CHAPTER I

ECONOMICS OF TRANSPORTATION
TRANSPORTATION IS ONE OF THE MOST SIGNIFICANT SERVICE SECTORS OF THE ECONOMY. IN EVERY PROCESS OF GROWTH WHETHER IT CONCERNS BACKWARD LINKAGE OR FORWARD LINKAGE OR DEMAND LINKAGE, IT PLAYS A CRUCIAL ROLE. ESPECIALLY IN THE EARLY PHASES OF DEVELOPMENT WHERE NECESSARY INFRASTRUCTURE HAS TO BE LAYED OR IN THE PROCESS OF TRANSFORMATION WHERE VITAL STRUCTURAL CHANGES ARE TO BE MADE, THE ROLE OF TRANSPORTATION CANNOT BE IGNORED. THE EXPERIENCE OF ALMOST ALL THE DEVELOPED AS WELL AS UNDERDEVELOPED COUNTRIES REVEALS THAT WITHOUT TRANSPORTATION NEITHER THE ECONOMY CAN BE INTEGRATED NOR CAN DESIRED LEVEL OF DEVELOPMENT BE ATTAINED.

PRIOR TO THE INVENTION OF THE STEAM POWER, TRANSPORT OVER LAND AND WATER WAS COSTLY AND TIME CONSUMING AND THE APPLICATION OF THE STEAM FOR TO NAVIGATION IN 1807 AND FOR LAND TRANSPORTATION, THROUGH THE INVENTION OF THE LOCOMOTIVE IN 1829 OPENED AN ERA OF CHEAP TRANSPORTATION. THE STEAM POWER GREATLY REDUCED COST OF TRANSPORTATION BY WATER. THE STEAM LOCOMOTIVE WAS NOTHING LESS THAN REVOLUTIONARY IN ITS EFFECT ON TRANSPORTATION BY LAND. DEVELOPMENTS IN THE ECONOMIC ACTIVITIES THEREAFTER HAVE RESULTED IN RAPID ECONOMIC GROWTH IN SOME OF THE COUNTRIES AND IN INDIA ALSO.

the opening of the railways in the late fifties of the nineteenth century opened the possibilities of the establishment of large scale industries.

In view of the close association between transport and economic growth, there is an imperative need for a sound and well coordinated development of transport system which will facilitate the speedy movements of both passengers and goods traffic in under developed economies. History of various advanced countries of the world bears testimony to the fact that their economic growth followed transport development.

With a view to analyse the economics of transportation, the usually classified tools of demand and supply should be looked into thoroughly in order to arrive at the value of the system. Demand for transportation is basically governed by the state of the economy. If the economy is agriculture oriented, the pattern of transport will be agro-based and if it happens to be industrial economy, the mode of transportation will be industrial oriented. The supply of transportation will depend upon the availability of capital, technical know-how and the prospects of profits. If the economy possesses necessary inputs and the country absorb transportation cost effectively, the supply of transporation shall be forthcoming. Finally the value index of transporation will depend upon the relative strength of demand and supply
position. If the demand is greater than the supply, its price will be higher and vice-versa.

In order to analyse the cost and availability factors of transport and its impact on the economy of a country, it is necessary to look into the economics of transportation. This chapter, therefore, is devoted to the economic aspects of transportation and is broadly divided into three sections:

1. First section of this chapter deals with the economic justification of transport system.
2. Section Second examines the social justification and;
3. Section Third reviews the political and defence significance of transportation.
SECTION-I

ECONOMIC JUSTIFICATION:

In a developing economy which lays emphasis on rapid and balanced growth, development of transport system is highly essential. It is because mobility of various factors of production is determined by the availability of efficient system of transport. The maintenance and further development of efficient transport system is, therefore, of utmost importance to a country aspiring for economic development. Transportation as a field of study can be approached from various angles but this study will confine itself to the role of transportation in the economic growth with reference to three broad postulates of the economy:

a) productive postulates
b) distributive postulates and
c) factor contribution

a. PRODUCTIVE POSTULATES:

As has been argued in the foregoing paragraphs that there is an imperative need for a sound and well coordinated development of transport. It is common knowledge that prior to economic development, transport system should be developed adequately to cope with the increased traffic created in the various sectors of the economy. If this prerequisite is not satisfied, it will affect economic development of the country adversely because a slight improvement in the economy will call for huge carrying
capacity on the part of transport sector to haul the traffic. For instance, during mid-year of the First Plan, an upward trend in the economy caused an acute transport bottleneck and thereby disrupted the economy as a whole. The movement of coal which provides energy to various industries, became difficult and consequently the production plans of various industries were hampered. Similarly bottleneck in the movement of foodgrains occurred in Haryana and Punjab States due to improvement in the production of rabi-crops in 1986 without a corresponding increase in transport services.

