

**Economic Policy Paper**  
**on**  
**Transportation (Air, Water, Land) and Policy Related to Infrastructure and Utilities**

**Preamble**

The word "TRANSPORT" has been derived from the Latin word "TRANSPORTARE". "TRANS" means across or the other side and "PORTARE" means carry. Transport thus means to carry to the other side.

The level of transport needs in a growing economy depends on the pattern of development e.g. spatial distribution of economic activities, sectoral composition, importance of international trade. A policy is required to answer such vital questions, among others, as who will provide transport infrastructure, who will provide transport services, how transport infrastructure and services should be priced, what are the appropriate roles of various transport modes in a transport system are, and how to resolve potential conflicts between transport developments and the environment.

Bangladesh economy is burdened by major transportation constraints resulting from a combination of factors, which are physical, geographical and historical, developmental (low-level investments and maintenance) and institutional policy framework related. Improvement of this situation requires accomplishment of the following three broad activities:

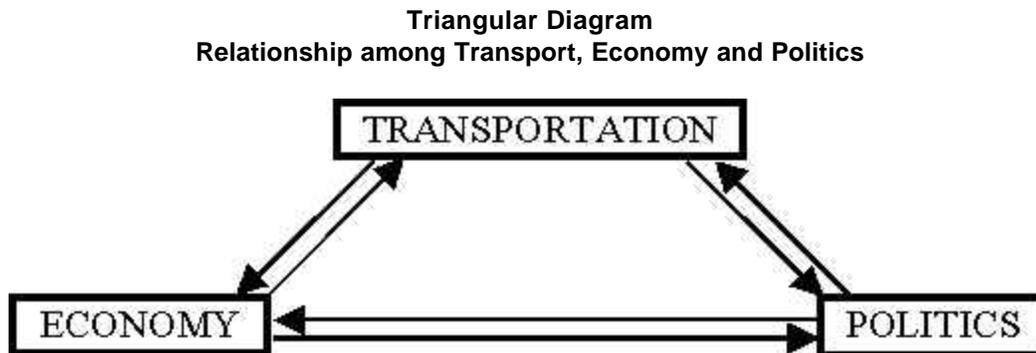
- Analysis of transport system
- Analysis of individual transport modes
- Analysis of key strategic issues

In the light of existing situation, this paper sets out development strategies with respect to future investments as well as various policies and institutional reforms necessary for improved efficiency of the sector particularly through the direct involvement of the Private Sector.

**2. Significance of Transport System Development**

**2.1. Development Significance**

No politics move smoothly unless economy moves smoothly; and no economy moves smoothly unless transport moves smoothly. Hence without strong economy politics may simply turn to be "POLYTRICS". The under mentioned triangular diagram (Faruqui Model) may explain the situation better.



**3. Status of Bangladesh Transport Sector**

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The transport system of Bangladesh consists of roads, railways, inland waterways, seaports, airports, maritime shipping, BRTA, Airways, Civil Aviation Authority and Pipeline. Presently there are about 21000 km of paved roads, 2706 route km of railways (Broadgauge-884 km and meter gage-1822 km), 5200 km of perennial waterways, which increases to 8372 km during monsoon.

### 3.1 Road Communication

As of June 1999 there are 3089.78 km of National Highway, 1751.91 km of Regional Highway and 16115.97 km of Feeder Road, making a total of 20959.33 km under the Roads and Highways department. There are 9916 numbers of bridges and 5313 numbers of culverts making another 120856 meters and 34861 meters respectively. The total assets of Roads and Highways Department for roads and bridges are estimated at Tk.370000 millions. This value is probably higher than the total value of the assets of all the private businesses in Bangladesh. They have a budget of about Tk.1000 million for maintenance of this huge network of roads.

Road Transport is the most dynamic area of transport development. The paved road network has expanded from a mere 600 km in 1947 to around 6600 km today; freight volume carried by road transport has increased from around 11 million tons in 1981 to approximately 48 million tons. Inter district passenger flows by road for 1998 are estimated to be over 200 million. The primary reasons for the success of road transport have been improvements in the road network and the better quality of service provided largely by the private trucking industry.

