrangement for deriving maximum benefits from it and meeting the transport requirement efficiently.

Table 5

Balanced Highway Network

(Percent)

Type of Road	TYPE OF PAVEMENT			
	Non-Paved	Single Lane	Two or more lanes	Total
Main Rural	2	3	15	20
Local Rural	26	32	12	70
Urban Street	2	2	6	10
T o t a l :	30	37	33	100

On the basis of the distribution of various types of roads in the country should be as follows:

Table 6

Road Requirement

(Kilometers)

Type of Road	TYPE OF PAVEMENT			
	Non-Paved	Single Lane	Two or more lanes	Total
Main Rural	10,000	15,000	75,000	100,000
Local Rural	125,000	160,000	60,000	350,000
Urban Street	10,000	10,000	30,000	50,000
Total :	145,000	185,000	165,000	500,000

From the table it can be seen that the largest chunk of roads required is local rural road including Farm-to-Market Roads. The total deficiency in rural roads amount to 355,000 Km. Category-wise deficiency of various types of local rural ROADS is as below:

Table - 7

Roads Deficiency

(Kilometers)

I t e m	Non-Paved	Single Lane	Two or more lanes	T o t a l
Required	140,000	175,000	135,000	450,000
Existing	65,000	30,000		95,000
Total:		280,000		355,000

This is a substantial deficiency and at the present rate of constructing new roads i.e. roughly 3,000 kilometers per year it would take years to fulfill the need.

The role of roads in the economic development of any country is undisputed. The importance of an adequate network of roads cannot be over emphasised. Therefore, it is imperative that ways and means should be found to meet the requirements in the shortest possible time.

Alternatives:

Four alternatives are available to meet the road needs of the country in the nearest possible future. They are:

1. Canal Roads

Pakistan has the world's largest Canal Irrigation System which mainly lies in the provinces of Punjab and Sind. The total length of the Canal network in the country is approximately 56,000 kilometers as detailed in the table below:

Table 8

Length of Canal Network

(Kilometers)

Province	Main Canals	Distributaries	Minors	Total
Punjab	5,777	17,529	11,833	35,139
Sind	6,217	6,527	4,903	17,647
N.W.F.P.	716	973	569	2,258
Baluchistan	280	521	-	801
Total :	12,990	25,550	17,305	55,845

All these canals have katcha paths, mostly of stablized soil and used primarily by the Irrigation Department officials for inspection purposes. Only a very limited number of these roads are open to public. Table below gives the total canal roads open to public in various provinces.

Table 9

Canal Roads Open to Public

Province	Total Canal Length (Kilometers)	Open to Public (Kilometers)
Punjab	35,139	112
Sind	17,647	27
NWFP	2,258	187
Baluchistan	801	801
Total :	55,845	1,127

Entry to remaining Canal Roads/Inspection paths require special permits from Irrigation Department who generally dispose off the request keeping in view the type of the vehicle to be used to prevent excessive wear and tear of these roads. The physical conditions of the roads not open to public is generally very good as the Irrigation Departments expend considerable efforts to maintain the smooth riding quality of these roads. Irrigation Department does not receive any extra funds for maintenance and proper up keep of these roads. The task is entrusted to the labour employed for maintenance of the Canal themselves.

In the past a number of efforts have been made to open the canal roads for public use to meet the growing need of communications in the rural areas. The public also have been demanding constantly to open these roads for public use. However, due to a number of reasons, it had not been possible to use katcha canal roads to provide road communications especially in the rural areas of Punjab and

Sind which have the largest potential for the purpose. The following reasons have generally been forwarded in the past against opening up the canal roads for public use:

i) Canal embankments are an exclusive and vital component of the canal system-part providing un-interrupted water to the farmers. Allowing Canal embankments for use by public is liable to interfere in the overall working and operation of the Irrigation Department.

ii) Distributaries and minors are subject to frequent adjustments of outlets, fixing reclamation and Grow More Food outlets and thus public traffic would hamper those functions and would itself get interrupted occasionally.

iii) Scope for future remodelling e.g. widening/ raising of the channels shall be restricted.

iv) Canal banks are generally made up of uncompacted earth, may not have sufficient bearing capacity for heavy loading.

v) The existing culverts, bridges and regulators etc are narrow and would have to be re-designed before they could be used for general traffic.

vi) Canal banks are generally much higher tha the natural surface levels and much narrower than the minimum formation width of public road-ways. Making up of the full width of the required road formation would involve too much extra earth work which might make the whole idea uneconomical.

vii) There are some pucca canal roads which do not permit speeds higher than 25 to 40 k.m. an hours on account of bad maintenance or settlement due to moist subgrade. If the same situation arises on all canal roads, apart from being rendered unfit for public traffic, these would make the canal maintenance almost impossible as well.

viii) Canal banks are designed to provide a minimum cover of 0.33 meters of earth over the hydraulic gradient-line, which results in the sub-grade being moist most of the time. This may not be a desirable condition for a public road open to heavy traffic. Similarly, the fact that canals are opened and closed frequently might also create unstable soil conditions.

ix) It will be difficult to deposit silt material on the banks obtained from periodical silt clearance. The leads and lifts will be more and desilting will become a costly affair, due to construction of the metalled roads on the banks of canals.

x) Specifications of canal bank profiles/sections are much more inferior than those required for roads. Extra land shall have to be acquired if canal banks are designed for general public traffic.

xi) Safety of road traffic in absence of wide berms without fencing will always remain a problem.

xii) In the events of vehicles falling into canal, would require its closing which is not desirable.

xiii) Canals are on serpentine and longest contours whereas the roads should be the shortest allignment/ distance between any two villages to be connected. Thus aligning roads along canal banks will require link roads which would affect economy of converting canal road into public facility

xiv) Changes in Irrigation outlets as a consequence of disputes, fragmentation of land holdings will be difficult in case the canal paths/ banks are metalled for public traffic.

xv) The outlets on canal banks to be crossed will require proper design and construction, involving heavy additional investment in remodelling.

xvi) All canal systems are proposed to be remodelled in the near future and so communications lines will then get disturbed for long periods.

INTERNATIONAL EXPERIENCE:

Many countries of the world use canal banks for public transportation. Both India and Egypt have canal irrigation systems similar to Pakistan. Their canal networks are not that extensive as of Pakistan but it is understood they have made use of the canal embankments for road communications in rural areas of East Punjab and border areas of Rajistan. Egypt has also made considerable use of its canals and drains network in the Nile basin for road communications. In the developed countries of Europe and North America, considerable use of canals was made for public transportation around the

end of last century. The barges used for this purpose were hauled by horse using the canal banks. However, these canals were not Irrigation Canals as they were designed primarily as Inland Water Transport facilities and therefore did not have the problems faced in Sind and Punjab. Very little use is made of canal bank in Europe or U.S. for public road transportation at present.

DOMESTIC EXPERIENCE:

The domestic experience of opening the canal road has produced mixed results. In NWFP and Baluchistan, the canal banks are quite extensively used for public transportation. The Irrigation authorities in both the provinces had a happy experience of letting the public use the canal roads. There is, however, considerable reluctance on the part of Irrigation authorities to allow wide spread use of canal roads by the public. As a result, only limited mileage of canal roads in the two provinces is open to public.

CONCLUSIONS:

Keeping all the relevant factors in view, it is felt that opening up the canal road for public use would generally be advantageous viz-a-viz constructing the road on a new alignment for the following reasons :

i) Saving of land acquisition cost.

ii) Saving on account of earthen embankment being available.

iii) It would roughly 50,000 k.m. of roads to the national network, at a very nominal cost.

2. Involvement of Public in Road Construction

It has been generally recognized that substantial increase in road network is not possible if it is to depend entirely on national excheaquer. It is, therefore, essential that some form of participation by public is ensured if large scale expansion in the road network is to be achieved. In the past efforts were made to involve the public with road

building in the form of village road construction programme on self-help basis in which the Government provided the material and technical guidence while the villagers provided the labour. The efforts did yield some positive result but net increase in road mileage was very small.

It is, therefore, felt that ways and means have to be found to ensure greater participation of population with road construction programme. In this connection, experience of some of the developed countries is also available and can be taken into account. For instance, the huge road network of U.S. was built during 19th century by mobilizing the entire population of the country. This was achieved by enacting legislation which required every able bodied person in the country to either physically work on road building for ten days a year or pay for another person to do it for him. The law was strictly enforced till the beginning of this century when it was realized than no additional mileage of roads was needed. The law however is still in the statute books.

A similar legislation can be considered for Pakistan if large scale annual addition of roads is to be ensured. This should be a feasible preposition as 80% of the population lives in the villages and is greatly under-employed. It should not be very difficult for them to spare ten days a year for this purpose.

However, in order to make it politically more acceptable, the scheme can be adopted for secondary and tertieries rural roads which are primarily for the benefit of rural population. The urban population should be exempt from the scheme.

3. Appropriate Technology:

The 'Rural Transport Problem' in developing countries in the past has been primarily aimed at providing or improving the road access to villages, areas or region. The problem has not been looked into from systems point of view i.e. transport

comprises a system of some form of vehicle and a 'track or route upon which that vehicle moves'. Considerable time, money and effort has been expended in seeking to optimise the road planning, design, construction and maintenance techniques, Hardly any thought has been given to the appropriateness of vehicle to rural transport needs.

A direct consequence of road design for use by conventional motor vehicles is that construction costs remain high, particularly when equated with the resources of the poorer developing countries.

Government involvement in the provision of motor vehicles has, by and large, been regulatory : either permitting reasonably free import or making it very difficult where foreign exchange has been an acute and continual problem. In developing road transport the implicit assumption has been that the private sector would supply whatever vehicles were necessary to make efficient use of the roads provided by the Government. That this supply would appear has been taken for granted although it might not be appropriate, hardly ever considered.

Perhaps for rural societies, simpler and cheaper vehicles might be more appropriate. Slower and lighter vehicles would allow the alignment, strength, and width of roads to be reduced, with, potentially, a considerable saving in costs.

Few developing countries - China, India and Papua New Guinea who have attempted to restrict the number and type of vehicles to those considered appropriate to their stage of development has done so primarily because of foreign exchange considerations or the desire for local manufacture rather than because of alleged technological inappropriateness.

There perhaps cannot be a universal vehicle appropriate to all the rural transport needs of developing countries. Rather, the need is for a graduated choice of vehicles whose performance matches need and whose cost is in sensible relation to income.

There exists a range of 'basic vehicles' from simple aids to goods movement by man to cheap motorized form of transport. Six categories of basic vehicles can be defined:

1. Aids to head, shoulder and backloading.
2. Handcrafts and wheelbarrows
3. Pedal driven vehicles
4. Animal transport
5. Motor Cycles
6. Basic motorized vehicles.

Many such basic vehicles already exist in different parts of the developing world, though often their use is localized. Some are primitive, being traditional devices which have remained unchanged for many years. Almost all are capable of improvement, using contemporary technical knowledge, so as to increase significantly their efficiency and usefulness.

The present status of basic vehicles is that much good technology already exists which could be widely applied, but whose use is at present very localized. Where information on such technologies exists it is obscure, uncollated and certainly unknown to those who could make use of it.

While devices which meet the transport needs of the rural poor must be simple and low cost, this does not imply that their development is an easy task. Rather, experience suggests that the development of effective basic vehicles requires the application of contemporary technical knowledge and the very best technological skills.

All the vehicles described could be operated on roads of a lower standard and hence cost, than that prescribed by the requirements of conventional motor vehicles. Some may be described as 'two-dimensional' in that they have height and length but no significant width. This makes them suitable for use on footpaths and narrow tracks.

There is need for developing countries to generate their own road design standards based on local conditions which would incorporate, as appropriate, the requirements imposed by basic vehicles. Road design has been based nn the needs for motor vehicles for so long that there is little available experience of designing for anything else, at least in the developed countries. Very few developing countries have experience with the provision of routes for basic vehicles.

There seems to be no logical reason why governments and aid institutions should not play as dynamic a role in the provision of basic vehicles as they have done in the provision of roads. Indeed it seems irrational for them to do otherwise, given that the track and vehicle are complementary and mutually dependent parts of the road transport system.

4. Economical Design:

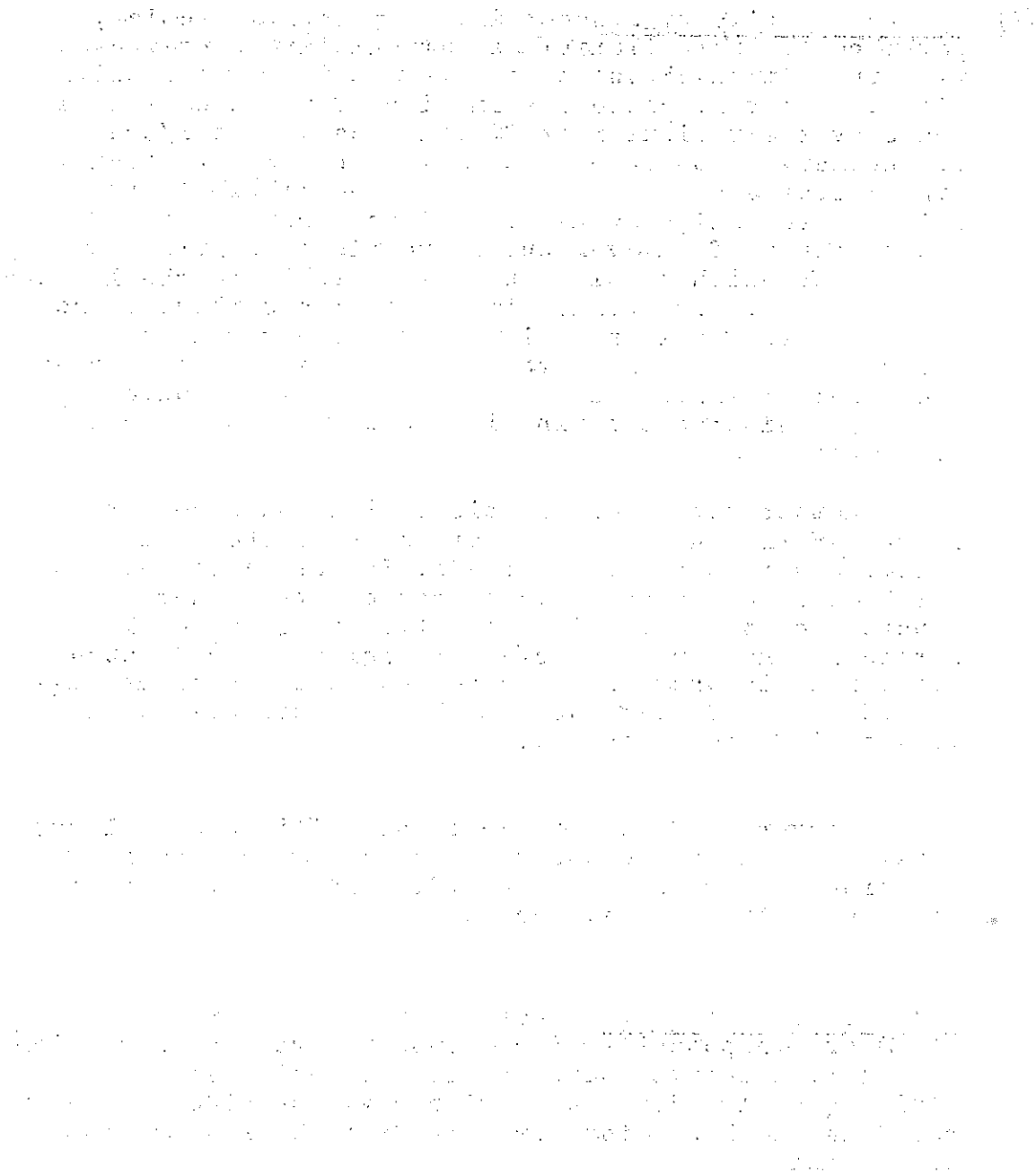
In view of recent phenomical increase in the cost of road construction it has become imperarive to seek ways and means to achieve maximum economy in road construction. This can perhaps be achieved by either lowering the design standard or devising new design procedures which would be more economical. The following two areas promise considerable scope for achieving economy in road construction and may be looked into in greater details:

(a) Design Modifications: According to present practice, paved roads (both flexible and rigid) are constructed with uniform thickness of the pavement over the entire width. However, close examination of the use of these roads by the vehicular traffic indicate that 1/3rd of the lane width on each side is subjected to much higher load spaces as compared to the middle 1/3rd which is very lightly used. This occurs because of the tendency of the vehicular traffic to confine to the lane width which results in well established wheel paths on the sides. This indicates that pehaps there is no need to have a uniform thickness of the pavement all across the road. The pavement thickness can be varied with smaller thickness in the middle. This would ensure considerable saving in the cost of paved road construction.