Thus a slight shortfall in transportation contributes an inhibiting factor to achieve the planned target of industrial as well as agricultural production and inevitably reduces the rate of economic growth. In fact transport is one of the two great nation building instruments which are having maximum influence upon the rate of growth, the other being education. The whole economic activities are lubricated and the rate of development is being pushed ahead. To operate efficiently, factories need continuous supplies of fuel, raw-materials and spare parts. A market and an easy, quick and cheap accessibility to it are also necessary to sell what is produced in the factory. In the absence of transport facilities, factories are compelled to maintain excessive inventories at high cost and also the operation of the production unit may have to be totally closed for want of supplies, or a factory may be
able to utilize only a part of the installed capacity because of non-arrival of fuels, materials or of other inputs, in time. If transport is inadequate, investments elsewhere suffer. To cite an example, the 1961 transport bottle neck in the country resulted in inadequate clearance of coal from pitch heads which in turn affected industrial production in general. A survey of 221 units conducted at that time revealed that 105 units (47.5 percent) had to slow down production for a period of two or three months. About 19.4 percent had to suspend production of these 15.4 percent were obliged to close down completely. Though none of the large scale industrial units had to suspend production completely, continuous working was hampered. Transport by itself does not produce or create any new wealth so as to add to the volume of the National Dividend. At best it serves as a catalytic agent in the process of production. It is, however, a contributory factor which increases the place value of the product and gives impetus to production both qualitatively and quantitatively. The processes through which transport act as a contributory factor can be explained with the help of following:

1) Division of Labour
2) Market Extension
3) Industrial Location and
4) Price Stability.

1) DIVISION OF LABOUR:

Economic activity of any society can follow one of the two conflicting principles. One principle is that of self-sufficiency and the other is that of division of labour.
or specialisation. If a community believes in the principle of self-sufficiency, it will try to produce all the requirements of sustenance from its own resources. On the contrary if the principle of division of labour is followed, each community will specialise in the production of a particular commodity or service and will rely on the facilities of exchange to enable it to obtain other goods and services which are not produced or rendered by that locality. Consequently a community which bases its economic activity on the principle of self-sufficiency, will be backward and poor in terms of wealth and economic welfare. On the other hand, the community following the principle of division of labour will be much richer in terms of wealth and economic wellbeing but will be very much interdependent on various localities engaged in the production of various goods and services. This dependence can be relied upon to a large extent on the availability of the facilities of cheap and efficient means of transportation to fill the gap of communities.

The evolution of economic advancement can be traced concomitantly with the growth of division of labour. Both economic development and territorial & geographical division of labour go hand in hand. In fact different lines of productive activity can be located in a particular geographical area which has comparative advantage. In the present economic system, the first principle of sound economy is to make the best use of available resources. The
geographical division of labour means a system of production in which each area tends to specialise the production of one or a limited number of commodities in which it has greater advantage. In such circumstances transport system helps very much to exploit fully the advantage of a particular area at low cost. For example, if place 'A' can produce a commodity more cheaply than place 'B' and place 'B' can produce a thing more cheaply than place 'A' it will be in the interest of both that they should be allowed to produce that commodity for which they are best suited. In other words place A & B will be allowed to take full advantage of comparative cost principle. But if efficient transport system is not available or cost of transport is very high which offsets the advantages of each place, then both the places are compelled to produce even that article for which they are not suited. However, the availability of cheap and efficient transport system facilitates specialisation in the production of only such goods for which it has the greatest advantage. At the time when this kind of division of labour takes place, a community sometimes purchases things from outside at a greater cost than it can produce at home. It is done in order to enable itself to devote its all productive resources in the production of such goods for which its advantages are maximum. It indicates that the comparative advantage does not mean that a community produced all such articles in which it has an advantage over others. It simply means that of all the commodities which it can produce
relatively at lower cost, it will produce only that for which it has the greatest advantage and obtain the greatest return. There will be greater output at less expenditure of capital and labour if each community specialises in the lines of activity for which it is best suited.

Thus today economic activity is highly specialised. Every consumer goods which raises our standard of living, constitutes the labour and skill of many different workers, each of whom is specialist in one aspect of production. Specialisation increases the productivity in industries and agriculture both. Industrial revolution in developed countries was made possible due to vertical specialisation and it (vertical specialisation) was made easy by the availability of efficient transport system.

Industrialisation requires various things which are being made available with the help of transport services even from remote places. For example during the British rule, raw materials were supplied by India, while production process was being performed in Britain and again finished goods were transported to India for consumption. The specialisation of this kind was mainly responsible for a phenomenal rise in the standard of living of the people, in spite of the fourfold increase in population of England within a century ending nineteenth century.

But industrialisation can not proceed unless it is supported by various sectors of economy. It requires various

agricultural products to feed non-agricultural sector at low prices. Scarcity of agricultural goods will cause inflation in the economy and thereby cost of production in the non-agricultural sector will show upward trend. As a result the country will be unable to compete in foreign market and eventually financing of imported machinery would become a difficult task. It is quite true that until underdeveloped countries succeed in achieving and sustaining a reliable food surplus, they can not fulfill the fundamental precondition for economic growth. All those countries that are developed today had a food surplus either through domestic production or imports. However, a developing country can not rely upon the imports on account of foreign exchange crisis.