### 3.2. Maritime Transport

#### 3.2.1. Out Land Waterways

In order of importance, Bangladesh's three major ports are Chittagong, Mongla and the Dhaka-Narayanganj complex. Chittagong handles about 76% of the country's 10 million tons of annual foreign trade. Mongla port is yet to fulfil its obligation due to problem of siltation at the approaches to the berths and hinterland access. Though the port was designed for a 7.5 metres deep approach channel, yet due to siltation the requisite draft is not available except during the high tide only. The Dhaka -Narayanganj port complex is handling an increasing volume of traffic, growing from 1.6 million tons in 1980 to about 8.00 million tons now of which around 45% are sea-borne. The potential for container traffic at this port is presently some 200000 tons and could grow to over 500000 tons by the year 2000, if adequate container facilities are provided. There are potentials for growth in container traffic and possible establishment of an international port of call at Dhaka.

Bangladesh Flag Merchant fleet has 14 Vessels of Bangladesh Shipping Corporation and 11 at the private sector currently. The total DWT capacity of the Bangladesh flag vessels (public/private) is only 0.338 million MT now. Bangladesh flag vessels currently transport less than 5% of our general cargo movement of our foreign trade, although UNCTAD code of conduct for liner shipping conferences provides for up to 40% of the country's liner trade to be carried by National Flag Vessels.

A recent UNCTAD study, however, shows that the developing countries without their own merchant fleet usually pay 8-10% higher freight rates than the countries with their own fleet. Shipping should be treated as an export-oriented industry and given all kinds of support for development.

Container traffic at Chittagong port is growing at the rate of 34% per annum and is expected to reach a level of 287400 TEUs by 2000. The container terminal at the port always remains congested because of poor dispersal of traffic to Dhaka area, which accounts for 60% of the total traffic. Contributory factors for the stagnation are; inadequate handling equipment at the multipurpose container terminal at Chittagong, shortage of container wagons and locomotives to reach containers to Dhaka terminal and inadequate infrastructure for providing door to door service to customers.

#### 3.2.2. Inland Waterways

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Inland Water transport is one of the oldest modes for economically efficient and environmentally sustainable transport system of the country. Inland waterways are a critical component of the Bangladesh transport system in view of the floods, which regularly affect the country and disrupt the other two surface transport modes. The inland waterway network comprises over 8300 km of navigable waterways during the monsoon season, a reduction to about 5200 km occurs during the dry season. More than half of the country's total land area is situated within a distance of 10 km of navigable waterways. This network of waterways carries about a third of the total freight to km, and approximately 13% of all passengers use Inland Water Transport. A major problem affecting inland water transport is the shrinking of the navigable network due to both siltation and reduction in the amount of water available during the dry season.

The inland waterways include some 11 major and over 100 minor ports and about 700000 river vessels are operating in the country. Most of these ports are impaired by inadequate facilities for mooring and unloading vessels and for storage of goods as well as by siltation of approach channels. These problems are compounded by the changing morphology and unpredictability of the rivers, which often change course, erode embankments and generally endanger fixed riverfront infrastructure. Substantial increases in budgetary allocations for dredging and in the productivity of the dredging fleet are needed

The country where rivers carry 2000-2500 million tons of silt a year in that country there has not been added even a single new dredger in last 24 years time. There are altogether 35 dredgers, of which 27 are under Bangladesh Water Development Board and the rest 8 are under Bangladesh Inland Water Transport Authority. Surprisingly two dredgers were built in 1950 and were used in digging the Suez Canal. The total quantity of silt dredged in 1995-96 by IWTA was 104.76 million cft, while BWDB dredged 65.20-million cft of silt during the same period. In 1996-97 IWTA dredged 126 million cft of silt and BWDB dredged 88.60 million cft of silt.

### 3.3. Rail Transport

Bangladesh Railway operates a network of around 2800-route km of which some 900-route km is broad gauge located in the western part of the country. The remainder of the network is meter gauge. This inherent weakness in the rail network stems from partition of the original network created by the British in India. The concept then was to establish a core broad gauge network with a meter gauge network on the periphery. In 1947, what is now Bangladesh inherited a part of the core broad gauge network. In addition to this mix of gauges, the rail network suffers from the difficulties of the Trans - Jamuna ferry crossings (at Bahadurabd and Jagannathganj), closures due to floods, and poor management. Traffic on the railways has declined substantially during the 1980s, from 90 million passengers and around 3 million tons of freight in 1981 to under 77 million passengers and about 2.4 million tons of freight.

The most important issues at present with regard to Bangladesh Railways are the high level of direct and indirect subsidies provided by the Government. Bangladesh Railways revenue currently covers less than 70 percent of its operating costs. The situation has been worsening with Bangladesh Railways share of traffic declining and its costs increasing, and it is un-clear what can be done to reverse the trend.