Another variation of this design would be for Farm-to-Market Roads in the areas where the soil conditions required paved roads. In this case perhaps only the wheel paths could be paved with either concrete or asphalt. This practice is quite well spread in the rural district of England, Europe and also in India where it is reported that approximately 20,000 km of rural roads have been constructed with very satisfactory results.

However, before this could be utilized on a large scale it would be necessary to have some of the roads constructed on the above specification on pilot basis to observe their behaviour.

(b) Roads Design Standard: Another area which promises considerable potential for economy in road construction is lowering design standards i.e. lowering speed limits and also doing away with paved shoulders, and reducing the lane width from 12 ft.to 11 ft. should be considered.



ROAD TRANSPORT

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I. SCOPE

This paper deals with the Road Transport Alternatives in Private Sector in the 6th Plan. Following main points will be discussed:

A) i) Ever increasing need for buses and trucks.
ii) Restriction on import of a limited number of makes.
iii) Providing capital for the purchase of vehicles
iv) Energy consumption

B) i) Road Transport Policy, administrative set up and control of vehicles.
ii) Permit system for plying of buses on different routes.
iii) Fines and other measures for control of traffic
iv) Impounding of vehicles.

C) i) Accidents: Reasons; measures to minimize accidents; trucks and buses bodies specifications; road users training; publicity; training for traffic police.
ii) Compensation to accident victims.

D) De-nationalisation of Road Transport.

It is a well-known maxim that the Road Transport is the back-bone of the economy of a country. Its development has direct influence on the development of the country. Its importance cannot be sufficiently stressed. It has two main branches: (1) transportation of passengers; (2) transportation of goods. The growth of population and general trade activity has increased the volume of passengers traffic which in turn has necessitated increase in the number of buses, cars and other modes of travel. Similarly, the flow of marketable commodities from one place to another in the country has

considerably increased. Import of large quantities of different kinds of goods and their transportation from Karachi harbour to near as well as remote corners of the country has a corresponding effect on the number of trucks which was inevitable. The increase in the number of buses and trucks during a 30 years period between 1949 and 1979 is shown in the following chart:

Number of buses on road

1949 : 4465
1959 : 6654 (149% increase in ten years)
1969 : 8893 (133% increase in ten years)
1979 : 20513 (230% incrhase in ten years)

The total increase from 1949 to 1979 is thus 459% (i.e. 4.6 times).

Number of trucks on road

1949 : 7194
1959 : 11902 (165% increase in ten years)
1969 : 18342 (154% increase in ten years)
1979 : 31402 (171% increase in ten years)

Thus the total increase in 30 years is 436% (i.e. 4.3 times).

The combined figures of buses and trucks show an increase of 159% from 1949 to 1959; 147% from 1959 to 1969; and 190% from 1969 to 1979. This reveals that the total number of buses and trucks has increased by 4.4 times in 30 years. Based strictly on this rate of growth (about 5,000 vehicles per year) and without taking into consideration any additional factors, the minimum number of buses and trucks on road during the next five years (1982-1986) can be estimated as follows:

1982 : 65,000 vehicles
1983 : 70,000 "
1984 : 75,000 "
1985 : 80,000 "
1986 : 85,000 "

This shows as average of 75,000 vehicles per year during the plan period. It may, however, be kept in mind that this number shows only the expected vehicles to be on the road. The total of vehicles expected to be registered would be more than double of this figure because of the following trend:-

Year	No. of buses & trucks registered	Number of buses & trucks on road	
1971	67,419	32,086	47.6%
1973	78,314	33,963	43.3%
1975	92,799	38,183	41.1%
1977	101,390	40,778	40.2%
1979	114,961	51,915	45.1%

The gap between the number of vehicles registered and on road is extraordinarily big and we shall have to find the reasons of this difference and remedies to reduce it. Apparently the gap can be atributed to the following reasons:

1) Lack of proper maintenance standards and facilities.
2) In case of trucks idle days occuring due to unsystematic distribution methods.
3) In case of buses liberal policy of issuing route permits over and above the actual traffic needs.

Points No. 2 and 3 will be further discussed later in the paper under the Road Transport Policy.

Tremendous amounts of foreign exchange is involved in the import of such large number of buses and trucks every year. If we devote our attention towards improvements in maintenance and workshop facilities and restrict the import of all types

of makes to only two or three types we can expect a considerable reduction in import of vehicles and save the country from importing more than double of our needs.

Following recommendations are made to ease the situation:

1) Technical and scientific training in different aspects for Automobile Engineering should be provided to as many persons as possible. This does not mean that very highly qualified Engineers are to be provided. Our purpose can be served by qualified fitters in large numbers.

2) Workshop facilities should be expanded so that every kind of defects in a vehicle should be removed without loss of time. The vehicle should not remain idle for a single moment more than actually needed for repairs.

3) A chain of small workshops throughout the country should be established.

4) Imports of tools and small machinery should be encouraged. Duty on these items should be minimised or if possible nil.

5) Ban over old models should be removed. At present the private sector utilizes vehicles which are many years old. Over one-third ($\frac{1}{3}$) is even older than ten years. However, due to constant care and attention the private owners are able to run the buses side by side the relatively new buses. Such buses are successfully satisfying the traffic needs in rural areas i.e. on 'C' category of routes. Some provincial governments have occasionally tried to restrict to use of older model vehicles. This attitude is against the larger interest of the c

country and therefore, no interference should be made in using a vehicle as long as it is mechanically fit. The savings on purchase of new vehicles could be better utilized in many other ways.

6) The maintenance of vehicles should be made easy by restricting import of dozens of makes to only 2 to 3 makes. The lack of specialization and standardization has resulted in wastage of resources. As this subject requires more elucidation it is being dealt with separately.

Bus and Truck Makes

In Pakistan there are vehicles of different makes and types being used in Private Sector.

One can reasonably expect numerous difficulties for effective maintenance and speedy repairs of dozens of makes of vehicles. This country cannot afford the luxury of making use of every type of make in the world. Even most developed countries adhere to standardization of fleets of only one or two makes. Our policy of indiscriminate freedom to import all types of makes demands a change. At present, we have to import entire range of spares of each and every type of makes. This puts burden on resources and results in blockage of capital. If we restrict ourselves to one or two makes only, we may eventually start on the path of assembling and manufacturing of vehicles one day. It is, therefore, recommended that for standardization purpose we should now decide to allow import of only 2 or 3 makes in the country.

Providing capital for the purchase of vehicles

The Private Sector is severely handicaped in securing capital easily for purchase of vehicles. Almost 80 to 90 percent of vehicles at present on road were 'purchased' by owners on instalment basis on the promise to pay exhorbitant rate of interest. In certain cases the interest becomes

more than double the actual cost of a vehicle. There are anti-social elements in the society who contrive to purchase all chassis from sellers on different ficticious names paying net cash. They hoard the booty and by doing so create demand in the market. Then they sell them on instalments basis on prices of their own choise. The Private Operators are obliged to sing to their tune only because they cannot secure capital for them. The Government has provided such facilities for almost every Industry with the only exception of Road Transport Industry. The Commercial Banks in the country do not give any loans to transport operators.

It is recommended that a Transport Finance Corporation should be established by the Government with sufficient capital at its disposal to give loans for the purchase of chassis on the hypothication of chassis itself. The operator should be required to provide a part of the capital himself in the shape of cost of fabrication of body etc.

Savings in Energy Consumption

The problem of energy consumption is a worldwide nuisence. Our country depends on the import of about 100% of its requirements spending a major portion of our resources. We shall have to take measures for saving of Energy consumption. Apart from the commercial consumption in buses and trucks the energy is being used by private car owners. The number of motor cars in Pakistan in 1969 was 56,353 but increased to 107,695 in 1979. Estimated figures at the end of 1981 was 140,000. The trend of increase in number of private cars is alarming. It is un-healthy for the economy of an under-developed country. It is not only a burden on the general resources but also a strain on energy. Measures should, therefore, be adopted to put ban on import of cars as has been done in our neighbouring country i.e. India, Peoples should be encouraged to use commercial vehicles for their long journeys.

Road Transport Policy

The policy is set up in Motor Vehicles Act of 1939 as amended by Motor Vehicles Ordinance, 1965 and 1969. The system of issuing route permits was drastically revised in 1969.

Route permits are issued liberally to anyone who applies for permission to ply a bus on any route without taking into consideration the travelling needs of the people. No traffic survey is made to study the number of buses required on a particular route. This has resulted in undue wastage of resources. If 100 buses are needed on a route, the permits are issued for twice or thrice of the number. This policy is un-scientific and harmful. Moreover, it has created rush on more renumerative routes. Traffic needs on un-renumerative routes are being neglected.

It is recommended that issuing of new route permits should be stopped for at least one year. The present number of buses should be evenly spread on different routes according to the survey needs of traffic.

The Transport Departments of the 4 provinces need a new set up. At present many Departments are involved on different aspects of Road Transport. The following tasks are being done by different agencies:-

Issue of route permits and connected administrative matters;	Regional Transport Authorities (Run under Transport Departments).
Traffic matters	Police Department through traffic staff and police stations.
Motor Registration of vehicles & taxation matters	Exise & Taxation Deptt: & Postal Deptt: State Bank of Pakistan.
Driving Licences	Police Department, Excise & Taxation Deptt: and Postal Deptt:

It is recommended that a centralised Department should deal with all matters connected with Road Transport. In

certain provinces there is no separate Head of Transport Departments. The work is amalgamated with other Departments. Considering the importance of Road Transport, it is necessary that a full time, separate Head of Transport Department should function effectively in the Centre as well as in the Provinces.

Traffic Checking and System of Fines

Presently, the checking of vehicles is being done by the following agencies:-

1) Regional Transport Authorities
2) Special Divisional Magistrate
3) Traffic Police
4) Staff of all Thanas (Police Stations)
5) Special M.M.P.Is.
6) District M.M.P.Is.
7) E.T.Os.
8) Motor Vehicles Examiners.

1. This results in general inconvenience to the operators and the travelling public. A single agency should be entrusted with the duty of checking and control so that strict law enforcing may be achieved.

2. Great discretionary power rest with Magistrates and are being utilized by them in-discriminately. The fine system should be streamlined. Fixed fines for each kind of offences will help in eradicating corruption and discontentment. In this connection, proposed Road Safety Ordinance are noteworthy and should be adopted as early as possible.

3. Impounding of vehicles is another legacy of British Colonial Rules. A vehicle is not supposed to commit and wilful offence. The person who drives may make a traffic violation and may be punished to that extent. But why impound a vehicle for many days. By compelling a vehicle to remain idle for 4 or 5 days (even longer period is occassionally involved) one commits a serious offence against the general economy of the country.

It is recommended that no vehicle should be impounded by Police/Traffic authorities except for the following reasons:-

1) The vehicle is mechanically unfit.
2) The vehicle is involved in smuggling.
3) The vehicle meets a fatal accident.

In any case the vehicle should be released from Police Custody within 24 Hours.

Accidents

Safety of travelling public is of utmost importance and it is the basic responsibility of a Government to adopt ways and means of minimising the accidents. The number of accidents in Pakistan during the period from 1971 to 1978 is given in the following table:

Table

ACCIDENTS IN PAKISTAN

Year	No.of accidents	Killed	Injured
1971	5,492	1,867	5,025
1972	5,568	2,056	4,962
1973	6,325	2,508	6,087
1974	5,930	2,253	6,085
1975	7,104	2,657	7,054
1976	8,004	2,888	7,829
1977	9,311	3,364	9,014
1978	9,815	3,358	9,748
Total :	57,349	20,951	55,784

Total number of casualties is 76,735 i.e. average per year 9,591.

No serious efforts have been made by the Government to study the reasons and assess the factors which result in such a large number of accidents. Some Traffic Inquiry Committees were formed by the Government in the past but their reports have not been made available to the public and it seems that even the Government have not made use

of their recommendations, if any.

It has been argued that the following are the main causes of accidents :-

1) Drivers negligence and harsh driving
2) Great rush of vehicles on roads
3) Bad conditions of roads (including narrowness inadequate traffic signs etc
4) Slow moving animal driven vehicles
5) Lack of traffic sense of road users
6) Un-effective enforcement of law

All of these causes have contributed towards the increase of road accidents. It means that four elements are mostly concerned in the occurance of an accident viz:

1) The driver
2) The road
3) The vehicle
4) The behaviour of prospective victim.

It is recommended that extensive research on all the above cited elements should be systematically started and data should be collected on a centralized basis and it must be kept uptodate. A thorough enquiry should be held whenever an accident occurs. In the interest of search for the true facts, the agency making inquiry into the cause/causes of the accident must include: (a) one technical engineer; (b) one representative of transport department; and (c) one representative of transporters.