On the contrary food surplus through domestic production can only be had by assigning highest priority to the agricultural sector in the initial stages of development. Agricultural growth in the beginning is also desirable keeping in view that the rural area is the mainstay for over a billion inhabitants of the underdeveloped world and their main source of livelihood is agriculture. But the difficulty is that farmers of underdeveloped countries try to produce every article of their consumption on their own farms. This causes low

productivity and also retards specialization and commercialization of crops. In order to achieve higher productivity in agricultural sector, specialization and commercialization in certain crops is indispensable. But unless, surplus goods caused by higher productivity are placed to a well regulated market, farmers will not be well off. To make this exchange advantageous, cost of transport should not be more than the value of enhanced production. It is exactly the problem of transport that has encouraged the continuation of subsistence type of farming in many regions of the world. Therefore, if it is desired to specialize or commercialize agriculture, transport system will have to be developed. "If it is true that the strength of an army lies in its legs, it is more true that the strength of our agriculture lies in our roads." II

Among the difficulties which hinder the progress of Indian agriculture, despite all the efforts of the agricultural and cooperative movement, may be mentioned the lack of good roads. Some of the best agricultural districts in India are cut off from trunk roads and railways and inaccessible for most of the rainy season. There are some districts in Central India where it costs one pound to get a half tonne load by bullock carts to rail head. A very serious economic loss is thus caused to the farmers of India year by year." III

II. Ramandham, V.V., Road Transport in India, P.3.
III. Commerce (Bombay) Annual Number, 1950, p. 1200.
Similarly more than 30% of the perishable produce of India runs to waste on account of limitation of transportation. According to an estimate of Delhi Fruit and Vegetable Merchants's Union, the daily loss to the fruit growers is about Rs.80000/- on account of excess time taken in the haulage due to inefficient system of transporting. The data for the country as a whole are not available yet it can be said that the magnitude of loss in this respect is colossal. All this indicates the importance of a well integrated form of transport to increase the productivity in agriculture, earnings of Indian Farmers and widening the market for their produce by providing cheap and efficient services. Rural roads are as much an input in agriculture as are seeds or fertilizers.

II). MARKET CONTRIBUTION:

Transport sector also contributes to the economy by providing opportunities to other sectors to develop or for the whole economy to participate in international flows. This market type contribution of transport to the economic growth provides opportunities by offering its services on either domestic or foreign markets. Through these methods, transport sector makes it possible for other sectors to emerge and grow and help in the development of international trade. In fact, the increased productivity in other sectors of economy will be useless unless it is traded on a wide

I. Indian Express, New Delhi, March 13, 1968.
II. Indian Express, New Delhi, March 13, 1968.
area. In the absence of a wide market a community cannot specialise in certain products, for specialisation means a surplus of a particular produce which must be traded in order to get other products for use. This means that efficient transportation system is a must for bridging the time and space gap. Historical process of economic growth of the U.S.A., the U.K. and other advanced countries of the world also established this relationship effectively. As facility of transport increased in these countries, the time and space gap was filled expeditiously and thereby specialisation was made possible. Not only domestic markets have been widened but also foreign market have been tapped. In a country in which market for a product is limited, specialised machines and skilled workers are at discount because demand of their products will be limited. Obviously a country will be facing difficulties if it is too small to provide a domestic market for new products of a volume compatible with efficient operation, before they are able to compete favourably in the world market. For instance, in China (Taiwan) new established cotton mills are confronted with the problem of excess capacity because of saturation of domestic demands. Efforts are of course being made, to develop the export market. The problem of excess capacity is also in Hong Kong and Japan, partially as a result of several newly independant Asian countries that have completed or expanded their own mills and no longer import
cotton textile from abroad. For a developing country the entry of new product in the foreign market is very difficult. It is only in case of highly market oriented industries or those sheltered by distance or transport costs that the new enterprises in the developing countries are likely to find entry easy. However extension of market is highly essential in order to encourage the development of new industries and to accomplish this task the availability of cheap and efficient transport facilities will be of vital importance.

It should also be mentioned here that the use of technology plays a crucial role in the process of specialisation. But the technological and economic efficiency may be determined depending upon the extent of the market of such goods for which highly specialised machinery is used. Lower demand or smaller market of such goods will reflect in the form of idle capacity of that machinery. In case the market is limited; highly specialised machinery may not be installed, scarce resources to the extent of idle capacity of machinery may not be wasted and be used for other productive purposes. It, therefore, emerges that technological efficiency in economic sense is also limited by the extent of the market which itself depend upon the availability of efficient mode of transport.

111. **INDUSTRIAL LOCATIONS:**

Besides extending market it also influences the location of industries. The suitable location of industries is very significant from the point of view of reducing the cost of production. However, location of industry and economic activities are determined by many factors, some of them are clearly ascertainable in measurable and objective terms, while some of them are apparently the result of historical accident. There seems, however, to be general agreement that the principal factors are markets, raw materials, fuel or power, labour and transportation. All of these are of varying importance depending on the nature of industry.

In addition, the mobility of factors and the way in which they are distributed geographically is significant. The distance is either a cost to be met or an input practically equivalent to a factor of production, along with land, labour and capital for the purpose of location. Industry which has been well located, has survived and flourished and on the contrary, industries which have been badly located, have tended to die through perennially low profits and business failures. Indeed transportation charges make a significant impact on the orientation of industry in relation to markets and raw materials. At the very outset it must also be made clear that the importance of transport charges will vary in accordance with the nature of industries. If the ratio of the transport cost in the
total cost of production of commodity is significantly high
transport charges will be the determining factor in the
location of industry. If freight rates constitute a small
part of the cost of production then it may exercise
practically no influence in the selection of the location.

