



# TRANSPORTATION ENGINEERING -I



## Role of transportation in society

- Transportation is a non separable part of any society. It exhibits a very close relation to the style of life, the range and location of activities and the goods and services which will be available for consumption.
- Advances in transportation has made possible changes in the way of living and the way in which societies are organized and therefore have a great influence in the development of civilizations.
- This chapter conveys an understanding of the importance of transportation in the modern society by presenting selected characteristics of existing transportation systems, their use and relationships to other human activities.
- Transportation is responsible for the development of civilizations from very old times by meeting travel requirement of people and transport requirement of goods. Such movement has changed the way people live and travel.
- In developed and developing nations, a large fraction of people travel daily for work, shopping and social reasons. But transport also consumes a lot of resources like time ,fuel, materials and land.



## Economic role of transportation

- Economics involves production, distribution and consumption of goods and services. People depend upon the natural resources to satisfy the needs of life but due to non uniform surface of earth and due to difference in local resources, there is a lot of difference in standard of living in different societies.
- So there is an immense requirement of transport of resources from one particular society to other. These resources can range from material things to knowledge and skills like movement of doctors and technicians to the places where there is need of them.



## The place, time, quality and utility of goods

- An example is given to evaluate the relationship between place, time and cost of a particular commodity. If a commodity is produced at point A and wanted by people of another community at any point B distant  $x$  from A, then the price of the commodity is dependent on the distance between two centers and the system of transportation between two points. With improved system the commodity will be made less costly at B.



## Changes in location of activities

- The reduction of cost of transport does not have same effect on all locations. Let at any point B the commodity is to be consumed. This product is supplied by two stations A and K which are at two different distances. from B. Let at present the commodity is supplied by A since it is at a lesser distance but after wards due to improvement in road network between B and K , the point K becomes the supply point of product.



## Conclusions

- Transport extends the range of sources of supply of goods to be consumed in an area, making it possible for user to get resources at cheap price and high quality.
- The use of more efficient systems of supply results in an increase in the total amount of goods available for consumption.
- Since the supply of goods is no longer dependent on the type of mode, items can be supplied by some alternative resources if usual source cannot supply what is needed.



## **Social role of transportation**

- Transportation has always played an important role in influencing the formation of urban societies.
- Although other facilities like availability of food and water, played a major role, the contribution of transportation can be seen clearly from the formation, size and pattern, and the development of societies, especially urban centers.



## Formation of settlements

- From the beginning of civilization, the man is living in settlements which existed near banks of major river junctions, a port, or an intersection of trade routes. Cities like New York, Mumbai and Moscow are good examples





## Size and pattern of settlements

- The initial settlements were relatively small developments but with due course of time, they grew in population and developed into big cities and major trade centers. The size of settlements is not only limited by the size of the area by which the settlement can obtain food and other necessities, but also by considerations of personal travels especially the journey to and from work. The increased speed of transport and reduction in the cost of transport have resulted in variety of spatial patterns



## Growth of urban centers

- When the cities grow beyond normal walking distance, then transportation technology plays a role in the formation of the city. For example, many cities in the plains developed as a circular city with radial routes, whereas the cities beside a river developed linearly. The development of automobiles, and other factors like increase in personal income, and construction of paved road network, the settlements were transformed into urban centers of intense travel activity.



## Political role of transportation

The world is divided into numerous political units which are formed for mutual protection, economic advantages and development of common culture. Transportation plays an important role in the functioning of such political units.

- Administration of an area
- Political choices in transport



## Administration of an area

- The government of an area must be able to send/get information to/about its people. It may include laws to be followed, security and other needful information needed to generate awareness.
- An efficient administration of a country largely depends on how effectively government could communicate these information to all the country. However, with the advent of communications, its importance is slightly reduced.



# Political choices in transport

- These choices may be classified as communication, military movement, travel of persons and movement of freight. The primary function of transportation is the transfer of messages and information.
- It is also needed for rapid movement of troops in case of emergency and finally movement of persons and goods. The political decision of construction and maintenance of roads has resulted in the development of transportation system.



## Environmental role of transportation

The negative effects of transportation is more dominating than its useful aspects as far as transportation is concerned. There are numerous categories into which the environmental effects have been categorized. They are explained in the following sections.

- Safety
- Air Pollution
- Noise pollution
- Energy consumption
- Other impacts



## Summary

- The roles of transportation in society can be classified according to economic, social, political and environmental roles. The social role of transport has caused people to live in permanent settlements and has given chances of sustainable developments. Regarding political role, large areas can now be very easily governed with the help of good transportation system. The environmental effects are usually viewed negatively.