Besides, finding the reasons of an accident we have to go further and find remedies for preventing them to occur. This is the most important factor.

We now proceed to examine the measures which should be taken in respect of each of the above mentioned four elements:-

(1) Driver:

The proper education of drivers should be regarded as foremost necessity. Technical psychological, moral and humanitarian requirements should be stressed and the training

of drivers should be given on these lines. It is desirable that the subject of driving should be included in the courses of all Polytechnique schools and colleges. Thus huge expenses involved in the establishment of Drivers Training Schools can be avoided. Knowledge of traffic Rules and Regulations may be imparted in the minds of drivers so that they should discharge the responsibility efficiently.

(2) The Road

Surveys made by competent persons show that the present condition of the roads (rural as well as highways) in Pakistan is such that they have no bearing on the increasing number of accidents. The existing roads are adequate for the volume of traffic they are carrying. These surveys maintain that the capacity of our present roads is sufficient to absorb traffic and there is no congestion. They also state that it is incorrect scientifically to say that the increase in number of vehicles in the country has brought greater accidents. Notwithstanding these experts opinions the fact still cannot be denied that many accidents have occurred in the past due to faulty roads and congestion of traffic on them. This may not be the major reason of accidents but it certainly has caused many such occurrances. Therefore, this apparently contradictory situation must be more thoroughly examined.

The proposal made by the Chief, N.T.R.C., Islamabad to open all canal roads for general traffic is very sound and practical. This proposal should be adopted. Moreover, it is recommended that the following roads may be made 'dual carriage' by stages in the next five years:

1) Lahore-Rawalpindi
2) Rawalpindi-Peshawar
3) Lahore-Multan
4) Multan-Sukkur
5) Sukkur-Karachi

One each of the above mentioned five portions of the G.T. Road should be completed every year during the plan.

(3) The Vehicles:

Many vehicles are involved in accidents due to mechanical failure. Although the percentage of such kind of accidents is not very high yet measures shall have to be found in order to ensure that every vehicle which comes out on road is mechanically fit in all respects. At present, tests are carried by Motor Vehicle Examiners posted in every District. However, malpractice exist on a large scale and unfit vehicles are 'passed' as fit and allowed to run on roads. It is recommended that the moral obligation of the examiners should be brought into their notice and if they do not stop this practice strict disciplinary action should be taken against them.

(4) The Victims

Many an accident is the result of the ignorance of the general public of the traffic regulations. On many occassions in the past the public has been repeatedly asked to observe traffic rules but no effort was made to tell them what are the rules. Last year a change of publicity technique brought good results through the media of Television, Radio and daily newspapers. It is recommended that further extensive publicity of basic traffic knowledge should be re-started. The following other additional measures are recommended for prevention of accidents:

1) Factories, schools and colleges should not be allowed to function within at least one mile of the main highways.
2) Separate paths for slow-moving traffic should be provided on busy roads.
3) Carts and Rehras should be required to fix back 'battis' in the rear.
4) Fabrication of bodies on buses and trucks should be in accordance with the fixed and approved specifications. No vehicle owner should be allowed to fix decorative and eluminating material on the

exterior. It should be prohibited by law. Principle should be simple bodies and strong fabrication.

Compensation to Accident Victims

The law of paying compensation to the accident victims was put into effect in 1969. At that time, it was officially stated that the Scheme was being introduced only as a deterrent against the growing number of accidents. However, experience of 12 long years has shown that the scheme did not achieve the objects and accidents could not be checked. But it must be admitted that although the desired objective could not be attained yet it proved to be a great social service. The families of persons killed in accidents got at least some solace by way of compensation paid to them. The excellent service provided by the transporters through a cooperative society of their own namely the West Pakistan Transporters' Mutual Assistance Cooperative Society Ltd is praiseworthy. The Society has worked successfully since 1970 and has paid more than Rs. 1.25 crores by way of compensation to accident victims. The Cooperative Society had done this on no profit earning basis which is very commendable as no profit is involved. As the Government is contemplating to enlarge the scope of the compensation scheme from passengers to Third Party also, it would be adviseable to encourage this cooperative effort of the transporters. It is recommended that payment of compensation to all types of victims (whether passengers or pedestrians) should not be made a profit-earning business for insurance companies etc but should be treated as a Social Service on 'no profit' basis. Moreover, the procedure to settle claims should be made simple and easy. It should be obligatory for Claims Tribunal to give Awards and for the compensation agencies to settle them within a fixed period. The whole procedure should not take more than 3 months.

De-Nationalization:

For catering travel needs in urban areas the Government decided in early fiftees to take on its shoulders the burden of running Government Transport Service in certain cities with a 'no profit' motive. It endavoured to provide efficient transport system for the urban population. With the passing of years, the Government further decided to run its own buses on intercity routes as well. Uptil now many billions of rupees have been floated in this business. The stated objects of this huge venture have alwasy been:

(a) to provide better service to the public than the one provided by the Private Sector. Infact, a model for all.

(b) No earning of dividends.

Unfortunately, figures are not available for the total capital invested by the Government in the business during the last 30 years. Rough estimates place the figure between 4 to 5 billions of rupees. In the beginning, Government Transport Services were showing some profit but they began to deteriorate very soon and losses began to occur. The standards of service also could not be maintained. Inspite of continuous pumping in of new capital the Government Transport Services could not provide better facilities in competition with the Private Sector. For the past many years all the units in Sind, Punjab, Karachi and NWFP are running on heavy losses. An idea of the situation is revealed by the following charts:

(Rupees)

Units	Total Earnings	Total Expenses	Net Loss
	1 9 7 7		
PUTC	36,024,551	59,974,453	23,949,902
SRTC	59,000,000	128,055,000	68,660,000
KRTC	4,919,112	24,055,631	19,636,519
NWFP	48,361,724	67,223,345	18,961,621
Total Loss:			131,008,042

1 9 7 8

Units	Total Earnings	Total Expensss	Net Loss
PUTC	47,134,720	74,830,188	27,695,468
SRTC	37,023,000	52,920,000	15,690,000
KRTC	17,348,479	44,322,991	26,974,517
NWFP	55,557,746	69,871,865	14,314,119
Total Loss:			84,674,104

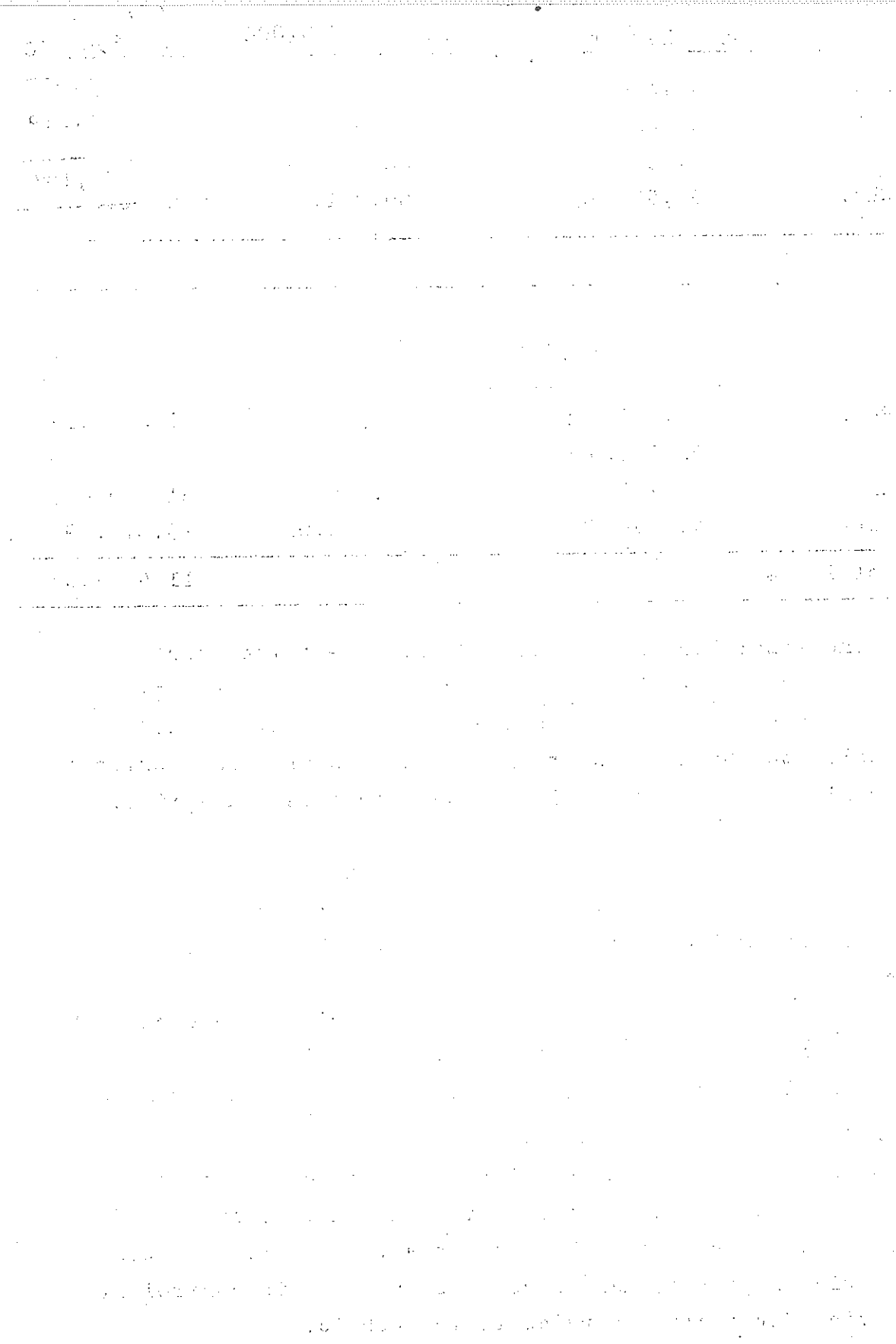
1 9 7 9

PUTC	49,867,815	80,307,327	30,439,512
SRTC	22,771,000	58,420,000	30,740,000
KRTC	19,206,255	50,320,438	31,119,683
NWFP	55,694,720	75,006,010	19,311,290
Total Loss:			111,580,485

The total loss in 4 units of Government Transport Services, in 3 years (1977 to 1979) is thus 32 Crores, 72 lacs, 62 thousands, 6 hundres and 31 rupees. This figure has been collected by NTRC experts. The figures of losses prior to this period of 25 years (1951 to 1976) must be staggering. Total losses in 1980 and 1981 can be estimated to be much higher than 32 crores of rupees. If we add the loss in the value of 2,005 vehicles in terms of market rates it would show that the Book value of these is now only one-tenth of the figures.

This state of affairs calls for a serious and cool thinking of the Government to denationalization of the Government Transport and save the country from this useless venture.

It is high time for the Government to decide to stop this adventure and to de-nationalize the whole system and place the whole responsibility on private sector. Of course, very strict measures shall have to be adopted to control it for giving first class service to the public.



R A I L W A Y S

by:

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OBJECTIVE:

The objective of this report is to broadly review the present position and the railway facilities and to examine the various alternatives for the Sixth Five Year Plan to enable the Pakistan Railway to play more vigorously its vital role as the life-line in the economic and industrial development and prosperity of Pakistan.

PRESENT POSITION:

The Pakistan Railway has a route length of 8,823 kilometers in three different gauges viz 7,766 KM of broad gauge (5' - 6"), 446 KM of metre gauge (3' - $3\frac{3}{8}$") and 611 KM of narrow gauge (2' - 6") covering all the four provinces of Pakistan.

Due to grossly inadequate allocation of development funds to the PR in the Third and Fourth Five Year Plans, it could not maintain some of the prescribed standards of operation, maintenance and rehabilitation of its plant, equipm nt and vital installations specially the locomotives, rolling stock, track and bridges. This resulted in a rapid deterioration of the PR's transport capacity and its overall operating efficiency and quality of service.

In order to remove the serious bottlenecks in the transportation system, a special Crash Development Programme amounting to Rs. 680 million, was approved in 1973. Under this programme, 68 D.E. Locomotives were acquired to meet the shortage of power. The single line track between Kotri and Hyderabad was doubled by constructing a new railway bridge over the river Indus, to remove a serious bottlenecks on the main line. A modern marshalling yard was provided at Pipri (now Bin Qasim) to expand the marshalling capacity to about 5,000 wagons a day. 300 wagons were converted to oil tankers

to meet the shortage for the transport of edible oils. Besides, various other miscellaneous line capacity works were also completed.

As a result of the additional investment in the PR, under the Crash Development Programme mentioned above, the growth in freight traffic accelerated to 7.3% in 1975-76 and 8.7% in 1976-77 against an increase of only 2.2% per annum earlier.

In the Fifth Five Year Plan (1978-83), the allocation to the PR was increased to Rs. 6,773 million to achieve an annual growth rate of 2.7% for passenger traffic and 5.0% for freight traffic. This was done under a deliberate policy action in the national interest to utilize the railway capacity to the full by improvements in the operational efficiency and other measures necessary to attract traffic which can be moved by rail, owing to the rising costs of imported fuel oils and the fact that the movement of freight by rail is far more economical than by road for medium to long distance traffic.

The PR gave a good performance in the transport of passengers during 1980-81 and achieved the Fifth Plan target of 2.7% ACGR. It carried 123.3 million passengers with a total of 16,311 million passenger KM. Its performance in the transport of freight during the year was, however, far below the expectation. After carrying the planned target freight of 9,097 MTR in 1975-76, it started declining gradually and in 1980-81 it carried only 7,936 MTR which was about 67% of the planned target (11.916 MTR).

During the financial year 1980-81, the total earnings of the PR amounted to Rs. 2,804 million. A major share of the revenues was earned from freight traffic, the passenger earnings forming 38.9% of the total revenues. During the same year, the total operating expenses of the PR including appropriation to the depreciation reserve fund, amounted to Rs. 2,826 million, resulting in a net deficit of Rs. 22 million.

Nearly 100 D.E. Locomotives remained out of service for various counts and a large number of D.E. Locomotives were running with 4 instead of 6 traction Motors, thus reducing the total available tractive force by over 30%. This was a serious problem and constituted a serious bottleneck in the freight movement on the railway. Besides, the passenger coaches and freight wagons continued to operate with the out-moded and less effective Vaccum Brake system and this also constituted a great handicap in the running of heavier passenger and freight trains and in raising their speeds, to increase the transport capacity of the PR.

The progress in the implementation of the approved track rehabilitation programme remained slow and short of the planned targets due to non-supply of imported rails, sleepers and other essential plant and equipment. As a result, a large number of speed restrictions on weak tracks and bridges continued to remain in force all over the railway. The raising of speeds of trains on the main lines and on some of the important branch lines also could not be achieved, as was envisaged in the approved plan.