Retaining lucrative inter-city trains under government management, Bangladesh Railway is handing over loss-incurring express trains to private firms for commercial operation. Bangladesh Railway has enhanced the capacity of Dhaka's Inland Container Depot (ICD) to 90000 EUs (Twenty Equivalent Units) per year from 25000 EUs at a cost of Tk.580 millions.

### 3.4. Air Transport

In addition to Biman – the Bangladesh Airlines, which is entirely in the public sector, a number of private airlines have been established during last few years in Bangladesh. All airports of the country are, however, in the public sector, only a minor element of the ground facility is in the private sector. To meet growing demand government has

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plan to construct new air ports in important places, apart from reintroducing Comilla, Lalmonirhat, Thakurgaon, Tejgaon, Shamshernagar and Ishwardi airports after necessary repair.

Like many other public enterprises Bangladesh Biman has been incurring loss year for years; in fiscal year 1998-1999 its loss reached Tk. 33.69 million. The quality of services of Biman is not the international standard, besides its services cost more than that of the international airlines. These are the main causes for the loss of Biman because it cannot compete with international airlines and market its services. Being 100% owned by government Biman has certain disadvantages; it is not fully customer focused and quick in decision-making. Biman, however, is seeking assistance from international consultants to hand over 40% of its stake to another airlines.

In total 18 foreign airlines and 4 Bangladeshi airlines operate in Bangladesh. Among the foreign airlines only Al-Italia has been rendering freighter services. Of Bangladeshi airlines Bismillah airlines operates freighter services between Dhaka and Bangkok while GMG and Air Parabat operate in domestic routes.

There are 50 scheduled arrivals and 50-departures everyday in Dhaka airport. Last year 2.50 million passengers, 83000 tons of cargo and 950 tons of mail was carried. This has accounted for 6.50% rise in international passengers and 1% in cargo over the previous year. The route network of the national flag carrier spreads over 25 destinations in 21 countries in Europe, Asia and America. In 1998 Biman carried 1.23 million passengers—367000 domestic and 866600 international. In 1998-99 it carried 29500 tons of cargo and 300 tons of mail; cargo and mails are mostly international. Of these about 750 tons of cargo and mail were carried on the domestic routes. Bimans revenue mostly comes from international operations. Compared to Biman foreign airlines carried 1.128 million passengers, 53000 tons of cargo, and 645 tons of mail. Domestic airlines carried 178000 passengers. Within Bangladesh Biman operates on seven destinations and the operation is maintained by operating 50 international flights and 60 domestic flights per week.

### 3.5. Urban Transport

In total there are around 220000 motor vehicles in Dhaka City, the Capital City of Bangladesh, out of which 50000 are three wheelers. There are 380 buses, 250 mini buses and about 70 double-decker buses and BRTC is going to introduce 68 more double-decker buses soon. Two other lots of total 350 double Decker are in the pipeline to join the BRTC fleet.

Although Dhaka is one of the least motorized city of the world, but the most polluted one. Due to the emission of black smoke from the three wheelers yearly damage due to health injury is estimated at Tk.600 millions. A World Bank estimate shows that TK 1600 million is lost per year due to traffic jam. As for example only rail gates are closed for 42 times a day for movement of trains. Dhaka Metropolitan Development Plan proposed 8 commuter railway lines and seven sub-way lines by 2015. Ideally road should be constructed on 25% of city's surface, but tragically only 8% is in Dhaka City's surface.

Among the big cities in Bangladesh, Dhaka has been growing very fast; its annual average growth rate since liberation is about 9.32%. It is easily assumable that the demand of transport and hence the pollution of the city has been increasing with the growth of the City.

### 3.6. Multi-modal Transport

The use of containers as a means of door-to-door international trade was firmly established in the 70's and Multi-modal Transport System was a logical development. Thus the concept of integrated transport system came in to being. Although Multi-modal Transport has been firmly established at international level during the last two decades, Bangladesh is lagging behind. This is mainly due to very slow progress in the establishment of Container Terminals in our ports.