Nevertheless, in terms of location theory, all
commodities fall into one of the three categories. They may
be supply oriented, market oriented and foot loose. Supply
oriented commodities are those in which the industrial
processes tend to be located near the source of the major
materials or fuel. These commodities are for the most part,
weight losing or weight saving in the course of processing
or manufacturing. They may be the products manufactured
with large fuel consumption at a stage where the weight of
the fuel is important in relation to the weight of the
product. Also they may be, particularly in agriculture,
such commodities which requires preservation, grading or
standardisation. These industries or industrial processing
units will be located near the supply of raw material or
fuel in order to reduce processing cost, which would
otherwise include a large element of transport cost. Cane
crushing, the extraction of sugar from beets, the canning
and freezing of vegetables and fish, the grading of fruits
etc. are all supply oriented industries and such industries
will locate near the source of supply in order to reduce the
transport bill as well as to preserve the property of
commodity.
Some products like bread have to be produced near the market because of their perishable nature. Servicing industries also locate near the market. Also the processes which add weight or bulk to the products are likely to be attracted to the market in order to minimise transport costs. Besides a number of industries have no strong locational pull either to supply or to market. The reason may be that costs of transfer are relatively insignificant or the change of weight and volume may be of little consequence. In such circumstances industries are located at either of the end of the transportation chain. i.e. either at the source of raw material or at the market place but not between two. This is because long haulage of goods are always relatively cheaper than the short haul. For example the refining of crude petroleum into various products involves little change in volume or weights. Accordingly it can be established either at the point of consumption or near the wells. Moreover in the selection of foot loose industry's location, factors other than the transport costs influence much.

With these type of industries which are almost found in every country, we have to examine as to how far transport system affects the location of industries in our country? In fact our economy is entirely agro-based and raw materials to various industries are supplied by this sector. We can cite as an example of sugar industry which is almost located in the sugarcane growing areas of the country. This
is because sugarcane is a weight losing material. Besides this characteristics, here is wide gap between the weight of raw materials and sugar product. On an average about 10 percent of the raw materials weight comes in the form of finished product. Therefore this industry has deeply penetrated into rural areas from where raw materials are supplied. Similarly Iron and Steel industry is located in Bihar because the main raw materials used are iron ore and coal and both of them are found in that state. Besides, as our economy is largely governed by agriculture, various industries may come up in the villages to process the produce, for preservation of various fruits and vegetables, the processing units are to be located near the source of supply. Hence the need of transport is highly desirable in order to beef up the agricultural resources of the country. The location of big cities on the bank of the rivers itself shows as to how the inland water transport which was the major source of transportation in ancient times, has influenced the growth pattern in the past. And transport system will continue to influence the establishment of industries and economic activities in future also.

iv). PRICE STABILITY:

Besides price stability is one of the important factor for growth development without causing dislocation in the economic activity. Specially when a bumper crop is
harvested or industrial goods have been produced in very large quantities, the surplus cannot be sent to other consuming centres in the absence of transport facilities and this causes a great fall in its prices. If adequate transport facilities exist, the surplus would necessarily be transported to deficit areas. This would enable the local market to maintain steady prices and prevent the price spiral of the deficit area from shooting up. If prices are stabilised, producers are happy as they are certain of getting a reasonable price throughout the year. Thus transport helps in establishing and maintaining inter-related prices of commodities for the benefit of both producers and consumers.

In addition to this, cheap and efficient transport system also influence the price to be charged by a trader in the monopolistic condition. As if there is a wide gap between the cost of production and prices representing high profit margin, the other trader from far off areas would be tempted to supply the goods and create a condition of competition which will ultimately reduce and stabilise the prices at reasonable level. Specially to-day under the liberalised economic policy and emphasis on export of farm produce, transport system has to play a vital role in facilitating the location of various agro-based industries in rural areas.
B. DISTRIBUTIVE POSTULATES

Due to the absence of transport facilities in the rural areas, there has been a wide gap between urban and rural communities in respect of income and standard of living. Various commodities used in cities and urban areas can not reach to the rural masses either due to inadequacy of transport facilities or on account of high cost of transportation. In this context efficient and low priced transport facilities can play a significant role in the field of distribution. In fact the process of production is not complete unless goods are placed in the hands of consumers. Production simply means the creation of utilities. Transport also creates place utility. Price of the goods that are placed in the market, must cover its cost of transportation. Under distributive postulates an analysis of extention of market and price reduction will be discussed.