The management arrangements of the PR as revised by the Government in 1973, lacked all the dynamism and did not work efficiently, as the Railway Ministry at Islamabad and the Railway Board functioning from Lahore, appeared to be working in parallel. The Railway Board lost its freedom in taking quick decisions required of the biggest National Transport Organization and in playing its rightful role as the highest Technical Authority on all railway matters. This was one of the major causes of the PR not being able to implement the Fifth Plan Programme successfully.

REVIEW OF SOME IMPORTANT PROJECTS COMPLETED:

a) NEW MARSHALLING YARD AT PIPRI (NOW BIN QASIM):

This modern marshalling yard provides facilities for handling about 5,000 freight wagons daily and will eminently meet the future freight transport needs for Greater Karachi even beyond the year 2000.

All down freight trains now terminate at Bin Qasim yard and after marshalling the wagons into block rakes for different destinations viz Pakistan Steel, Port Qasim, Karachi Port, SITE and other industrial and Commercial Centres in the Port area, these are then despatched in the form of shuttle trains running at lower speeds. Likewise, the loaded wagons from the Bin Qasim Yard by shuttle trains and after marshalling them into full train loads, are despatched to various stations up country.

The existing double line section between Karachi City and Bin Qasim Yard, is already saturated and the operation of the additional freight shuttle trains on this section, the running of light engines from Bin Qasim Yard to and from locomotive shed situated at Karachi Cantt and the increasing number of sub-urban and main-line passenger trains, will cause a serious bottlenecks on this section of the main line. In order to avoid such a crippling situation, it is imperative that all road level crossings between Bin Qasim Yard and Karachi City station are replaced by overhead bridges and/or subways and also that two additional main line tracks are provided on this section with a bridge over the river Malir. The provision of these facilities is very essential and inescapable and should be included in the Sixth Five Year Plan failnng which the advantages of the Bin Qasim Marshalling Yard cannot be fully achieved.

b) KARACHI TERMINAL STATION

The Railway Board, after careful consideration and study of the Master Plan for Greater Karachi, had decided in 1965, in consultation with the KDA and other interests concerned, to locate the future Central Railway Station for Greater Karachi on the Circular Railway line between the University Road level crossing and the railway bridge over the river Lyari.

Unfortunately after 1972, this ideal location for the Central Railway Station was abondoned and a greater part of the land reserved for this station, was disposed off by the KDA for the construction of residential flats.

A new scheme was later sanctioned by the Railway Board for providing a Karachi Terminal Station (KTS) close to the existing Karachi Cantt: station. Under this scheme, all upcountry passenger trains would start from and terminate at KTS. The work at site of this new station, was started some years back after clearing the area of the existing structures, etc. Foundation piling work for the multi storied station building was completed and new washing lines and train examiners offices, etc were completed. Further work on this scheme has been with-held since some time for want of funds.

The location of the KTS at Karachi Cantt, which is situated at one end of the city, does not appear to be a happy choice. It may cause untold hardship and difficulties particularly for the poor sections of the population of Greater Karachi from far flung areas, viz North Nazimabad, New Karachi, Orangi Township, University Areas, KDA scheme No. 33 and other developing townships and societies along the Super Highway, to reach the KTS conveniently and at reasonable cost by taxies etc and avail of the railway facilities there. The proposed closing down of the existing Karachi City terminal station for upcountry passenger trains, will also cause similar difficult problems for the residents of the old city, Kemari, Mauripur and Lyari areas, etc.

Already many private buses have started operating from the northern areas of Karachi along the Super Highway and Grand Trunk Road carrying passengers to Hyderabad, Sukkur, Multan, Lahore, Rawalpindi, Islamabad, Peshawar, Sawat, etc and their patronage is growing day by day. Unless, therefore, the Railway provides convenient entraining/detraining stations for this sprawling city, majority of this traffic might be permanently lost by the Railway. It is, therefore, desirable that the existing KTS Scheme at Karachi Cantt: be reviewed and revised to avoid the possibility of a crippling situation arising in the near future. A possible alternative to the present scheme is suggested as under:-

(i) The present site of the KTS, on which considerable expenditure has already been incurred, should be retained but the scope of work on this scheme, may be curtailed and the number of upcountry trains dealt with at this terminal may be such as may not cause a serious bottleneck in the road traffic to the station and inconvenience to the travelling public.

(ii) The existing Jillani station provided at the site of the originally contemplated Central Station for Greater Karachi on the Circular Railway for sub-urban traffic, should be upgraded into a regular full-fledged station and some of the upcountry passenger trains should be diverted from the mainline to this station. There is adequate land available on both sides of the railway line at this site for providing a suitable station building, additional tracks, passenger platforms, approach roads and other appropriate facilities and conveniences for entraining and detraining of passengers at this station.

Sufficient land is, however, not available here to make this a terminal station by providing washing lines and other service facilities for coaches and shunting locos, etc.

(iii) The upcountry down passenger trains, after

leaving Jillani statinn mentioned in sub-para (ii) above, should continue via Circular Railway and terminate at Karachi City Station. Some modifications in the yard and cutting of a short length of the old station building on the track side, will be needed for providing additional platforms and connected facilities for entraining and de-training passengers at this terminal station. The existing washing lines and other facilities for servicing coaches, etc, already available at this station, should be utilized for the purpose. The train engines would be homed at Karachi Cantt: locomotive shed as being done at present, for which a separate loco line already exists between Karachi City and Karachi Cantt: stations.

The three stations as per revised scheme outlined above namely:-

i) Karachi Terminal Station, at Karachi Cantt.,
ii) Jillani Station; and
iii) Karachi City Terminal Station,

would provide great convenience and facility to the people of Karachi to avail of the train services upcountry from stations of their choice and would also attract more passenger traffic yielding more income to the Railway.

The funds saved by curtailing the scope of the work at KTS could be utilized for providing the facilities at the Jillani Station and the Karachi City Terminal station.

It would be necessary to replace some very important and busy level crossings by overhead bridges/sub-ways and also to provide automatic signalling on the Circular Railway line.

The cost of the revised scheme may be worked out by the Railway and any additional funds, required may be provided in the Sixth Five Year Plan.

c) CONVERSION OF MARI INDUS-KALABAGH-BANNU SECTION FROM N.G. TO B.G.

This project was included in the Fifth Five Year Plan and was sanctioned with the approval of ECNEC. The work at site was started some years ago and considerable expenditure has since been incurred. Further work on the project has been withheld for want of funds and also, as I understand, for a review of the project.

The conversion of this N.G. Railway line was the pressing demand of the people of the region since very long. The N.G. line is totally outdated, the railway service is very unreliable as the steam locomotives used are very old and in a dillapidated condition and the tracks and some of the bridges are weak and, therefore, the trains operate on the section at very slow speeds. Fortunately, the major railway bridge over the river Indus near Kalabagh is already constructed for the B.G., and will only need the modification of the decking to replace the N.G. track with B.G. track.

The demand for the conversion of this line to the B.G. is still there and is justified. If this sanctioned project is delayed indefinately or is dropped at this stage, it would create a loss of creditability in the Railway Board and the Government of Pakistan and may also be greatly resisted by the people of the area.

As considerable expenditure on the project has already been incurred, it would be desirable to proceed with the sanctioned work and complete it during the Sixth Plan Period so as to provide the people of this region a respectable and reliable railway train service to which they are entitled.

d) RAISING OF SPEED OF MAIL AND EXPRESS TRAINS ON CERTAIN SECTIONS OF THE RAILWAY

A major policy decision was taken by the Railway in 1967 for upgrading the standard of tracks on certain main line

sections, reclassified as Primary A and certain branch line sections, reclassified as Primary B. The maximum permissible speed on Primary A sections was to be raised from 60 m.p.h. to 75 m.p.h. and that on Primary B sections from 45/50 m.p.h to 60 m.p.h.

The main line sections upgraded as Primary A were:-

i) Karachi-Rohri-Lahore-Lalamusa (Projected for completion by 1975)

ii) Rohri-Sibi (Projected for completion by 1980)

Amongst the branch lines upgraded as Primary B, the important ones are:-

i) Kotri-Dadu-Habibkot;

ii) Shershah-Kundian-Daudkhel; and

iii) Kundian-Sargodha-Chakjhumra-Sangla Hill-Shahdara.

Although substantial expenditure has been incurred on sanctioned projects and considerable mileages on these sections have been upgraded in accordance with the prescribed standards, it is regretted to note that in the past 15 years, not on a single section or a part of the section, the speeds of trains have been increased as projected. It appears that the renewal of tracks have been carried out at randum and not in a planned and continuous sections with the result that there are still many gaps left of old tracks which have yet to renewed before these sections can be upgraded and speeds on these sections raised.

It is imperative that the balance renewal work on these sections is properly planned and carried out urgently during the Sixth Plan Period so that the speeds of trains on these sections are increased without further delay and gainful advantage is reaped from the heavy investments already made.

CLASSIFICATION OF VARIOUS LINES OF THE RAILWAY SYSTEM:

Prior to independence, the various lines of the railway system were classified as Commercial Lines and Strategic Lines. The later were almost all unremurative. The accounts of the strategic lines were maintained separately and the losses incurred by the Railway on these lines, were subsidized by the Government.

After independence, the nomenclature of strategic lines was dropped and the maintenance of separate accounts for these lines was also given up. All lines of the Railway were treated as commercial lines. The losses incurred on the old strategic lines are not now separately relfected but are merged in the total revenues of the railway system.

For operational requirements, the railway network is now classified as (i) Federal lines (MOD lines); (ii)Provincial lines; and (iii) Other lines. All N.G., M.G. and unremunerative lines fall under category (iii). Lines falling under categories (i) and (ii) are essential and have to be kept operational at all cost and at all times in the national interest even if these do not yield adequate return. For the railway lines falling under category (iii), separate accounts should now be maintained. Such of these lines as are remunerative should continue to be operated by the Railway as hither-to. The remaining lines may be offered to the private sector for operation on trial for some years, on terms and conditions to be mutually agreed upon. It is considered that the private sector would be in a better position to capture more passenger and freight traffic by providing greater incentives and by quoting lower tarrif, to compete with the road transport.

If the private sector declines the offer, the Government should be called upon to subsidize the losses incurred by the Railway nn these lines. Alternatively, the Government should agree to these lines or portions thereof being closed or dismanteled to avoid the heavy losses being incurree by the Railway continuously.

SERIOUS BOTTLENECKS ON THE RAILWAY:

The following sections constitute serious bottlenecks on the Railway:-

1. Sibi-Quetta;
2. Lalamusa-Chaklala; and
3. Kotri-Dadu (Baghotra Pass between Laki Shah Sadar and Sehwan stations).

(1) SIBI-QUETTA SECTION

This is a very difficult mountain section with very heavy grades and sharp curves. Heavy load shedding is resorted to in the case of freight trains first at Sibi and then at Abi-gum stations. At Sibi, the normal freight train load is broken up in 3 or 4 smaller train units for haulage up to Abi-gum, where each train unit is again broken up in 2 smaller train units for haulage to Mach and onward to Kolpur station. Besides each such train unit is banked by one locomotive at Abi-gum and by two locomotives at Mach.

All passenger trains, both up and down, have also to be reversed at Mach to reach the passenger platform which is located along a dead end siding owing to heavy grades in the yard layout.

The sectional capacity on the Bolan section is thus very small and this is also the most expensive section to operate on the Railway.

There are no tunnels, deep mountain cuttings, rivers, deep nullahs or ravines between Abi-gum and Mach stations and it appears feasible to realign and regrade the line between these stations to provide the same ruling grade as between Sibi and Abi-gum viz 1 to 55 at reasonable cost. This re-alignment will avoid the load shedding of freight trains and also eliminate the catch siding at Abi-gum station. The banking of all trains from Abi-gum to Mach will also be eliminated.

It also appears feasible to regrade and realign a

portion of Mach station yard and its Abi-gum end by cutting away a hillock which is obstructing this realignment. This hillock is of soft material which would not entail serious difficulty in removal. After this realignment work is done, it would be possible to provide the passenger platforms along the running lines. This would eliminate the reversing of all passenger trains at this station permanently.

The above improvements would cut down the running time of trains between Abi-gum and Mach considerably, increase the sectional capacity and reduce the working expenses. It is recommended that this project should be included in the Sixth Five Year Plan.

It is also recommended that the entire section from Sibi to Quetta should be Electrified as and when WAPDA is in a position to provide un-interrupted electric power for train operations on this section. With more powerful electric locomotives, it would be possible to haul heavier loads and avoid the load shedding at Mach also. The freight trains can then be worked from Sibi to Quetta and vice-versa without breaking them up en-route. The sectional capacity will greatly increase, the speeds of passenger and freight trains will be increased and thereby a more efficient, speedier and reliable rail service will be provided for the development and prosperity of Baluchistan.

(2) LALAMUSA-CHAKLALA SECTION:

Lalamusa-Rawalpindi section is also a difficult mountain section with heavy grades and sharp curves. Load shedding is resorted to in in the case of freight trains at Lalamusa station where the normall freight train load is broken up in 2 or 3 smaller train units, for haulage upto Chaklala. Passenger trains of shorter length and loads are operated on this section.

The Railway is, therefore, not able to carry all the freight and passenger traffic offered on this single line section. It is necessary that this section would be regraded and realigned in certain portions to ease the grades and ease the curves so that full freight trains are worked through to Chaklala without breaking the train in smaller units at Lalamusa. This improvement work is feasible at reasonable cost and should be carried out in the Sixth Five Year Plan. This will increase the operational capacity of the section which should enable the traffic offering being cleared without any serious hold up.

It is also necessary that this section should be electrified as soon as it becomes possible for WAPDA to supply uninterrupted power for operation of electric trains.

(3) KOTRI-DADU SECTION:

(Baghotra Pass between Laki Shah Sadar and Sehwan Stations)

The railway line between Laki Shah Sadar and Sehwan stations on Kotri-Dadu section cuts across the tail end of the Baghotra mountain range on the right bank of the river Indus, and has heavy grades and sharp curves. Because of this short length of mountain section of about 18 KM only, the loads and lengths of all passenger and freight trains on the entire section between Kotri and Habib-Kot junction are restricted and constitutes a serious bottleneck. In view of the rapid growth of freight traffic from Karachi to Quetta and Iran and vice-versa, it has become necessary to realign and regrade this short length to ease the heavy grades and sharp curves which will make it possible to increase the operational capacity and speeds of trains on this section. All the freight traffic to Quetta and Iran can then be carried along this shorter route and thereby release pressure on Karachi-Rohri main line and the conjestion that is invariably caused at Rohri and Sukkur stations.