### **3.7. Modal Share of the Transport Sector**

In comparison with overall economic growth rates averaging around 5% per annum Bangladesh has witnessed rapid growth in transport demand; since mid seventies till now, the annual growth rate were 7.2% and 7.8% respectively for freight and passenger transport demand. In fact recently; since mid eighties till now these rates had gone further, being nearly 8.2% for freight transport demand and 8.4 % for passenger transport demand. According to a study the volume of road transport has increased by 88% during the past 8 years period, whereas the volume of transport by water and rail reduced by almost equal proportion. The estimated modal share of the 3 surface transports - road, inland water and railway in 1997 were 72%, 17% and 11% respectively for passenger and 65%, 28% and 7% respectively for freight (Annex-I and II).

## **4. Increasing Demand for Services**

### **4.1. Increasing General Demand for Services**

Since the mid 1970s, Bangladesh has witnessed a rapid growth in transport demand. Between 1975 and 1993 freight transport demand is estimated to have increased from approximately 2.6 billion ton-km to 9.00 billion ton-km. In the same period the passenger transport demand has grown from approximately 17.00 billion passenger-km to about 66.00 billion passenger-km (Annex III).

Within the overall growth rates of demand, the road transport demand increased at an even faster rate to 10.50 per cent and 9.80 per cent, respectively, for freight and passenger transport demand as the transport demand has shifted steadily from rail to the road sector. The transport demand in the road sector has further increased after the opening of the Bangabandhu Jamuna Bridge.

### **4.2. Increasing Transport Intensity**

In recent years, the transport demand for both the freight and passenger traffic has grown in Bangladesh faster than the economy in general. This suggests a GDP-elasticity of freight and passenger transportation demand to be about 1.5 each. During the same period, the annual rise in per capita income has been approximately 3 per cent. Therefore, the passenger transport demand is estimated to have an income elasticity of about 2.8. Transport intensities in Bangladesh are expected to increase considerably in coming years as the country continues to move from subsistence to a more market based economy and as the major transport barriers are removed.

### **4.3. Passenger Movements**

Transport output for passenger flows in Bangladesh is increasing rapidly. About 1.50 billion passenger trips were undertaken in Bangladesh in 1998. The average distance travelled for a passenger trip was 48 kilometers. The road sector has increased its share to 75 per cent of the total passenger travel demand of 66 billion passenger kilometers. On the other hand, the rail sector continues to lose its share of passenger travel since more inter city passenger travel is now conducted through the road transport system which offers faster, more convenient, and cheaper services. Passenger mobility in Bangladesh has been significantly lower compared to its neighbouring countries due to lower per capita income.

The passenger transport is expected to grow much faster than both the economy and population as the industrial structure of the economy changes, and as the transport network is further developed. The GDP-elasticity of passenger transport demand has been about 1.5 since 1985. Assuming GDP growth to be 4 per cent in near term and GDP-elasticity of passenger transport demand to remain at about 1.5, passenger transport demand is expected to grow at about 6 per cent per annum. However, thus on the average the growth rate is expected to be between 4 and 6 percent, say 5.4 percent during the horizon period ending 2009/10. This means that by the year 2000, the passenger transport flows will be about 95 billion passenger-km.

#### 4.4. Freight Movement

Assuming, GDP growth rate to be 4 per cent in near term and GDP-elasticity of freight transport demand to remain at about 1.5, freight transport demand is expected to grow at about 6 per cent per annum. However the corresponding more recent growth rate has been about 9 per cent. Thus on the average the growth rate is expected to be between 6 and 9 percent, say 7 per cent during the horizon period ending 2009/10. The total freight movement (inter- district and intra-district) in Bangladesh is about 63 million tons, with an average lead of approximately 144 kilometer. Of this total, some 34 million tons is moved inter district using the main transport network (Annex-IV).

#### 4.5. Accident Scenario

The 9<sup>th</sup> international conference on safe community revealed that in Bangladesh annually around 7000 people die and property worth TK 20000 million destroy due to accidents on average, which amounts nearly 2% of the GDP. In Bangladesh more than 2000 people are killed in road accidents every year, which is about 6 persons every day. Per BRTA Bangladesh has a fatality rate of 55 persons per 10000 vehicles. Recent figures from Tropical Research Laboratory, U.K showed that Bangladesh's death rate for road accidents is twice the rate that of India and 30 times that of developed countries like Japan (Annex V).

The density of road considered to be bare minimum for sustaining the economic development of a country is 0.5 km/sq/km. The existing physical state of primary and secondary road network in Bangladesh is far below the acceptable standards due to lack of proper quality control for construction and maintenance. Truck overloading also contributes to heavy damage to roads, which causes accidents. Unregulated movement of non-motorized vehicles along with motorized vehicles on the national and regional roads, poor management and corruption in transport and trafficking system are other major causes of accidents in Bangladesh.