1) Extention of Market:

Indeed the level of output which any producer can sell depends on the cost of production which includes the cost of transporting the product to the consumers. At a given level of output the producer will try to use his productive resources rationally so that the cost of product may be the minimum. His output will be fixed by the demand of consumers at this level of costs. Any further expansion of his business depends upon the external factors. A
reduction in the costs of production per unit may be possible if producer enhances output but any such increase requires extension of the market. There may be a potential demand for the product but the cost of the production including transport charges may be high. Consequently the product will be beyond the reach of the purchasing power of the marginal consumers. An improvement in transport facilities, however, by reducing the economic distance measured in terms of costs may bring the product within the reach of the potential buyers. The output of the producer will then increase and this may lead to high degree of specialisation. The resultant increased efficiency, therefore, of resources will reflect in the form of higher productivity of the factor of production. Eventually higher productivity will contribute towards higher standard of living. Thus extension in market brought about by transport development raises productivity. The consequent resultant benefit which while difficult to assess quantitatively may exceed that represented by the reduction in transport cost. Hence it may be said that the economics of efficient transport cost. Hence it may be said that the economics of efficient transport system lies in raising the productivity of various employed resources.

However producer consumer gap should not be examined in terms of distance only. The important thing is that the distance should be examined in economic sense i.e. what is the cost of transport for bridging the gap. Because
sometimes physical distance (in terms of mileage) may be the same but economic distance measured by costs of transport will be markedly different. For instance, the cost of transportation will fluctuate in mountaneous and plain regions, though the distance may be the same. Similarly the cost of goods sent abroad by water and air transport differs widely. Size of the market of a product will be enlarged to the extent, the gap between the producer and the consumer is bridged efficiently and cheaply. In foreign market too, products can be placed for sale at the competitive prices provided the cost of transport is not very high. As we know that the natural resources are unevenly distributed and every country is suited for the production of a particular item. This has necessitated the exchange of goods between different countries. By making exchange of goods between different countries, transport system offers an opportunity to utilise the economic resource of different countries in the most suitable and judicious manner. But if the cost of transporting them is extremely high, export will not take place.

The existence of transport costs means that price ratio in the two countries concerned need not be equal. Transport cost will make the imported commodity more expensive. Consequently, the prices in the importing country will be higher than the exporting country by a determinate amount of the cost of transport. It is shown by the following diagram.
The diagram shows that prices of cloth in country "A" (exporting country) is lower than the country "B" (importing country). But the transport cost must be of WT value otherwise the international trade would not take place. According to the above diagram if the transport cost is more than WT or to say it is MN., in such case international trade will be hampered. Price difference between exporting country and importing country must be wider than the transfer cost. In fact higher cost whether real or artificial influence the movement of capital from one country to another. International trade is affected by it and some times many commodities do not enter into the orbit of exports and imports activity. It merges that the high cost of transport influences the rate of capital formation and limits the scope for the international capital movement.

11). Price Reduction:

High price due to high cost of transportation not only limits the scope of international capital movement but also retards the rate of capital formation in the country. High prices in fact reduce the quantum of saving because the people have to spend larger part of their purse on the necessaries of life. This creates the problem of finding resources to finance developmental activities specially in developing countries. Improved transportation reduces the cost of goods in many ways. It is here that modern
transportation has made its greatest contribution to economic well being. It has increased the wealth by reducing the expenditure of capital and labour required to produce goods and to put them in the hands of consumers.

Before the dawn of mechanised form of transport, goods were transported by packed animals. The time required and costs of hauling goods were exorbitant. Speed of animal was also very slow and their maintenance was costly. Besides, the risk of destruction of goods in transit was greater. But with the introduction of mechanised form of transport, packed animals are not only substituted but also there is an improvement in speed and efficiency in carrying goods and passenger at lower costs. Faster transport services has enabled the industry to effect economy in the keep up of inventories and generally, to finance a given level of activity at lower capital cost. Associated with this advantage, is the faster turnover of stocks which has reduced the degree of risk in business. Also faster services have speeded communications of all kinds, expedited the exchange of information and correspondence, given businessmen a wider range of action and eventually contributed to a greater efficiency in production.

Indeed the most obvious way by which cheap transportation reduces prices is through the reduction in the cost of getting goods from the point of production to the consumer. The freight rates on goods are, in reality,
costs of production and are to be considered as an input. The process of production is not complete until goods are placed in the hands of consumers. This truth is frequently explained by pointing out that production is the creation of utilities not simply the creation of physical goods and that transportation creates place utilities. If goods are brought into a community for sale, the price must be high enough to cover the cost incurred in hauling them. High freight rates mean higher prices for the goods which are brought into a community, low freight rates mean lower prices for these goods, other things being equal.

A second way in which cheap transportation reduces prices of goods is through reducing the cost of assembling the raw materials needed in the manufacturing process. Manufactured articles contain raw materials which are to be assembled from many sources of supply. These transportation expenses increases the cost of producing the manufactured goods. Thus if the cost of assembling various raw materials is exhorbitant, it would increase the cost of product and thereby raise the price of the produce. Industries sometimes, therefore, move closer to sources of raw materials in order to avoid high freight rates. But if raw materials are supplied from different sources or places, high transportation charges cannot be wholly avoided. In such circumstances industry will try to move towards the source of supply of that raw materials on which the freight
Bill is the largest but the other raw materials will have to be brought perhaps even from larger distances than formerly. There is no escape from the fact that the cost of assembling raw materials is the cost of production. Any thing which tends to reduce this cost will tend to reduce the price of the manufactured goods.