CONSTRUCTION OF A B.G. RAILWAY LINE FROM KARACHI TO QUETTA VIA LASBELLA, WADH, KHUZDAR, KALAT AND MASTUNG

It is proposed that the present Government may favourably consider taking up the most pioneering enterprise for the development of the interior of Baluchistan and ushering in a new era of prosperity in this Province by constructing a B.G. railway line from Karachi to Quetta via Lasbella, Wadh, Khuzdar, Kalat and Mastung. Mastung is a railway station on Quetta-Spezand-Nokundi B.G. railway line.

It may be mentioned that detailed surveys were carried out immediately after the Second World War for constructing a B.G. railway line from Karachi to Quetta via two alternative routes viz:

(i) Karachi, Lasbella, Wadh, Khuzdar, Kalat and Balleli.

(ii) Malir Cantt, Bund Murad Khan, Dureji, Saruna, Khuzdar, Kalat and Mastung.

The above detailed surveys were carried out by the Railway in 1946/47 under orders of the Federal Government, on strategic considerations. The survey reports were completed and are available with the Railway Administration. The Project, was, however, shelved after independence.

The surveys showed that a B.G. railway line with easier grades upto 1 in 100, lesser number tunnels and easier curves than on the Bolan section, can be constructed on either of the above two alignments, reducing the railway mileage between Karachi and Quetta by about 125 miles and considerably reducing the running time between these stations.

In view of the great potential and bright prospects for the rapid developments in Baluchistan, it would be necessary to construct a direct B.G. railway line between Karachi and Quetta.

It is, therefore, proposed that a fresh engineering and traffic survey should be carried out for a direct B.G. railway

line from Karachi to Quetta on either of the two alignments previously surveyed and a feasibility report prepared for the construction of the proposed railway line during the Sixth Plan Period.

WORKING OF ONE PASSENGER EXPRESS TRAIN BETWEEN KARACHI AND LAHORE BY PRIVATE SECTOR ON TRAIL:

With a view to vitallising the railway passenger services and creating some element of competition, it is proposed that the working of one passenger express train service between Karachi and Lahore may be offered to the private sector on trail for the Sixth Plan Period. The Railway should own the right of way, the tracks, signalling, locomotives, rolling stock and operate the trains and undertake other related technical functions but the commercial business of the Railway such as booking of passenger, reservations, seating of passengers, checking enroute, booking of luggage and parcels, catering services on the trains, be undertaken by the private sector.

Bids may invited by the Railway from pre-qualified organizations after specifying detailed terms and conditions and the draft Agreement. The selected organization may be given an agreed percentage of the net earnings from this train service.

PAKISTAN RAILWAY MANAGEMENT:

The Railway Board constituted by the Government of Pakistan in 1960, with its Chairman as the Ex-Officio Secretary Ministry of Railways, was the most successful arrangement for managing the Pakistan Railway. During the first 10 year period, the Railway was considerably revitalized and developed into an efficient and effective national transport organizatinn. It adopted a forward-looking policy for economic development of Pakistan.

The above management arrangement was, however, revised by the Government in 1973. A separate Ministry of Railway was created at Islamabad headed by a non-professional Secretary and the Chairman, Rawailway Board and his organization were left at Lahore to manage the Railway. The management arrangements of the PR, as revised and brought about by the Government in 1973 appeared to lack all the dynamism and did not seem to be working efficiently as the Railway Ministry and the Railway Board appeared to be working in parallel. The Railway Board lost its freedom in taking quick decisions and also its rightful role as the highest technical authority on railway matters. This was one of the major causes of the PR's failure to implement the Fifth Plan Programme successfully.

The remedy lay in shifting the Pakistan Railway Board to Islamabad and restoring in its Chairman the same status and authority as was given to it in 1960 and also to make it fully responsible and accountable for the efficient management, revitalization and development of Pakistan Railway.

It is heartening to note that action as suggested above has since been taken by the Government and also that a General Manager has been appointed at Lahore and make responsible for the day to day working of the Railway, maintenance and re-habilitation.

NATIONAL LOGISTICS CELL

National Logistics Cell was created in 1978, to combat the emergency situation arising out of the serious congestion at Karachi Port. It has since expanded its activity and has taken up transportation of public freight traffic on the main highways on the country from North to South on a regular basis, thus depriving the Railway of a sizeable portion of its legitimate freight traffic. The NLC is a Federal Government Organization and should not be used as a competitor for the Pakistan Railway, which has been built up over a century at very heavy capital outlay. The NLC should be utilized to

combat emergent situations arising out of the congestions where the freight traffic offering becomes beyond the full carrying capacity of the Railway due to bunching of ships at the Ports or other unfor seen circumstances.

The Railway has been meeting the Defence requirements in carrying the defence stores and materials in peace and war at very low rates which are far below the operating costs of the Railway and has been undergoing heavy losses on this account. Now that the NLC has established itself almost permanently as a transporter of freight, it should relieve the Railway from the burden of transportation of defence materials and stores which should now be carried by the NLC. However, such of the defence materials and stores as cannot be handled by the NLC, would continue to be transported by the Railway. The railway carrying capacity so released should be utilized in meeting the general public freight transport requirements.

TRANSPORT OF CONTAINER TRAFFIC

A rapid development has taken place in the transport of cargo by international shipping by containers. To meet with this new trend in the transpont of freight traffic, the PR has provided special Container Trains with modern bogie flats to carry this traffic and the speeds of these freight trains are also being increased with the provision of air brakes on freight wagons. The PR should be allocated to carry all container traffic between the Karachi Ports and the Lahore Dry Port. The PR has the ability, capacity and experience to handle this traffic. The Lahore Dry Port has recently been expanded to provide a Container Yard with modern terminal handling facilities. The Railway is also planning to provide another Container Handling Terminal at Kacha-Kot railway station between Lahore Cantt and Raiwand mainline, which will be equipped with modern terminal facilities for handling this traffic. Container traffic is also already being handled by the Railway from Peshawar to the Lahore Dry Port. The PR should also be allocated to carry

all container traffic between the Karachi Ports and the Dry Port to be established at Peshawar.

The Railway is in a position to run one Container Express Train daily each way between Lahore Dry Port and Karachi Port. This service can be expanded as required with the increase in traffic.

MODERNIZATION OF LOCOMOTIVES AND ROLLING STOCK ON THE RAILWAY:

The steam locomotives of the PR on the Broad-gauge, Meter-gauge and the Narrow-gauge, are now very old and in a dillapidated condition, having served for beyond their prescribed service life. They invariably fail on the road do not provide reliable service to the people. Many situations have been created, quite often, where the outraged travellers have manhandled the railway drivers, guards and the station staff for the gross inefficiency. Even the railway staff are now sick of these locomotives and would like to avoid working on these. All these steam locomotives should, therefore, now be replaced with Diesel Locomotives during the Sixth Plan period. Those which can be satisfactorily rehabilitated, may be kept in reserve for use in emergencies and for shunting purposes.

The wooden passenger coaches still working on the B.G., M.G. and N.G. are in a dillapidated condition and should be replaced with steel coaches manufactured in our coach factory at Islamabad.

All passenger coaches should be provided with air brakes to enable more coaches being attached to a passenger train and also to increase their speeds to meet the pressing traffic demand.

The 4-wheeled freight wagons should gradually be replaced with bogie freight wagons and these should also be provided with air-brake system to enable the freight trains to be hauled at increased speeds for increasing the handling capacity of the P.R.

RAILWAY CATERING AGENCY:

The catering services on the Railway in dinning cars as well as in the refreshment rooms at stations and through vendors, have, unfortunately deteriorated and it is difficult to obtain whole-some food when travelling on the Railway. It is suggested that the Railway should organize a Railway Catering Agency, any autonomous body under the Railway Board. This agency should own and operate all dinning car services, hotels, restaurants, refreshment rooms and vending at the Railway Stations. Private vending onside the railway platforms should be banned. This will also remove congestion on the platforms and provide great convenience and facility to the passengers in entraining and detraining.

USE OF SUI-GAS IN RAILWAY DIESEL LOCOMOTIVES:

In view of the heavy increase in the cost of imported fuel oils used in diesel locomotives on the Railway and the availability of indegious Sui Gas, it appears desirable that the latter viz: the Sui Gas should be used in Diesel Locomotives employed on trial, to start with, on shunting operations at stations where Sui-Gas is easily available. This will reduce the cost of diesel oil fuel on the railway operations, curtail foreign exchange in the import of diesel oil and also release a large number of tank wagons carrying railway oil, which could be put in use for transport of commercial oil traffic.

The feasibility studies on the use of Sui Gas in Diesel Locomotives on the PR were prepared years ago and they are available with the Railway.

COORDINATION BETWEEN VARIOUS MODES OF TRANSPORT:

The Pakistan Railways no longer enjoys the monopolistic position it had about 30 years ago and in the changing competitive situation, it must take urgent steps for the improvement of its performance at all levels.

To avoid cut throat competition between the PR, NLC and Highways and other Government Transport, it is now extremely essential that there is better coordination among these agencies in the planning, investment, operation, freight allocations and pricing policies in the interest of the economic development and prosperity of Pakistan in a more effective and positive manner. It is suggested that a Federal Transport Commission may be created for this overall coordination among all the Transport Agencies in the country. Alternatively, a separate Ministry of Transport may be created.

CIVIL AVIATION

by:

SADAQAT HASAN MIR
SENIOR CHIEF
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Review of Civil Aviation Development

Development investment in Civil Aviation had been at quite a low level in the pre-Fifth Plan period, as compared to the large PIA investments for expansion of their fleet. This has resulted in a large gap between the need and the capacity of infrastructure at various airports leading to inefficient operations, inconvenience and discomfort to the passengers. The low investments emerged from lack of appreciation of the situation and weaknesses in the planning process.

The position, however, improved during the Fifth Plan period when an investment of Rs. 1,045 million was made.

Traffic Forecasts

The passenger traffic (numbers), increased at annual compound growth rate of 20.0 per cent between 1973-81 on the national basis i.e. both for domestic and international operations. The rate of growth for domestic and international traffic had been 16% and 25%, respectively.

The cargo traffic witnessed a growth rate of 18.88 per cent during 1973-81. Following table indicates the break-up for the major airports, for domestic and international cargo traffic:-

	1981 Thousand Tonnes		
	Domestic	International	Total
Karachi	15.0	50.4	65.40
Rawalpindi	6.72	10.1	16.82
Lahore	7.81	2.6	10.41
Sub - Total :	29.58	63.1	32.63
Total including other airports:	31.2	63.8	95.0

For the future forecast, though the international passenger traffic has been estimated by IATA to grow at 3 per cent and for the Middle East, Far East regions traffic at 7 per cent, a growth rate of 7.1% for international and 10.0% for domestic traffic as recommended by JICA NTP Study has been considered to be more realistic. The growth rate and estimated traffic for various major airports is given below:

	Million Passengers				
	1980-81	1987-88	ACGR %	1999-2000	ACGR%
Karachi					
Domestic	1.30	2.4	9.2%	4.0	4.4%
International	2.2	3.4	6.4%	5.9	4.7%
Total	3.50	5.8	7.5%	9.9	4.6%
Islamabad					
Domestic	0.7	1.20	8.0%	2.00	4.4%
International	0.2	0.4	10.4%	0.6	3.5%
Total	0.9	1.60	8.6%	2.60	4.2%
Lahore					
Domestic	0.8	1.5	9.5%	2.4	4.0%
International	0.05	0.1	10.4%	0.2	6.0%
Total	0.85	1.6	9.5%	2.6	4.1%
Faisalabad					
Domestic	0.05	0.1	10.4%	0.2	6.0%
International	-	-	-	-	-
Total	0.5	0.1	10.4%	0.2	6.0%
Multan					
Domestic	0.11	0.2	10.5%	0.4	6.0%
International	-	-	-	-	-
Total	0.11	0.2	10.5%	0.4	6.0%
Peshawar					
Domestic	0.2	0.3	6.0%	0.6	6.0%
International	0.007	0.02	16.2%	0.03	3.5%
Total:	0.207	0.32	6.5%	0.63	5.8%

	Million Passengers				
	1980-81	1987-88	ACGR%	1999-2000	ACGR%
Quetta					
Domestic	0.12	0.2	7.6%	0.4	6.0%
International	-	-	-	-	-
Total	0.12	0.2	7.6%	0.4	6.0%

Considering the 1981 traffic and existing capacity at various terminals there is an immediate need of expansion of terminal capacities as well as the air side expansion, namely, aprons, taxi ways, and other structures. The terminal capacity at the three major airports is about 40-50% of the present requirement.

Similarly in case of cargo while the cargo terminal capacity at Karachi, Lahore and Islamabad was being developed, it would meet only short term requirements and there was a need for long term planning on the basis of the following forecasts (NPT-JICA):

	1983-88	1988-2000
Domestic	6.5%	4.4%

Cargo terminal facilities development is also considered to be necessary at Peshawar, Multan and Faisalabad to meet the air cargo traffic demand efficiently.

Policy on Jointly Used Airports:

For the Sixth Plan integrated planning purposes in respect of aviation development on airports under joint use of Pakistan Air Force and the Civil Aviation Department, a Working Group was formed to recommend on future policies for civil aviation development, integrated with Pakistan Air Force Development Plans for Lahore, Islamabad, Peshawar and Quetta. The consensus of the Group on various points has been given below:

i) In case of emergency the Civil Aviation installations and facilities are immediately placed at the disposal of the Air Force. Moreover, in view of the fact, that

the PAF policy does not require shifting of any Civil Aviation operations in foreseable future, they would continue as at present at the Jointly Used Airports.For the purpose of long term planning, the Department of Civil Aviation will prepare an index map showing the proposed allocation of new sites in respect of future developments for jointly used airports;

ii) A permanent group of coordination will be set up with representatives of PAF, Joint Staff Headquarter, Department of Civil Aviation, Aviation Division and Planning Division to sort out controversial issues and to develop a coordination and integrated policy and strategies for the VIth Plan;

iii) Integration of Civil and Military aviation communication system and navaids such as Radar system, survelliance system, Navigational Aids, Joint ATS System etc should be one of the immediate and future objectives;

iv) For any additional length of runways over 6,000 feet and other installations specially required by the PAF, the budgetary provisions will be made by the Pakistan Air Force;

v) It was noted by the Working Group that in case of Lahore, for any future development plan of the PAF a new site could be located by them around Lahore if necessary. For other airports there was no immediate requirement of dislocating the Civil Aviation operations in the near future.

Strategy for Future Development:

The policy and strategy in the Fifth Plan should be provided for development of the following :-

(i) Consolidation of existing infrastructure with expansion of capacity wherever absolutely necessary.

