

# Inland Water Transportation Opportunities and Challenges in India

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**Abstract**— In current era, air pollution is increasing day by day and has been a major problem to be concerned. Excessive use of conventional energy sources, fossil fuel, unplanned industrial growth, increment in use of private vehicles etc are the main cause of the pollution. Among all transportation can be considered as the prime source of pollution because most of the transportation modes run on petroleum products and emit the pollutant gases as waste. Another problem with today's transporting fashion is, it is the major source of increasing carbon dioxide. The increasing level of carbon dioxide is constantly leading us to global warming effect. This paper aims to study Water based transportation and its significance on environment. For this purpose all the recent used modes of transports are studied and compared with the possible solution of water transport. It can be concluded from the study that we do have a proper availability to develop water based transportation which can support the recent commutation demands and can bring down the level of air pollution by its distinct advantages. Being quite economical as well as eco-friendly inland water transport system can be emerge as an alternative transport mode for India.

**Key words:** Inland Water Transportation, Air Pollution, Railways, Roadways, Airways

## I. INTRODUCTION

The Rivers flowing in the northern parts of ancient India received their share of water from the melting ice from the far reaches of the Himalayas. This flow of water is perennial. This mode has always been a popular mode of transport. In other parts navigation was governed by the amount of rainfall precipitation received by the river basin. During early Vedic period from 1500 to 900 BCE, boats were described as dugouts with oars for paddling. These were used mostly for inland transport. Water based transportation is generally economical as compare to road, rail and air transportation as fuel cost is very low. Moreover it also emits lesser pollutants in environment [1].

Now days, air pollution has been raised to an alarming extent and needed to be concern as a prime issue. Main reasons for this are high use of fissile fuel, high industrial growth, smoke emitting by various vehicles etc. The environmental impact of transportation is significant because it is how the most of the petroleum products are being consumed, as well as still many of the transportation facilities works on the conventional energy sources. This creates considerable amount of air pollutants, including nitrous oxides and particulates, also it is a prime contributor to global warming through emission of carbon dioxide, for which transport is the fastest-growing emission sector. By subsector, road transport is the largest contributor to global warming.

There is a wide range of benefits provided by the inland waterways. These private benefits, conducted by the creation of business opportunities and jobs, and of public benefits, for example, provide opportunities for education or leisure [2].

### A. Current Transportation System & Issues

#### 1) Railways

The Railways in India provide the principal mode of transportation for freight and passengers. It brings together people from the farthest corners of the country and makes possible the conduct of business, sightseeing, pilgrimage and education.

- The major problem faced by Indian railways is that the tracks are old and outdated. These old tracks cause many serious railway accidents.
- The incidence of railway accidents in our country is greater as compared to other countries of the world. Accidents occur due to the errors and negligence of the employees.

#### 2) Roads

India has one of the largest road networks in the world, aggregating to about 33 lakh kilometers at present. The country's road network consists of National High-ways, State Highways, major/other district roads and villages/rural roads.'

- Most of the Indian roads are unsurfaced (42.65%) and are not suitable for use of vehicular traffic. The poor maintenance of the roads aggravates the problem especially in the rainy season.
- One major problem on the Indian roads is the mixing of traffic. Same road is used by high speed cars, trucks, two wheelers, tractors, animal driven carts, cyclists and even by animals. Even highways are not free from this malady. This increases traffic time, congestion and pollution and road accidents.

#### 3) Air Transport

Air travel is a form of travel in vehicles such as, helicopters, hot air balloons, blimps, gliders, hang gliding, parachuting, airplanes or anything else that can sustain flight.

The air transport in India, made a modest beginning in 1911, when it was launched between Allahabad and Naini (a distance of only 10 km). In 1947 Air transport is a costly service. Middle class and poor people can not affect its cash.

- Air transport is prone to accidents. A small mistake can be very dangerous for passengers.
- Air transport is controlled by weather condition.

## II. PROBABLE SOLUTIONS

The inland water transport was an important mode earlier, but it declined after the coming of railways.

The inland water transport is a cheap, fuel-efficient, environment-friendly mode with a higher employment generation potential and is suitable for heavy and bulky goods. But, the share of inland water transport in total transport in India is only around 1 percent.