C. FACTOR CONTRIBUTION

Another type of contribution of the transport sector to economic growth occurs when this sector transfers the resources to other sectors of the economy. Thus when transport develops, it increases the productivity of various other factors of production by performing contributory services. When it facilitates exchange of goods from one market to another, it enables to take advantage of comparative cost. But when in transfers directly it causes factor contribution. Transport contributes to the economy in the following way:

A. Direct Contribution and
B. Indirect Contribution.

A. Direct Contribution:

Transportation helps the economy by contributing the national exchequer directly in various forms:

1). Firstly the nationalised mode of transport i.e. railways, airways and bus services contributes to the national coffer by way of creation of surplus funds and paying dividend.
2). Secondly the transport sector pays various types of taxes to the Government and,

3). Thirdly incomes and savings generated by the private owned transport hauliers are invested in financing other sectors of the economy.

Railway is the main carrier of the nation and a public utility concern. A huge fund has been invested by the Government since the very beginning of the railway development. During the initial period of rail development and specially under Old Gaurantee System, the investment in the rail transport was gauranteed by the Government a return @ 4.5% to 5%. Later on when the Government took full control of railway management and investment responsibility, railway was supposed to contribute a certain percentage to the national exchequer. With the separation of railway finances from the general revenue in 1924 a condition was laid down that the general revenue shall receive a definite annual contribution from the railways which shall be the first charge on the net receipt of railways¹. At present railways have been contributing a substantial amount to the general budget and their share in financing the fourth five year plan was about Rs.265 crores. During the financial year 1977-78 dividend to general revenue was Rs.226.56 crores and it rose to Rs.295.97 crores during 1979-80 and Rs.322.24 crores in 1980-81. Table No.1.1 shows that the contribution of Railway to General Revenue has gone up during the last decade. From Rs. 322 crores in 1980-81 it

¹. Railway Convention, 1924.
has gone up to Rs.1032 crores during 1991-92 and it is likely to go up to Rs.1253 crores in 1993-94. Similarly the income generated by airways and shipping services goes directly to the Government. Shipping and Airways not only help in promoting foreign trade and boosting tourism but also help in saving and earning precious foreign exchange. In this way transport sector helps in financing other sectors of the economy.

TABLE No. 1.1
Railway Contribution to General Revenue

<table>
<thead>
<tr>
<th>YEAR</th>
<th>AMOUNT (Rs. Crores)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977 - 78</td>
<td>227</td>
</tr>
<tr>
<td>1979 - 80</td>
<td>296</td>
</tr>
<tr>
<td>1980 - 81</td>
<td>322</td>
</tr>
<tr>
<td>1985 - 86</td>
<td>507</td>
</tr>
<tr>
<td>1986 - 87</td>
<td>579</td>
</tr>
<tr>
<td>1987 - 88</td>
<td>639</td>
</tr>
<tr>
<td>1988 - 89</td>
<td>715</td>
</tr>
<tr>
<td>1989 - 90</td>
<td>809</td>
</tr>
<tr>
<td>1990 - 91</td>
<td>926</td>
</tr>
<tr>
<td>1991 - 92</td>
<td>1032</td>
</tr>
<tr>
<td>1992 - 93</td>
<td>1146</td>
</tr>
<tr>
<td>(Revised Estimate)</td>
<td>1253</td>
</tr>
<tr>
<td>(Budget)</td>
<td></td>
</tr>
</tbody>
</table>


In addition to it, various direct and indirect taxes are paid by transport sector as a whole e.g. excise duty, passenger tax, goods tax, motor vehicle tax, registration fees, road tax etc. Indeed contribution of road transport to the Government in the form of various
taxes is continuously rising. The tax revenue from motor vehicles has gone up from 47.4 crores in 1950-51 to Rs.448.8 crores in 1967-68. Thus there is 9.5 fold increase in the revenue from motor vehicles. Motor vehicle tax has not increased in terms of quantity only but percentage-wise also. The percentage of motor vehicles tax to total tax revenue has gone up from 6.2% in 1950-51 to 13.3% in 1964-65 and 12.2% in 1967-68. Subsequently this has gone up further and likely to go still ahead because of liberal policy of expansion of automobile industry without reducing tax quantum. Road Transport Taxation Enquiry Committee 1967 had estimated that each commercial vehicle on the road contributes the central and state exchequer together Rs.14069 in the first year and in subsequent years it contributes regularly Rs.10,800. Since then there is substantial increase in the prices of various items which in consequence increases the contribution of commercial vehicles also. The revenue received from road transport by the state and Central Govts. Can be seen fro Table No. 1.2.

TABLE No. 2.1

Revenue Received from Road Transport by State and Central Governments:
(Rs. in Crore)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960 - 61</td>
<td>166.94</td>
</tr>
<tr>
<td>1965 - 66</td>
<td>399.04</td>
</tr>
<tr>
<td>1970 - 71</td>
<td>683.17</td>
</tr>
<tr>
<td>1975 - 76</td>
<td>1412.72</td>
</tr>
<tr>
<td>1980 - 81</td>
<td>2173.00</td>
</tr>
<tr>
<td>1985 - 86</td>
<td>4014.00</td>
</tr>
</tbody>
</table>

Source: Compiled from various sources by the Research Scholar.
Another way of capital transfer is the use of savings generated in this sector for financing other sectors of economy. Generation of savings through transport sector occurs in two ways. Firstly it makes catalytic affect on other sectors to generate income and save. Secondly it directly earns revenue which may be utilised in other sectors of the economy.