### 5. Constraints

#### 5.1. Environmental Constraints

Environmentalists have started complaining that the Earth going bust as Economy Booms. "Global economic trends during the 90s were remarkably bullish but the environmental trends were disastrous" World Watch Institute said in its report "The World 2000". Economic euphoria may lead us to ignore trends that have the potential to reverse progress. "As the Dow Jones goes up the Earth's health goes down".

There is no universal rule that environmental quality has to deteriorate in order to make economic progress. There are countries such as Costa Rica that have achieved remarkable economic success without damaging their environment shows that the goals of economic growth and environmental protection can be complementary rather than contradictory.

It is often contended that a poor and economically backward country like Bangladesh need not bother about the quality of its environment and instead make an all out effort to achieve economic development. Those who support this view refer to the observation of the eminent western economist Simon Kuznets who held the view that at a low level of per capita national income, environmental quality at first deteriorates with growth and then it improves when the economy reaches higher levels of income. This results in an inverted U-shaped relationship between the level of pollution and the level of per capita national income.

Nobel Laureate and economist Kenneth Arrow and a number of other scientists have challenged the theory of Kuznets and argued that the developing countries could protect the quality of the environment of their countries through conscious efforts. There are countries such as Nigeria whose environment has suffered terribly because they have supported economic growth without taking any notice of the disastrous adverse effect of the development policy on the environment.

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In Bangladesh around 1000 MI of pollutants is pumped in to the environment every day in Dhaka, of which 70% comes from vehicles. At the same time nearly 30% fuel is being wasted in Bangladesh because old obsolete technology is in operation, inefficient and sub-standard appliances are being used and handling, operations and maintenance are very poor.

### 5.2. Sectoral Bias

Bangladesh being a flat country of limited spatial spread leading to a short trip length, road transport has an apparent technical and cost advantage over the other two surface modes. On the other hand particularly the railways is in a technically disadvantaged position in Bangladesh mainly because of its outdated and disjointed network that was developed about 100 years before to serve a different spatial pattern of movement of goods and people.

This road bias has been further strengthened because of existing market distortions in pricing of services by different modes, which favours road transportation. Inland water transport has suffered owing to siltation of the rivers, reduction of length of the navigable waterways, lack of dredging, investment for modernization and for various other reasons. This modal substitution of water and rail transport by road transport is very much questionable on economic as well as environmental grounds.

### 5.3. Non Integrated Transport System

Different modes of transport system in Bangladesh is not integrated. But development of integrated system, which has now become a major issue in modern sustainable transport development, has particular significance for Bangladesh with her acute resource scarcity. Thus there is an urgent need for an optimum mix of modes and minimization of consumption of resources. Such a mix cannot be achieved if one looks at a mode in isolation from others. Although rail and water transport is generally more efficient than road transport because of higher energy efficiency and better labor productivity, this fact by itself cannot ensure greater use of these modes. In most of the cases they alone cannot provide door to door services. Because of their higher terminal costs they are also not suitable for short trip length or where intensity of demand is too low to justify higher capacity modes. These inherent characteristics of different modes require that to improve over all efficiency each mode should be used for what it does best in an over all transport chain. Reflecting a fundamental change in the traditional way of looking at transportation of goods and people, a mode is increasingly considered only as a link in the chain and the whole issue of transportation from the origin to ultimate destination is considered.

### 5.4. Non Sustainable Development

Bangladesh is not enough sensitive to environmental and social constraints of Transport sector and its long-term impacts. It should, however, emphasize intergenerational equity and long term ecological sustainability. Economic and environmental sustainability has significant implications for transportation planning, since transport activities tend to be highly resource intensive, has numerous external costs and frequently distribute impacts inequitably. It should be focused on improved access to facilities and to using each mode for what it does best. Improvement of access and distribution of linked production and storage activities can substantially reduce the necessity of movement and/or reduce trip length resulting in low demand for transport infrastructure and services, less energy consumption and reduction of external costs.