(ii) According top priority to passenger safety and operation by providing aviation communication and navigation gaps;

(iii) To provide ground safety measures covering fire fighting and rescue service;

(iv) No new airport will be built except at Khuzdar, Turbat, Sibi and Panjgur in Baluchistan where operation has become risky and urgent improvement is required by way of black topping the runways;

(v) To develop interim terminal facilities at Lahore where congestion has already reached a critical stage;

(vi) Construction of new International Air Terminal at Karachi which is fully warranted will be undertaken as a commercial project, as also the new air terminals at Lahore and Islamabad;

(vii) To expand training and engineering facilities and institute research in the field of civil aviation in the country.

In view of the fact that since the projects according to the above mentioned policy were still in progress, it was considered essential to continue with this programme till its completion.

However, it was felt that the implementation of the proposed strategy for the Sixth Plan, should be based on three stage programme:

(a) Immediate
(b) Short term; and
(c) Long term

To catch up the back log in this sub-sector, the immediate programme would aim at meeting the critical requirements at various airports required to be met urgently. The following specific programme for each phase has been identified:

(a) IMMEDIATE

(i) Interim expansion of terminal facilities at Karachi, Lahore and Islamabad Airports;

(ii) Provision of parallel runway at Lahore airport and strengthening of the existing runway to LCN 85;

(iii) Strengthening of runway at Faisalabad;

(iv) Improvement in essential services such as water supply, electrification, etc.

(b) SHORT TERM

(i) Development of 3 major airports viz: Karachi, Lahore and Islamabad;

(ii) Augmentation/Improvement of Radio and Navigational Aids, and its integration with Airforce system.

(c) LONG TERM

(i) Long term capacity augmentation of cargo terminal facilities at Karachi, Lahore, Islamabad and Peshawar and new facilities at Multan, Faisalabad and Quetta;

(ii) Studies of shifting of Airports to new sites.

The cargo handling also required:-

(a) Close coordination between the PIA and Customs department by their presence round the clock at the airports will be maintained so that cargo deplaned after evening are not left unattended due to non-compliance of the formalities for which the presence of the two is needed;

(b) The custom ware houses for unclaimed cargo need to be located in the airport area in the close vicinity of the cargo.

Financial Requirement of Sixth Plan:

According to the policy and strategy for VIth Plan outlined in para 8-12, the total financial requirements works out to be about Rs. 4 billion.

Financing Pattern:

As mentioned earlier low investment levels for aviation development in the last 15 years were due to, among other factors, financial constraints. The Civil Aviation Authority has been recently established to provide better management for civil aviation activities and also provide self financing for the development programmes. Following financing pattern has been proposed:-

(i) Public sector allocation as Government equity.	... 1,000 million
(ii) Civil Aviation Authority's own revenue surplus.	... 1,500 "
(iii) Commercial borrowing	... 1,500 "
Total :	... 4,000 million

The induction of private sector will be a major shift in development investment policies and this investment can be effectively utilised in development of new air terminals at Karachi, Lahore and Islamabad as joint commercial ventures.

Problems and Issues:

The main problems faced in the Civil Aviation Sub-sector could be enumerated as under:-

(i) Resource Constraints ,

(ii) Organizational;

(iii) Operational;

(iv) Implementation Capacity.

Resource Constraints:

The main reason for the existing inadequacy has been the meagre resources made available for the sub-sector. In order to develop the facilities at proper footing both for immediate and short-term development, a quantum increase in the resource allocation was indicated. This will be remedial by the financing pattern mentioned in para 14.

Organizational:

The Civil Aviation Department has not been able to play its role effectively and efficiently because of existing rules and procedures. It has also been handicapped by shortage of staff both at the Direction and managerial level. The existing salary structure does not attract really qualified people. Though a Civil Aviation Authority has been constituted but its effectiveness cannot be ensured unless trained qualified professionals are paid at appropriate pay scales.

Operational:

The Civil Aviation Department is at the moment facing an acute shortage of personnel in traffic control and communications fields also. This involves potential risks for aviation operations. Here again though retired Air Force technical personnel could be engaged as the stop gap arrangement, need for a continuous inflow and training cannot be over emphasised.

Implementation Capacity:

The role of Airport Development Agency (ADA): In the past three four years, the performance of Airport Development Agencyy has not been quite satisfactory as they were not able to utilize the funds made available to them. ADA should be entrusted with the

work of pavements, while consultants and contractors could be engaged for other works. It is also felt that only the development projects be entrusted to the ADA and that organizational improvement of the ADA was needed so as to improve their capabilities in the fields of planning, designing and execution of Projects.

Air Service:

PIA Performance:

PIA passenger traffic witnessed a rapid growth eversince its inception. Between 1972-73 (after delinking of East Pakistan and 1980-81 the total system traffic grew at a rate of 20.5% with the following break-up:-

	IN RPK
International	21.5%
Domestic	17.8%
Total system	20.5%

In terms of RPK the share of domestic and international traffic of PIA is indicated below:-

	RPK Million	
	1972-73	1980-81
Domestic Traffic	325	1205
International Traffic	1036	4835

Traffic Trend:

The PIA has been rather fortunate to witness this international traffic growth of 21.5% between 1972-73 and 1980-81 because of the Pakistan overseas workers traffic to and from Middle East, Gulf and UK when compared with global international traffic growth rate of 8% during this period. In case of domestic operations the growth of 17.8% during these years has

also been because of the influence of traffic between Pakistan and Gulf, Middle East, UK and the continent and also the domestic demand for air travel. But even this high growth rate in domestic service does not indicate the true demand as the traffic carried was related to the capacity available with the PIA for domestic service on certain routes.

Forecast:

The international global estimates worked out by IATA now stands at 3 per cent for the next five years. For the Middle East region and the Far East, the growth rate has, however, been estimated at 7%. For international and domestic service, the growth rates have been estimated by various agencies as given below:-

	1981-85	1985-90	1990-95
IATA			
International	9½%	7½%	5½%
Domestic	10%	9%	8%

	1982-83	1988-2000
JICA		
International	7.1%	4.7%
Domestic	7.8%	4.9%

Against these estimates the PIA has adopted the following growth rates relating them to capacity constraints:

	1982-86
International	0.68%
Domestic	5.95%
System	1.83%

These forecasts have been worked out on the basis of fleet planning proposed by PIA during 1982-86 and cannot be

taken as realistic as they do not depict the true situation.

PIA Planning Strategy:

The reason for the low carrying capacity during 1982-86 is mainly the difficult financial situation faced by the PIA and their inability to induct new aircrafts for want of finances. PIA's policy for the next four to five years is outlined below:

(i) Further consolidation of the route network and traffic during the first half of the plan period;

(ii) Moderate growth during the second half of the plan period;

(iii) Induction of the Twin Jet Aircraft and expansion of the A 300 - B4 Aircraft fleet;

(iv) Completion of the phasing out of the Boeing 707 and Boeing 720 B Aircraft;

(v) Continuous emphasis on cost control, improvement in yield higher utilization of fleet and load factors during the Sixth Plan;

(vi) Improvement in liquidity position to generate funds for financing purchase of new aircraft.

Gap Between Capacity and Demand:

Table I, indicates the traffic forecasts upto 1989-90, and the gap between IATA forecasts and the PIA capacity related forecasts. It may be seen that for international traffic the gap will increase from 13.90% in 1981-82 and to 86.4% in 1990, in do-nothing case. Similarly in case of domestic operations the gap between IATA forecasts and the PIA forecasts will result in a gap of 4.9% in 1981-82 increasing to 33.7% in 1990.

Proposal for Second Airline:

The gap between demand and capacity in case of domestic operations would progressively increase from 4.9% in 1981-82 to 33.7% in 1990 and there is ample justification to introduce additional capacity either by private sector airline or by PIA itself. For the PIA it seems rather difficult however not to procure new aircraft due to not a very good financial situation.

As far as the international operations are concerned the bilateral agreement between the airlines and the concerned governments with the Government of Pakistan require a detailed study by the concerned authorities before any view could be given for allowing a second company to operate internationally from Pakistan.

In order to ensure that the second airline will not operate at the cost of PIA's domestic routes the introduction of a new airline in private sector shall be subject to the following:-

(a) The company as a private sector enterprise will operate on the domestic routes in the first instance;

(b) The routes for domestic operations shall be determined in such a manner that these are not on the account of PIA;

(c) There is no unhealthy competition between PIA and the proposed private airline; and

(d) For the international operations the prospects for introducing a private airline shall be considered after it has been examined in details by the Director General Civil Aviation and PIAC in the light of implications of the bilateral agreements between foreign airlines and the Governments.

Alternative to Augment
Capacity by Lease/Hire/Purchase:

31. Before any decision on the proposal to introduce a second airline in the private sector could be taken, an other option to cope with this gap for expansion of capacity by PIA itself through hiring or lease also requires a proper consideration.

32. PIA have been leasing in/leasing out aircraft in the past in accordance with the traffic demands. In fact, two of Boeing 747s purchased by the PIA were first obtained on lease and were subsequently purchased by them by exercising their purchase option. Leasing is a normal course to bridge the gap in the demand and capacity and can be used as a stop gap arrangement. This will have the following advantages:-

(a) No capital investment will be required;

(b) The present employees can give better productivity and turn over thereby reducing the overheads of PIA;

(c) There will be an experienced organization and staff available for such extension;

(d) The fleet can be added or reduced according to demand;

(e) When the financial situation improves the PIA can acquire the aircraft;

(f) As internationally operating airline, PIA will not face any difficulty in securing rights under international bilateral agreements.

Feeder Air Service 1/C
Helicopter Service in Azad Kashmir:

33. One of the major objectives of transport is the national integration by providing communication to isolated area of the country by means of air transport.

Domestic routes for the existing air service provided by PIA are oriented mainly in the North-South direction connecting the major towns situated on these routes. Many of the important towns with considerable commercial and industrial activities or having tourist attraction or which are isolated because of absence of roads, or railway are not served. This situation can be alleviated by providing feeder air service.

Feeder Air Services are being operated in almost all the countries either on regular schedules or on charter. The main objective of these services is to connect places with main airports so as to provide connections to trunk and international air routes. The type of aircraft generally used for such a service is essentially a short take off and landing plane requiring minimum of infra-structure. The capacity tanges between 15 to 20 passengers. The service usually is of the type of bush operation without steward or hostess and the frills provided on main routes to cut down over heads. All operations are handled by the pilot himself. The tickets are issued at the time of boarding. The services are operated usually to link 2 points where travel by surface transport takes more than two hours time.

The feeder Service also serves as a collector and can feed traffic to main air routes and disperse traffic from trunk routes. Links can be designed to fulfil this purpose, from industrial and commercial centres and with places which could serve as pickup points for emigrants movements particularly in the NWFP, Punjab and Azad Kashmir, Following links have been and could be considered as preliminary selection:-

Rawalpindi-Mangla(Mirpur Azad Kashmir)-
Sialkot-Gujranwala-Lahore

Sialkot-Faisalabad-Sargodha

Lahore-Faisalabad-Mianwali-Rawalpindi

Rawalpindi-DG Khan-Sibi-Quetta.

Lahore-Sahiwal-Multan-Rahim Yar Khan.

Hyderabad-Sukkur-Mirpur Khas-Dadu-Jaccobabad-Sukkur

Peshawar-Kohat-Bannu-DI Khan-Wana.

Helicopter Service between Azad Kashmir and Rawalpindi.

The final selection of routes/links, frequencies and timing will, however, depend upon a detailed market survey, main routes schedules and the infra-structure facilities. The type of aircraft also plays an important role to attract passengers.

PIA is carrying out a detailed market survey for potential points through out the country. The market survey aims at the traffic forecast and its inputs are, population, regional income, distance between two points, fare differential between air, and other modes of transport, and the time differential export/import, emigration.

The Department of Civial Aviation being a regulatory authority, controls all civil aviation operations. For safety of operations they have to approve the aircraft type and set minimum standards./ The Civil Aviation Department, however, encourage operations from points where no new infra-structure would be necessary. The service would be on the pattern of bush operations as done in other countries requiring a short runway with any surface, without a control tower and the aircraft operating on VHF system. A detailed examination of each site will be required to be carried out by DGCA to decide whether they are fit for Feeder Services or not and to determine the extent of capital investment for this purpose. Other important aspect is the distance between such air strips and the town centre. Any air strip which is at more than 5 miles distance will not be attractive for the Feeder Services. Short haul air travel will not attract passengers if the travel time by surface means between

/ The operations would be obliged to maintain these standards.

2 points is less than 2 to 2½ hours in conditions prevailing in Pakistan. Considering two examples of Lahore-Faisalabad and Lahore-Sialkot, a time comparison chart for travel by car and by air has been given at Annex-I. The air travel, therefore, would be more attractive where road travel time is more than 2½ hours.

Conclusion & Recommendations:

Gap Between Demand and Capacity of PIA:

Adopting VIth Plan period annual growth rate of 7% for international traffic 10% for domestic traffic, there will be considerable gap between the demand and PIA's projected capacity during the VIth Plan period. This gap can be filled either by introducing the second airline for domestic service only or by leasing or hiring of aircraft by PIA itself. The 2nd alternative is considered to be more advantageous as explained in para 31 and 32.

PIA's Strategy for VIth Plan:

The strategy proposed for VIth Plan by the PIA as indicated in para 26 is a practical approach and should be followed.

Feeder Service:

There is a justification for Feeder Service is including helicopter service in Azad Kashmir. It should be operated by private sector after clearance by the Director-General, Civil Aviation.

A detailed market survey should, however, be carried out by the private sector entrepreneur interested in this service.

(MILLION)

TABLE - I

	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
INTERNATIONAL										
IATA	4835	5294	5797	6348	6951	7472	8032	8634	9282	9978
PIA	4835	4649	4607	4800	4951	5002	5080	5192	5272	5353
GAP (RPK)	-	645	1190	1548	2000	2470	2952	3442	4010	2625
GAP (%)	-	13.90	25.8	32.3	40.4	49.4	58.11	66.3	76.00	86.4
DOMESTIC										
IATA	1205	1325	1458	1604	1764	1923	2096	2285	2491	2715
PIA	1205	1263	1401	1487	1527	1610	1706	1808	1916	2030
GAP (RPK)	-	62	57	117	237	313	390	477	575	685
GAP (%)	-	4.9	4.06	7.87	15.5	19.4	22.9	26.4	30.00	33.70

ANNEXURE - I

Routes	Distance	Time by Car/Road	Time by Air
Lahore-Islamabad	140 KM	2 Hours	Town to Air Terminal ... 15 minutes Boarding ... 15 " Air travel ... 30 " Disemboarding ... 10 " Air terminal to town .. 15 " 1 Hour 25 minutes
Lahore-Sialkot	120 KM	2 Hours	

Extra Transport arrangement ...
i) Town of origin to Air Terminal
ii) Air terminal to Town of destination
iii) in Town for business, etc.