B. Indirect Contribution:

Indirect contribution to this effect is made by making extensive use of economic resources possible. As it has already been stated that an efficient transport system helps in the production of such goods for which a particular area is suited. Such community or area devotes all its resources for the production of a commodity in which it has comparative cost advantage. Sometimes a community can produce various things at lesser costs then the other community. But it produces only that in which it has the greatest advantage or to say in which the rate of return is the highest. In the absence of efficient transport services this will not be possible. In such circumstances community has to produce every commodity which it requires. It means factors of production i.e. land, labour, and capital will be less effectively utilised. Efficient transport services make it possible to utilise land, labour and capital effectively to produce more and thereby generate higher
income. Besides, transport also facilitates mechanisation and commercialisation of agriculture.

Mechanisation in agriculture enables the developing country to reduce the pressure of population from agriculture and shifts the labour force to be gainfully employed in other sectors of the economy. Mobility of labour and transfer of surplus manpower from agriculture to other sectors depend largely on the availability of this sector. Also when agricultural growth is followed by industrial development, it helps in the form of assured food supply to industrial projects. "A leakage arises through the cost of transporting food from the farms to the places where the capital projects are established. This particular leakage can be reduced by scattering the projects in rural areas, but in practice it can probably never be entirely suppressed. High cost of transport will influence this leakage much more and thereby warrants the rate of capital formation". It emerges, therefore, that the transport sector indirectly helps other sectors to develop and grow. As economy grows, there is shift of labour from primary sector to secondary and tertiary sector. Transport is one of the important constituents of tertiary sector. By absorbing the labour, it reduces the difficulties which otherwise may be created in the primary as well as secondary sector and leave them to develop without any hinderance. If this absorbing effect is not made, it will be difficult to

follow commercialisation and mechanisation in agriculture because labourers will not leave the farms.

For providing transport services various types of factories have to be established. For example, to provide road transport services, automobile industry, locomotives and wagon factories in case of railways, shipbuilding industry in case of shipping, aeronautical industry in case of airways will come into existence. And to support these industries a large number of ancillaries industry will also be established. Thus a large industrial structure will be established to support the efficient transport services. Consequently a huge force of various types of labourers: skilled, semi-skilled and unskilled are being absorbed in these industries. This is highly essential to relieve the agriculture sector and help in the use of mechanisation in rural economy.

Besides, there are glaring examples that investment in transport sector is very profitable and promises great potentialities in the generation of capital. Basic social overhead investment accounts for around one-fourth of gross capital formation in many developing countries and for about one third of gross fixed capital formation. This also justifies that the investment in transport sector is highly rewarded in the form of high rate of capital formation. In fact heavy investment in overhead facilities create external economies for other productive
activity of an economy. For example, heavy investment to provide transport facilities may give rise to the internal economies. This in turn will probably result in external economies for the users of the output. In other words an efficient transport system will lower the cost of haulage and this in turn will benefit heavy users of transportaion facilities.

"The supreme justification of large investment in transportation, power and water is that this social overhead capital generates large pecuniar external economies for numerous other enterprises that use their inputs and services". And this help as a big push in the production activity. But it is unfortunate that most of the country's economy suffered from the non-availability of external economies of overhead capital in the past and retarded economic growth. To avoid bottleneck and difficulty in the process of economic advancement they have invested huge amount to provide infrastructure facilites through which their economy grows at faster speed. According to the World Economic Survey, the percentage of investment in basic facilities in relation to total gross investment in the economy of various developing countries shows that the percentage of investment in basic facilities of developing countries is about one fourth of the total gross investment in the economy. It has been done in order to increase the mobility of factors of production and to provide external
economies that have pushed up the productivity in various
developed countries of the world. But in view of the
vastness of rural economy in our country the percentage of
investment in transport and communication is insignificant.
There is need to increase the quantum of investment in
transport sector in order to build a strong base so that
movement of goods and persons may not be hampered. A recent
World Bank Working Paper entitle "India's Growing Conflict
between Trade and Transport" assesses that $ 3 billion
annually at least must be spent over the next ten years to
firm up India's transport sector. It recommends a greater
reliance on market forces and involvement by the private
sector.¹

¹. The Economic Times, New Delhi, Thursday October 7, 1993.
SECTION - II

SOCIAL SIGNIFICANCE

Transport development did not only help in achieving the limited objective of increased productivity in various economic activities but also brought a revolutionary change in the social and cultural advancement of the whole community. The need of transport system, therefore, should be looked into beyond purely economic considerations. The social effects of improved transportation are manifest at the local, national and international levels. Community life has been able to develop on a more expensive scale. In fact, by increasing the productivity it helps in raising the standard of living of the whole community. Besides, now the pattern of consumption is changing very fast and the standard of living of people consists of the use of various articles. In such circumstances, the supply of various goods in large quantity will become a tedious job in the face of inefficient transport services. Also if a community wants to produce all such goods which it requires, it could not. Because climatic conditions and available natural resources limit the production of various kinds of goods. Thus efficient transport service is very essential for upholding and raising the living standard of common man.