### 5.5. Undefined Private Sector's Role

Conventional wisdom is that: government ownership and direct operation of services are required to deliver social benefits of transport is no longer holding sacred. Evidence in many countries has shown that private sector ownership and operation of transport services can also deliver social benefits to the people as a whole. In order to secure competitive access to industrialized economies and global trade generally, and also to exploit the potentials of providing transport services to the sub-region, Bangladesh needs an active participation of private sector to bring

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or providing transport services to the sub region, Bangladesh needs an active participation of private sector to bring in efficiencies of service operation and access to capital. The current participation is very limited. Private sector participation in infrastructure development is tremendously low. Absence of regulatory institutions, appropriate legal framework, and inadequacy of capable and educated transport providers, bureaucratic procedures and practices etc. are some of the factors, which are working as the obstacles to private sector involvement.

### **5.6. Institutional Deficiencies**

In Bangladesh institutions in general are weak and have out dated structure. Lack of capacity and shortage of resources seriously undermine the capability of the country for good governance, sound policy making and management of the development efforts. Powerful vested interests and legal constraints further compound the problem. The manifestations of all these are reflected in the poor and mal-governance of the transport sector, the out comes of which are loss making state enterprises, lack of investments in transport infrastructure, breeding corruption, and weak enforcement of laws for safety, security and environment protection in transport sector.

Different Ministries and Government Agencies responsible for transport sector development are no or very little co-ordination among themselves. These uncoordinated efforts, corruption and dominance of vested interest groups in this sector have given rise to some of the problems such as sectoral bias, inappropriate modal mix, unintegrated system etc.

### **5.7. Lack of Vision**

Without a vision development efforts become ad-hoc and remain unguided. A vision sets the direction for development and guides the formulation of policy measures and strategies to attain certain objectives. Unfortunately no such vision exists in Bangladesh.

Vision should take into account the changing needs of the people, their aspirations and affordability, system efficiency, effective utilization of the existing facilities, technological development, and optimization of physical and financial resource consumption.

### **5.8. Poor Quality of Service**

The Transport Sector in Bangladesh is characterized by weak public and private institutions and low level of investment. It operates in a physical environment of high levels of risk, and socio-political context of extreme poverty and frequent man-made disruptions. The general quality of services at all levels and by all modes has been poor. The overcrowded buses, trains, and water transports, with poor safety and security records, and unreliable service operations are quite common in Bangladesh.

In freight transport excessive cost, long time requirement, pilferage etc. are some of the common problems. These problems are further complicated by vested interests from both within and outside the transport sector itself, unfavourable socio-political environment and over whelming corruption in the country.

Traffic and transportation conditions not only in Dhaka but also in most of the major towns and cities of the country have seriously deteriorated and reached already a critical level. This is adversely affecting the efficiency of performance of the economy as a whole. Some of the major problems in urban transportation include fragmentation of organizational responsibilities, inadequate road space, poor traffic control and management, inadequate or no regulation of the quality of the services and prices, dominance of the services by pseudo-terrorist and criminals, misuse of the Trade Unions by corrupt politicians and criminals..

### **5.9. Inappropriate Modal Mix**

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The share of road sector has gradually increased from less than 30% during the first five years plan period to more than 66% during the 4<sup>th</sup> five year plan and in the current five year it is 60% excluding Bangabandhu Jamuna Bridge. If that is considered the share of road sector will be more than 80% of the total allocation to transport sector. Greater allocation to road sector resulted in the cut of shares of other modes. Water transportation suffered most followed by air and rail transport. According to Bangladesh Transport sector study 1994, while volume of road transport increased by 88% during 85-93, volumes of railway and IWT reduced in almost equal proportion. The study also projected the share of road transport for both passenger and freight traffic, which would be about 70% by 2004.

Due to comparative advantages in terms of speed, flexibility and accessibility, road transport emerged as the most popular mode of transportation. Reflecting popular demand for road transport, political blessings and increased realization of the significance of road transport for rural development and poverty alleviation, road development has continued to receive major attention by all successive governments in Bangladesh. As a result, road transportation has become the principal mode of transportation for both goods and passenger traffic.

### 5.10. Sub-sector Constraints

The development of surface transport system in Bangladesh is constrained by following five major sets of factors:

- **Physical Constraints;**
  - Difficult terrain,
  - Periodic flooding,
  - Poor soil condition,
  - Erosion of rivers and Siltation.)
- **Developmental Constraints;**
  - Low level investments,
  - Poor maintenance.
- **Institutional-cum-Policy Deficiency;**
  - lack of co-ordination and autonomy of transport parastatals (4 line ministries, 9 transport sector parastatals,)
- **Rampant and mass corruption; and**
- **Inadequate enforcement of Law, Orders, Rules and Regulations.**