In Assam, West Bengal and Bihar IWT is important. Half of the total traffic between Assam and Kolkata are shared by river transport and the remaining half is shared by road and rail transport. Water transport is important in Kerala where rivers and backwaters are used for ferrying goods and people.

## III. ADVANTAGES AND DISADVANTAGES OF INLAND WATER TRANSPORTATION[3]

### A. Advantages

#### 1) Low Cost:

Rivers are a natural highway which does not require any cost of construction and maintenance. Even the cost of construction and maintenance of canals is much less or they are used, not only for transport purposes but also for irrigation, etc. Moreover, the cost of operation of the inland water transport is very low. Thus, it is the cheapest mode of transport for carrying goods from one place to another.

#### 2) Larger Capacity:

It can carry much larger quantities of heavy and bulky goods such as coal, cotton, timber etc.

#### 3) Flexible Service:

It provides much more flexible service than railways and can be adjusted to individual requirements.

#### 4) Safety:

The risks of accidents and breakdowns, in this form of transport, are minimum as compared to any other form of transport.

### B. Disadvantages:

#### 1) Slow:

Speed of Inland water transport is very slow and therefore this mode of transport is unsuitable where time is an important factor.

#### 2) Limited Area of Operation:

It can be used only in a limited area which is served by deep canals and rivers.

#### 3) Seasonal Character:

Rivers and canals cannot be operated for transportation throughout the year as water may freeze during winter or water level may go very much down during summer.

#### 4) Unreliable:

The inland water transport by rivers is unreliable. Sometimes the river changes its course which causes dislocation in the normal route of the trade.

#### 5) Unsuitable for Small Business:

Inland water transport by rivers and canals is not suitable for small traders, as it takes normally a longer time to carry goods from one place to another through this form of transport.

## IV. CURRENT STATUS OF INLAND WATER TRANSPORTATION PROJECTS IN INDIA

Name	National Waterways-1
Date of Declaration	27th October 1986.
Total Length	1620 Kms
North End	Allahabad
South End	Haldia (Sagar)
Owner	Inland Waterways Authority of India (IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 1: Salient Features of National Waterways-1[4]

Name	National Waterway-2
Date of declaration	1 September 1988
Total length	891 Km
North End	Sadiya
South End	Bangladesh Border
Owner	Inland Waterways Authority of India (IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 2: Salient Features of National Waterways-2[5]

Name	National Waterway-3
Date of declaration	1st Feb. 1993
Total length	205Km
North End	Kottapuram
South End	Kollam
Owner	Inland Waterways Authority of India (IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 3: Salient Features of National Waterways-3[6]

Name	National Waterway-4
Date of declaration	25th Nov. 2008
Total length	1095 km
Owner	Inland Waterways Authority of India (IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 4: Salient Features of National Waterways-4[7]

Name	National Waterway-5
Date of declaration	25th November 2008
Total length	623 km
Owner	Inland Waterways Authority of India (IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 5: Salient Features of National Waterways-5[8]

Location	India
Length	121 km (75 mi)
North end	Lakhipur
South end	Bhanga
Owner	Inland Waterways Authority of India(IWAI)
Operator	Central Inland Water Transport Corporation (CIWTC)

Fig. 6: Salient Features of National Waterways-6[9] (under construction)

#### V. CONCLUDING REMARKS

By studying the availabilities of water ways in india it can be concluded, that Indian subcontinent has favorable situation to develop inland water transportation system. By developing this mode we can change the recent scenario and put a tab on increasing air pollution. By properly managing our available water ways we can make the road and railway transportation lighter and can develop an alternative method which will be economical than the conventional modes as well as eco-friendly and sustainable.

We would like to conclude that using Waterways is quite efficient also seeing Pollution levels and lack of availability of fossil fuels this mode of transportation is a way to go.

Not only that this can also solve the water crisis in some remote areas which we are facing.

Seeing the kinds of advantages, the disadvantages seem quite negligible.

And as we further use this mode of transportation we can further work upon the disadvantages and rectify the mistakes.

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