P O R T S

by:

COMMODORE MAHMUD-UL-HASAN,
P. N . (RETD)

AIM

The aim of this report is to review the present port facilities in Pakistan and to examine the various alternatives for their development or for increasing their efficiency.

PRESENT POSITIONS

The existing port facilities are located either in the Port of Karachi or in Port Mohammad Bin Qasim. Both ports have plenty of scope for expansion.

As regards the possibility of a third major seaport, a number of surveys were carried out in the past twenty years to locate a suitable site for this purpose. It has been established that whilst there are plenty of sites where fish harbours can be constructed, there is only one site where it may be possible to establish a seaport. This site is the large lagoon at Somiani in Baluchistan. Another site where deep water is available close to the foreshore is at Gadiani, also in Baluchistan, but this location has emerged as the hub of an extensive shipbreaking industry and hence should be ruled out as a location for the 3rd port.

ALLOCATION OF TRAFFIC BETWEEN PORT OF KARACHI & PORT QASIM:

According to the present policy of the Government all imports of iron ore and coal for Pakistan Steel, and imports/exports of wheat, rice, cement, fertilizers and phosphate rock are allocated to Port Qasim, subject to the proviso that cement for export manufactured in factories in the North East vicinity of Karachi will be exported through the Port of Karachi. Imports and exports of general cargoes and above mentioned commodities handled in parcels are allocated to the Port of Karachi. All liquid bulk imports/exports upto a total of 10 million tons per annum are also allocated to the Port of Karachi.

All schemes/projects for the development of Port facilities are required to conform to this overall policy.

EXISTING/PROJECTED PORT FACILITIES IN THE PORT OF KARACHI AND PORT QASIM:

Port of Karachi has at present 24 dry cargo ship berths. Four more berths are nearing completion and should be ready for use during 1983. There are also four tanker berths for bulk liquid commodities. Two of these tanker berths are modern whilst the other two are old and have outlasted their useful life.

Port Qasim has a specialised terminal for handling of bulk imports of iron ore and coal required for Pakistan Steel. This terminal is now fully operational and capable of handling all the likely requirements of these commodities for Phase-I of the Steel Mills Project (estimated at 3.36 million tons per annum). In addition to this specialised terminal, Port Qasim will have a multi-purpose terminal comprising 7 berthss constructed as a marginal wharf, for import/export of bagged commodities in full ship loads. One of these berths is now in use whilst the other six are in variaus stages of construction. It is expected that these six berths will be ready for operations during 1983.

CAPACITY OF EXISTING/PROJECTED PORT FACILITIES:

Annual throughput of a conventional break bulk general cargo berth can be any figure upto 250,000 tons depending on the cargo and the mode of its storage. The annual throughput of a semi bulk bagged cargo berth can be as much as one million tons depending on the commodity and the land transport facilities to and from the Port area. The actual throughput depends on the attitude and efficiency of the Dock Labour, and the capability of the land transport agencies (i.e. Railways, and Road Transporters) to clear the import cargo out of the port premises and to bring the export cargo alongside the ship smoothly and efficiently.

The throughput of the Port of Karachi has had many ups and downs in the last 15 years. In the period 1966 to 1972,

the throughput was quite good (10.4 tons per gang per hour) and the Port of Karachi had the reputation of being one of the more efficient seaport. In 1972, the Government for various reasons decasualised the dock labour and set up a Dock labour Board. As a direct consequence of this decision, the rate of throughput was halved in the 1972-78 period (5.2 tons per gang per hour). Ships had to wait a long time off port awaiting their turn for a ship berth, resulting in the imposition of congestion surcharge on freight to and from Karachi.

An effort was made to counter this decline in labour productivity by the introduction of an incentives scheme linked with the actual productivity. This resulted in a marginal improvement. The situation was aggravated in 1978-79 because of much higher imports of wheat and fertilizers in that year. The increase in the tonnage of imports on this account was of the order of 2.5 million tons and it subjected the Port's already overloaded resources to a heavy strain. In order to cope with this emergency, the Government established the National Logistic Cell and invested it with extraordinary powers and financial resources. Its charter was to improve the Port throughput by supervision and coordination of loading/unloading of ships and by organization of land transport to speed up the movement of cargo through the port.

The NLC have been very successful in the attainment of their objective. They have vastly improved the throughput of the Port. More often than not berths now await ships and it has been found that with NLC operating as at present, the Port infrastructure is more than adequate for the present level of Port traffic. It is however doubtful whether the rates of throughput now achieved can be maintained if the NLC were to withdraw from the scene, or if their extraordinary powers are modified in any way.

In this study, a throughput per berth of 200,000 tons per annum has been assumed for break bulk general cargo and

600,000 tons per annum per berth for bagged commodities in full ship loads. These assumptions are based on the throughput achieved during the 1966-1972 period when neither the Dock Labour Board, nor the National Logistic Cell were in existence.

The Port of Karachi should, using this yardstick, be able to handle 5.6 million tons of general cargo on its 28 berths. Similarly, Port Qasim should be able to handle 4.2 million tons of semi-bulk commodities on its seven multi purpose berths in addition to the 3.36 million tons of iron ore and coal on the specialised terminal for Pakistan Steel. This throughput is more than adequate for the present level of traffic of dry cargo through the ports.

As regards bulk liquid commoditiis, only the Port of Karachi has the necessary facilities at present. The capacity of these facilities is about 9 million tons per annum, out of which 7.5 million tons can be handled at the two modern berths whilst the two older berths can handle only about 1.5 million tons between them.

ADEQUACY OF EXISTING FACILITIES FOR THE LEVEL OF TRAFFIC EXPECTED UPTO YEAR 2000:

This review of the port facilities is relevant to the Sixth Five Year Plan. The capacity of the existing facilities should therefore be examined with reference to the traffic these facilities will be required to handle in 1990. Furthermore, as port projects take at least five years for execution from the date of approval to their completion, the level of traffic in 1995 should be taken into consideration for projects to be approved and commenced before 1990, i.e. during the Sixth Plan period.

Various traffic forecasts have been made in the past in respect of the likely level of traffic through Pakistan ports in the future. But the actual traffic has not conformed to these forecasts, because of changed geo-

political factors and revision of Government's socio-political objectives.

However, no plan can be formulated without some sort of accepted forecasts. For the purpose of this study, the forecasts produced by the NTRC in 1980 have been used. According to these forecasts, the ports will be required to cope with the following levels of throughput in 1990 and 1955:

Year	General Cargo	Bulk/Semi bulk	Total Million Tons
1990	3.8	6.0	9.8
1995	4.5	6.5	11.0

the number of ship berths required for this level of traffic is as follows:

Year	General Cargo Berths	Bulk/Semi Bulk Berths	Total No.
1990	19	10	29
1995	22	11	33

The total number of berths in Karachi and Port Qasim combined is 35. Thus the expected level dry cargo traffic in 1990 and 1995 can be handled through the present number of ship berths, provided the Port of Karachi handles the whole of the general cargo traffic and some of the bulk/semi bulk traffic.

The capacity of bulk liquid also will be adequate for the expected level of traffic in bulk liquids, in view of the reduction in import of crude oil as a result of discovery of oil in Sind. It is assumed that the two older tanker piers will not collapse. However, if there is a major oil find in the country producing a large surplus of oil for export or if either or both of the two older piers collapse then the existing facilities are likely to prove inadequate.

STRATEGY FOR THE FUTURE:

From the above review of traffic visa-vis the existing port facilities, it is clear that the present port facilities and infrastructure are quite adequate for the volume of traffic expected upto year 1995 and hence there is no requirement for construction of additional ship berths of the conventional type.

However, there is a need for provision of such additional facilities as will help in reducing the turn round time of ships in port by handling the cargo at a faster rate than is possible by conventional methods. In the case of commodities which can be handled in bulk, the rate of handling can be increased by provision of mechanical bulk handling facilities. In case of general cargo, the turn round time of ships can be speeded up by stuffing the cargo in standardized boxes or containers and loading/unloading the containers at specialized container berths having large back up areas for stuffing/destuffing operations and for stacking of loaded/empty containers. It is to be noted that the throughput of a specialised berth whether container or bulk is of the order of one million tons per annum as against a throughput of 200,000 tons for a conventional break bulk berth.

It is becoming increasingly difficult for break bulk general cargo to find shipping space. Similarly ports which do not have facilities for handling of containers are likely to be left out as ports of call by ships carrying containers.

Containers are presently being loaded and unloaded in Karachi by the use of ship's gear and are being stacked in areas at some distance from the berths. The present annual traffic is about 50,000 T.E.U's. This is being handled at five or six ship berths. This level of traffic could have been efficiently handled at one specialized container berth. Allowing for the expected growth of this type of traffic, there appears to be a need for the provision of a specialized container complex consisting of two container berths and associated sheds and stacking areas.

This need will have to be met by new construction as none of the existing conventional berths can be converted as they do not have sufficient areas of land. The provision of a container terminal by new construction will not only provide the required capability for fast turn round of modern container ships but will also result in a net increase of 2 million tons in the

annual port capacity for general cargo. As containerisation is an integrated total system, it will be necessary to equip the railways for transport of containers between the port and points upcountry, and to provide properly equipped inland container terminals at those points.

For the fast turn round of bulk carriers, specialized bulk handling equipment and facilities are necessary. Provision of such equipment and facilities becomes economical only when the throughput of the commodity involved exceeds one million tons per annum.

In recent years, port traffic in the following commodities has been exceeding one million tons per annum.

	Import/Export
Rice	Export
Wheat	Import
Cement	Import
Fertilizers/Phosphate rock	Import

These commodities may therefore be considered for provision of specialized bulk handling facilities. So far it has not been possible to devise satisfactory techniques for handling of rice in bulk and this commodity will continue to be handled as at present i.e. in bags.

Next commodity to be considered is wheat. The country has achieved self-sufficiency in this commodity and it is hoped that in normal years no imports will be needed. Whether the commodity is imported or exported will largely depend on weather conditions or on unforeseen situations e.g. influx of Afghan refugees. In some years imports may be necessary whilst in other years bumper crops may produce exportable surpluses. On the other hand, there may be years when there can neither be imports nor exports. There appears to be a requirement for provision of facilities for bulk handling of wheat for both import and export. Furthermore, these facilities should be

located on a berth which can be used for handling of other commodities when there is no wheat traffic. Such bulk handling facilities may therefore be provided on an existing berth. The provision of such facilities on an berth should result in on an increase in Port capacity of about 1½ million tons per annum.

As regards import/export of cement, the country is presently deffficient in this commodity although in the past it was being exported. There is no reason why the country cannot be again in a position to export cement, as the raw materials for its manufacture are available in abundance. In fact, a number of export oriented cement plants are now being set up in the vicinity of Karachi. As and when the country is in a position to export cement again, specialised terminals for handling of cement in bulk shall have to be provided. It will be possible to provide these terminals by conversion of some of the existing break bulk berths in either port.

As regards fertilizers/phosphate rock, the present port throughput in these commodities exceeds one million tons per annum and this level of traffic is likely to be maintained. This level of traffic justifies the immediate provision of a specialized terminal for handling these commodities in bulk. Such a terminal can be easily provided on one of the existing berths. The provision of such a terminal will result in a further increase of 1½ million tons per annum in port capacity.

If and when the container complex, the bulk fertilizer terminal, and the bulk wheat handling facilities are provided, the port capacity will have increased by 2 million tons per annum for general cargo and 3 million tons for dry bulk cargos.

BULK LIQUID CARGO

The two newer tanker berths in the Port of Karachi can cope with imports of crude oil upto a total of 7.5

million tons per annum. The rest of the liquid traffic allocated to the Port of Karachi, requires to be handled at the two older berths. These old berths are in poor shape and cannot be relied upon, as they might collapse at any time. There is a need to replace them by a single modern tanker berth capable of handling different liquid commodities. As and when this is done, the capacity of the Port of Karachi for liquid cargos will increase to 12½ million tons per annum. This should be adequate for a long time to come, unless oil is discovered in quantities producing a large surplus for export, in which case additional berthing facilities for larger tankers may need to be constructed.

LOCATION OF THE PROPOSED ADDITIONAL FACILITIES:

There are three alternatives available for the location of the proposed additional specialised terminals facilities:-

i) All be located in the Port of Karachi.
ii) All be located in the Port Qasim.
iii) They may be divided between the two ports.

There is no other alternative, as the construction of another major port at Somiani is not justified at this stage in view of the adequacy of Port of Karachi and Mohammad Bin Qasim for traffic expected upto 2000.

As to the question, as to which of the above alternatives should be adopted, it should be appreciated that Port of Karachi, and Port Mohammad Bin Qasim have been developed at a hu e cost and are now important and significant National assets. The fact that there are two ports is strategically beneficial, because Port operations cannot now come to a standstill, if one of the entrance channels gets blocked for any reason, whereas formerly when there was only one port, this was an ever present danger. For this reason it is necessary that both ports are developed in step and that one port is not favoured to the detriment of the other.

The present Government policy for the allocation of traffic between the two ports is fair and equitable and should continue to be the basis when taking a decision about the location of the specialized terminals proposed above.

Containerisation is essentially a system of handling general cargo ships at a fast rate. The documentation and processing of the import/export cargo carried in containers is very similar to the procedures for break bulk general cargo. At present, the necessary expertise for handling imports/exports of general cargo is located in Karachi in close proximity of the Port. It is therefore logical that the new Container Terminal should also be located in Karachi. The other important point to be noted in this connection is that if the new Container Terminal were to be located in Port Qasim, then the greater prportion of general cargo will stand transferred to Port Qasim leaving the Port of Karachi under utilized.

The facilities for handling of wheat, fertilizers and cement in bulk should be located in Port Qasim except for cement manufactured in factories North East of Karachi which will be best handled in the Port of Karachi.

As and when crude oil is discovered in exportable quantity, the terminal for its export will have to be located in Port Qasim.

EXPORT PROCESSING ZONE:

The setting up of this zone should pose no problems to the Ports. The imports/exports generated by the zone can be handled at either of the Ports depending on whether they are to be handled in bulk or in containers.

ORGANISATE, ADMINISTRATE & FINANCIAL MANAGEMENT OF PORTS

The two ports are presently being managed by two separate statutary bodies under the overall umbrella of the Directorate General of Ports and Shipping in matters of policy, budget and tarrifs. The ports have separate cadres with no possibility of transfer from one port to the other or from either port to the DG P&S, set up. This system is working

reasonably well but its cannot be termed an ideal arrangement, as delays are experienced in finalizations of matters requiring reference to the Government. These matters include coordination between the ports. Without satisfactory coordinations between the two ports, there is likelihood of wasteful competition and duplication of services.