In our country 80% of our population lives in villages. To bring them into a close contact with the latest developments that are taking place in urban and city
areas, transport is essential. Indeed our villages are devoid of transport facilities. About 36% of villages have no easy access to city and town at all. This isolation of a large number of population creates various social as well as economic problems and act as a drain in our economic planning. Our country has conceived an idea to set up socialistic pattern of society so that every individual may get equal opportunities in various fields. If this objective is to be achieved successfully, there is no way out without efficient transport system. Success of education, family planning programmes and the solution of health and sanitary problem depend to the greater extent upon the availability of this facility.

A very significant influence that is made by the transport system on community is the integration of various cultures, customs, and different way of living. At the national level improved transportation has led to a diffusion of cultural patterns that has diminished in a marked degree much of the local distinction that characterised earlier periods. This has been accompanied by an increased mobility of population and a rapid shifts of it and industry to newer areas of the country. Similar changes have been taking place throughout the world as a whole, with a consequent difficulty of adjustment that are providing to be so puzzling and even terrifying to the "new era" of the twentieth century. But transport by promoting mutual
understanding has solved such difficulties. Mr. Wilson observes in this connection, that "the cultures of sections and nations are valuable distinctive characteristics and should not be eradicated if they can be reconciled so as to reduce economic, political and social friction. Transportation serves to promote understanding of differences even though it may not effect their eradication". By promoting mutual understanding it broadened the outlook of the people of the world. In this way it can be said that the evolution of modern and efficient transport system had not only made an impact upon the economic aspect of the human being but had also conferred a tremendous benefits on the society by way of bringing social and cultural revolution in the world. On account of this, now the inhabitants of less developed countries are getting rid of old traditions and conservative ideas that was acting as a barrier in the smooth and fast development of their economy.

At the time of regional famine, the people of the affected area starve due to shortage of food items, while another region which is not under the grip of famine has a plenty of surplus food gains. This was due to lack of transport system. Besides the affect of famine did not stop at the point that anyhow arrangement of food grains are provided but also the people of the famine striken areas

are having no money to purchase the necessities of life. In such case also transport sector helps. Under these circumstances, often Government take resort to build dams, construct road, canals, laid down railway line etc. Because 75% of the expenditure incurred on the road construction goes to the labourers. Thus road construction by providing purchasing power to labourers enable them to have means to buy their necessities of life. Hence it is evident that tertiary sector specially transport bridged the gap of deficit and surplus areas and helps in providing means of livelihood.
SECTION - III

POLITICAL AND DEFENCE SIGNIFICANCE.

Besides, one of the earliest requirements of this country immediately after attaining independance was a system of transport that would make a unified political life possible through adequate communication and interchange among the members of the new nation. The construction, reconstruction and improvement in maintenance of G.T. Road was made in order to unify the whole country politically. Unless a well developed transport system exist, the efficient administration of a vast country like our becomes very difficult and to achieve national political unity is doubtful. In the U.S.A. the construction of the Union Pacific Transcontinental Rail Road Project was made with an view to unite the California and the Pacific Coast to the States and territories east of the Missouri river. Similar was the case with the introduction of Astrallian Government Transcontinental rail-road which united both east and west Australia.

Peace is also essential for the smooth functioning of a Government as well as economic activities. If there is always disturbance in the country the productive activity will be hampered. Transport system helps very much in the maintenance of law and order and thereby facilitate the smooth functioning of economic organisms.

I. Russel E. Westmeyer, Economics of Transportation, p.13.
Apart from this, importance of transport can not be over-exaggerated for the purpose of defence. At the time of invasion or outbreak of war, the facility of transporting army-men and their required goods to the specific place often becomes a decisive factor. German rail road system contributed to German success in the World War I. While Hitler's failure to maintain the rail roads adequately and the subsequent breakdown of transportation is said to have been a contributing factor to the ultimate defeat of the Germans in World War II. Dependence of U.S.A. on rail road transport in World War II was also beyond question. As such transport policies of big countries have generally been influenced by military considerations. Construction of Roman Road and Trans-Siberian Railway in Russia could also be quoted as an instance.

CONCLUSION

It emerges from the above discussion that transport system acts as a catalytic agent in the acceleration of economic growth. Division of labour which is the characteristics of a rich and advanced community is limited in the absence of an efficient transport system. It influences every walk of life. Absence of transport will lead us to the darkness and the entire process of production will be disturbed. In the process of growth of various

advanced countries of the world it has contributed much by increasing the extent of the market, degree of specialisation and consequently the productivity of scarce resource. Besides, for the purpose of defence, achievement of political unity and maintenance of law and order, that could influence much on the economic organisms, various advanced countries have well developed and maintained transport system. With this view it is therefore, desirable for the developing nations also to build a strong base of efficient, cheap and well coordinated system of transport so that their process of economic growth may proceed smoothly and rapidly. But before enforcing a transport policy in a country or in a particular area, various economic and geographical factors should be taken into account. Therefore, it seems worthwhile to study the economic and geographical structure of U.P. This aspect of the problem forms the subject-matter of the next chapter.