A possible alternative to the present system of management and control would be the merger of the two existing statutary Port Bodies into a single Board of Port Management with constitution, powers and functions similar to the re-established Railway Board. This new Statutary Body would be fully autonomous and would also take over all the functions now being exercised by the DG P&S in respect of the ports. The day to day administration of each port could then be entrusted to two chief executives with powers similar to the General Manager of the Pakistan Railways. This new Port Authority and the Administrative set up of the two ports could then have a unified officers cadre. The officers would be liable for posting to either of the two ports and to the Authority, Headquarters at the discretion of the management of the Authority. The acceptance of this alternative would revitalise the management of the Ports and encourage them to evolve into an effective transport organization capable of meeting all challenges posed by changing technology in Port Management and Operation.

SUMMARY:

Summarising the above examination of the various alternatives, it is concluded that:

(i) Port of Karachi should continue to handle all general cargo whether containerised or break bulk. The proposed container complex should therefore be built in Karachi Port. The complex should be planned to be ready for operation within five years.

(ii) Port of Karachi should continue to handle all bulk liquid traffic upto a total of 10 million tons per annum. The two older oil piers should therefore be replaced by a modern oil pier capable of handling a variety of liquids e.g. petroleum products, edible oil and mollases.

(iii) Port Qasim should handle all bulk and semi bulk dry cargo required to be handled as full ship loads, with the exception of cement manufactured in factories to the North East of Karachi which will have to be handled in the Port of Karachi.

(iv) A specialized fertilizer cum rock phosphate terminal should be provided as sonn as possible by conversion of one of the berths of Port Qasim.

(v) Facilities should be provided on another berth of Port Qasim for handling wheat imports/exports in bulk.

(vi) Equipment for handling cement exports in bulk should be provided in both ports.

(vii) Consideration may be given to the creation of fully Autonomous Port Authority to take over the powers and functions now being exercised/ performed separately by the Karachi Port Trust, Port Qasim Authority and the Ports Wing of the Directorate General of Ports and Shipping.

S H I P I N G

by:

S. B. AHMAD
F.C.I.T

OBJECTIVE

The objective of this paper is to generally review the position of shipping in Pakistan and to look at the possible alternatives that may help develop the industry to enable it to assume its rightful place in the world of Shipping and play its part in meeting the economic, and strategic, needs of the country. In order to make this study meaningful, it is necessary to review, briefly, the history of Pakistan's shipping, its growth, or rather the lack of it, to understand where the Industry stands today, how it has got to be in the present state and what it would take to strengthen and consolidate its position, and ensure its future well being.

HISTORY

BEGINNING

Pakistan had only 2 Shipping companies owning, between them, 3 Units at the time of partition in 1947. The 3 Units were small cargo vessels capable of handling only a fraction of the coastal trade while the country's Overseas and Inter-wing trades remained in the hands of the foreign shipowners. There were no passenger ships, and, as such, the inter-wing passenger traffic as well as the movement of passenger to and from Gulf and Africa was also handled entirely by foreign ships. The Fiftees saw a rapid, albeit somewhat haphazard, growth of the Industry and by the end of decade, 11 shipping companies had been established in Pakistan with a fleet of 29 vessels of various types and sizes, mainly employed in the Inter-wing trade and also catering for a small portion of the coastal traffic. The late Fiftees also saw the induction of the first Pakistani passenger vessel and emergence of a consortium formed by the various Pakistani ship owners, participating in the Pakistan/Europe trade, as members of the India - Pakistan Conferences. At this stage, most of the Pakistani's foreign trade as well as large portion of the

passenger traffic, including pilgrims traffic, was still in the hands of the foreign shipowners.

GROWTH

A start had been made towards acquisition of Pakistani tonnage to cater more and more for the country's foreign trade, the inter-wing trade and to becoming self-sufficient to handle the entire Pilgrims traffic. In absence of a clear cut Shipping Policy, however, the growth of Pakistan's Shipping was unplanned or uncontrolled and, barring a few notable exceptions, remained a prerogative of amatures and adventurers who made quick gains but did little to contribute towards growth or consolidation. Secondhand tonnage was cheap and was available on easy terms. Inter-wing trade plus a portion of the coastal trade was exclusively reserved for the National tonnage. Space for the Karachi/Chittagong movement was at a premium and provided a large source of undeclared income to the shipowners. With an eye toward making the quick buck many of the new entrants went into Shipping by acquiring a lot of junk; ships that were totally unsuitable for the intended traffic, only because the price was right and conditions were right for the haphazard activity. Some of these Units, after purchase, never even entered the trade and were eventually scrapped.

Fortunately, not all shipowners fell under the above category. There were some, who entered the trade with suitable background knowledge and were capable of proper planning for establishing efficient as well run organizations with long term plans for consolidation and future growth.

SHIPPING POLICY:

Pakistan's shipping policy was announced early in the Sixtees, laying down rules and regulations aimed at exercising control, to ensure proper growth of the Industry and efficiency of operations. Some of the salient features of this policy were:

(1) To curb the hitherto unchecked Private Sector entry into the trade by banning the entry of new comers in the industry, in the West Wing.

(2) To allow controlled acquisition of tonnage to the existing Companies only by way of replacements and that only by suitable new or near-new vessels.

(3) Establishment of a Govt. controlled National Shipping Corporation to cater for Pakistan's foreign trade.

(4) To allow acquisition and expansion of the fleet in West Pakistan only in the hands of NSC.

(5) To allow 5 new comers in the Private Sector from East Pakistan, each with 2 Units of the approved size and type, to ply on the pre-determined and approved route/s.

(6) To provide checks and controls to ensure that Pakistan's Shipping could be tailored to meet the growing needs.

Unfortunately, not all the aims and objects of the Policy could be realized and while it did check the unhindered and haphazard growth, in the Private Sector, it also paved the way for the West Pakistani investors, interested in becoming Shipowners, to acquire tonnage and register it outside Pakistan. Some of the West Pakistani

enterprises also took advantage of the lack of interest in East Pakistan, to establish themselves under the East Pakistani Register.

PNSC

Natinnal Shipping Corporation entered the world of shipping on a happy note. By becoming members of the Conference, with their Pooling systems, they were assured of their assigned share of the trade. The introduction of the Export Bonus Scheme and NSC's entitlement, of Bonus, on their foreign freight earnings, provided further assistance. The Corporation was, therefore, able to return huge profits, from its very inception, while most of their Conference Colleagues were faced with a loss situation due to the glut of tramp shipping and the ever spiralling operational and replacement costs. The progress of the Corporation in the first 10 or [illegible] years of its inception can be termed satisfactory, though by no means spectacular. A private organization operated and controlled purely by commercial considerations, and given the same umbrella of protection as that enjoyed by NSC, might well have been able to produce spectacular results.

The reason why the NSC failed to take advantage of its position was to some extent due to its policies being controlled by the Federal Government, and these were, not necessarily motivated by purely commercial considerations. The early gains generated by factors, other than normal trading considerations, and not by any efficiency on the part of the management or of the Units acquired to perform the service, did not allow the Corporation to develop into an efficient or a well run organization. Appointments to responsible posts in the organization were made on personal whims and fancies of the planners in Islamabad with no regard to the qualification or aptitude of the person concerned. Ships were purchased on ad-hoc basis and were, often, totally unsuitable for the intended trade. Maintenance and upkeep of the Units was poor despite the fact that the expenditure

under this heading, both at home and abroad touched astronomical heights. The result was that for many years after its inception, the Corporation remained an non-entity in the world of shipping and even the Pakistani shippers who would out of patriotism wish to support the National carrier, remained unimpressed by NSC's performance and refused to give the Corporation their support. Today the position is improved somewhat but many of the ills acquired in the early days still persist.

1974 dawned with the Government take over of all Private Shipping in the country and their merger into one wholly Government owned Pakistan Shipping Corporation. Whatever may have been the justifications for such a drastic action, it did nothing to strengthen or to further develop the industry. For one reason or the other, not the least of which was the complete chaos in the accounting systems of some of the taken over companies, it took years to compile the Balance Sheets and work out the appropriate compensations. In the 3/4 years of its existence the PSC never really got off the ground and in 1977 it was merged into NSC under the new name, Pakistan National Shipping Corporation. One of the Private Shipping companies was de-nationalized and alongwith its 5 remaining units - 2 passenger ships and 3 cargo vessels- was handed back to the previous owners. This Company was said to have had substantial foreign investment in it and, according to the reports, should not have been nationalized in the first place.

PRESENT POSITION

Today, the two organizations, PNSC and Pan Islamic Steamship Co., between them, own some 49 units including 3 passenger ships. Several of these are due for replacement being too old, uneconomical or unsuitable for present day requirements of the industry to cater for the rightful share of its Import and Export trades. The growth, so far, has not been anywhere near levels forecast in the Shipping Policy in 1962, which pegged the total fleet at 95 vessels by 1970. Lack of resources is perhaps one of the reasons for the slow, and somewhat haphazard, growth but, perhaps, there are many other reasons for it, not the least being the absence of any clear cut and sustained Policy. Despite the recent attempts to attract Private Investment in the Industry most of the Pakistani investment in shipping is in the form of companies, with ships registered outside Pakistan. The total strength of their combined fleet, registered outside, is reported to be many times the size of the entire Pakistani Fleet of Merchant Ships. One does not have to go far to see what free enterprise, allowed to take its own course can achieve, and has achieved. Given the right atmosphere, and stability, there is no reason why Pakistan's talent and its resources should not be deployed within the country.

The owners of the Pan Islamic Steamship Co., having regained its control are now busy re-organizing themselves into an efficient and properly run organization. They have already scrapped 2 of their vessels and have replaced them with more efficient and modern units and are well on the road of recovery though with the present depressed state of the world market their progress is slow, even if somewhat better than that of PNSC.

CONTAINERISATION:

Shipping, still today, involves transportation of passengers and cargoes, as it did centuries ago, but the methodology has undergone a rapid and radical transformation in the past 15 years, or so. Unit load concept specially in the shape of containerisation represents, perhaps, the most significant change in recent history. Unfortunately, Pakistan for good many and very valid reasons, has been extremely slow in developing this concept. The recently acquired new ships do have container capability but this at best, can be termed a half hearted attempt towards making an impression on the container oriented trade or for obtaining the proper share of the cargo. Till such time as we can provide a proper containerised service our share of the trade would always remain fractional. PNSC, according to their own reports carried a total of 2.2 million tons of Pakistan's cargo in both direction during the year 1980-81. This of course, includes a very large tonnage of sensetive cargoes carried by PNSC vessels. Even then this tonnage is far short of what Pakistan should be carrying on the basis of the UNCTAD Code of 40-40-20.

BULK CARRIERS

In the field of carriage of bulk cargoes, both liquid and dry, Pakistan has not made any headway and we still have to utilize service of Foreign Tonnage to meet our needs for movement of Oil, Fertilizers and Wheat etc. PNSC have recently acquired a tanker to cater for its imports of crude oil from Gulf but this is only the beginning and the need still exists to builing up the fleet of bulk-carriers to be self-sufficient and independent to cater for our needs.

PASSENGER VESSEL:

Pakistan's Passenger ships are also now some 20 years, or more old and must now be outmoded and, certainly, uneconomical to run. Mainly, because of economics (cost of new tonnage being astronomical) apparently there are no plans, yet,

for replacing these old vessels. Perhaps there is need now to look closely into the whole question of owning passenger vessels and unless Pakistan has to maintain the passenger vessels for any logistic requirements, the continued maintenance of the passenger vessels, must be a great burden or our limited resources.

CONCLUSION - RECOMMENDATIONS

POLICY

There have been many detailed studies, on various aspects of Shipping and allied matters have been carried out, and recommendations made by various Agencies during the past many years. While some of these dealt with specific problems or provided answers to a given situation and meet the needs of the hour, these do not provide guidance for a clear cut and properly thought out, long term Policy.

The actions and Policy revisions during the past years have done little to inspire confidence and alley the fears that perhaps not all decisions were motivated by reasons other than the desire to further the gains of the vested interests.

There is an immediate need to encourage investment in the Private Sector and to promote a properly planned growth both in the Private and Public Sector. It may even be necessary to seriously consider restoration of the taken over companies to their original Owners. Not all of them may be able, or willing, to take them back. Nevertheless such, drastic, action may well have to be taken to restore confidence in Government policies.

It is therefore important that in the interest of promoting Pakistan Shipping a clear cut Policy be evolved offering encouragement to Private Sector development.

PNSC

Ever since the inception, this organization has never been allowed to function as an independent commercial venture and has therefore functioned, more or less, as an extension of the relevant Ministries in Islamabad. Appointments and promotions in the executive cadre are still made under the dictates of the Ministry. Islamabad should lay down a clearly defined Policy and should allow the Corporation to function as an independent organization with authority to manage its affairs according to the dictates of commerce rather than those of Islamabad.

Being the premier National carrier, PNSC obviously, have to cater for the carriage of the country's sensitive cargoes. They should be suitably compensated for these services on commercial basis.

Due to the past policies of recruitment and promotions, the Corporation is blessed with 'too many chiefs and not many Indians'. Drastic measures are required to be taken to dispense with the 'Dead Wood' and all future appointments must be made in accordance with the actual commercial, or operational needs and suitability of the candidate for the job. According to a recent Eveninger report, PNSC are shortly to resort to retrenchment. This should be followed through without delay.

SCRAPPING OF OLD SHIPS

A critical appraisal of the existing fleet must be made and the out-dated, or uneconomical Units must be scrapped. A beginning has been made and 5/6 vessels have already been laid off/scrapped during 1982. This process should continue.

CONTAINERISATION:

New tonnage should be acquired keeping in view the requirements of the trade. A move must be made towards acquisition of fully containerised, cellular vessels. Obviously, the high cost of acquiring such units would inhibit growth, but a start could, however, be made by time chartering or even

resorting to slot charters, and/or entering into Feedering arrangements with other carriers.

OIL TANKERS:

The recently formed Bulk Carrier service of PNSC should be allowed to function independently of PNSC and/or Is amabad control, and should be encouraged to expand suitably to take care of the country's requirements of movement of Oil. As an independent organization they could, in time, acquire additional tonnage for trading outside the country as and when the opportunity arises.

BULK CARRIERS:

The country's requirements for charter or acquisition of bulk carriers for the movement of other bulk cargoes should be met by inviting quotations in the Private Sector instead of leaving it exclusively in hands of the 'chosen few'

PASSENGER SHIPS:

A careful re-appraisal should be carried out of our Passenger Services keeping in mind the Commercial viability and the Strategic requirements. Unless dictated by logistics, maintenance of Passenger Services can only amount to a luxury which this country can ill afford. The existing passenger ships should be phased out at the first opportunity.