Bus Rapid Transit System: An Effective And Economical Way To Reduce Urban Air Pollution

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Abstract— With the rapid development of the country especially in the urban areas the economic condition of the people is improving very fast. Economy is no doubt rising but this rise is at some cost. With growth the need for transportation is increasing and the people like to have freedom in their mobility as a result more and more people are buying their own vehicles. The result is increase in traffic congestion and increasing air pollution. AS per WHO an estimated 3 million people die each year because of urban air pollution. Vehicles are major sources of urban air pollution and green house gas emission. One of the ways to keep a lid on the number of growing vehicles is to improve the public transportation facilities so that more and more people are attracted to use it resulting in lesser vehicles on road. Ahmedabad has the highest growth of vehicles in India and its air quality is deteriorating very fast. BRTS project taken by AMC is one of the sincere efforts to improve public transportation in Ahmedabad. The principle is to provide separate lane for the buses which would increase speed, cause less delay and as a result more people would be tilted towards it, resulting in reduce vehicular emission as number of two/three wheelers will reduce which are the main source of urban air pollution.

Keywords—transportation; traffic congestion; air pollution; BRTS;

I. INTRODUCTION

The transport sector provides vital services in urban areas, but at the same time causes serious urban problems. The negative effect of urban transport activities include air pollution, accidents, congestion, noise from road transport, energy consumption, and consumption of land and other natural resources for the production of vehicles and infrastructure. In addition, urban transportation is one of the most significant sources of carbon dioxide (CO₂) emission, which cause climate change. Major share of CO, VOC, SO₂ and NOX pollution is coming from urban transportation. As the countries become motorized, vehicles will contribute increasingly to urban air pollution. Vehicle emissions, including highly damaging emissions of lead and of fine particulate matter, are often among the main contributors to air pollution.

II. IMPACT OF URBAN AIR POLLUTION

A. Economic Impacts

- Increased health costs
- Loss of crops and property
- Decline in tourist revenue.

B. Health Impacts

- Increased Mortality and Morbidity
- 2-5% of all deaths in developing countries due to exposure to particulates
- Acute Respiratory Infection
- Reduced IQ in children

C. Transboundary Impacts

- Haze and smog
- Acid deposition—acid rain
- Climate change—green-House gases
- Ozone depletion—ecosystem damage

III. MEASURES TO BE TAKEN

- Gasoline lead phase out program
- Diesel sulphur phase out program
- Control on the entry of older and polluting vehicles in to urban areas
- Conversion of vehicles to CNG buses
- Improved road network by means of a network of flyovers
- Implementation of Public Transport System

IV. CASE STUDY: BUS RAPID TRANSIT SYSTEM IN AHMEDABAD

The Bhure Lal committee appointed by Supreme Court for Environmental Pollution Prevention & Control (EPCA) The observation of this committee was that just 14% Amdavadis use public transport which is very less. The authority noted that Ahmedabad ranked lowest when it comes to public transport availability in the country. It also felt that increasing no of two and three wheelers is due to lack of public transport options. At least 40% of people should use public transport system to improve traffic condition and urban air quality. Ahmedabad has 1.49 million registered motor vehicles in the year 2004.
The Ahmedabad district which accommodates 11% of state population accounts for 21% of the registered vehicles in the state. This high density and rapid growth of vehicles have worsened the air quality significantly.

Ahmedabad has opted for BRTS as it is much more economical and speedy to implement. Cost of Delhi metro was around 165 crore per km while for BRTS it is around 7.5crores per km.

V. BUS RAPID TRANSIT SYSTEM

BRTS takes part of its name from “Rapid Transit” which describes a high capacity transport system with its own right of way, implemented using buses through infrastructural and scheduling improvements, to provide high level of service. It has buses operating in lanes reserved for their exclusive use.

A fully fledged BRT system is functional in Bogota (Columbia), Singapore, Curitiba for example.

VI. HOW IT HAS REDUCED POLLUTION?

AMTS is crumbling very fast and its rider ship is reducing day by day. From 2000 to 2003 it reduced by a whopping 2.9 lakh/day. This reduction in rider ship is attributed to the poor service provided by AMTS. More and more people are relying on their own vehicles. This is reflected in the 9 to 10 percent increase in no of register vehicles per year. Two and three wheelers have increase by leaps and bound and which is showing its effect on air quality. Currently in city shuttle rickshaws/share auto is a very popular mode of travel as it is available easily and passengers can go to the desire place with less wastage of time. It has become a tough competitor to the public transport as its level of service is better compare to AMTS. In AUDA region many diesel chakdas are operating which are creating great nuisance to traffic as well as damage to the air quality. This has to be controlled.

With introduction of BRTS the mass transportation facility with good quality CNG buses with higher operating speed is available to the public, which has encouraged them to use it resulting in reduction in two and three wheelers on the road.

Even though bus accounts for less than 10% of traffic it utilizes twice the space which results in grater congestion.

Aim of BRTS is to provide exclusive bus lane, as a result of which not only the speed of operation has increased but the free movement of traffic in other lanes is also there resulting in lesser congestion. When the vehicle is cruising it emits least amount of pollutant. When it is idle or it has to accelerate and decelerate frequently it will emit lot of pollutants. As BRTS has helped in improving traffic flow, it has significantly contributed in reduction of pollution.

SPM
RESULTS

In the 10 months of commercial operation of BRTS in Ahmedabad, a good chunk of personal vehicle users have shifted to BRTS.

Two years back, the share of Public Transport System in the city’s vehicular traffic was 18%. Now it has crossed 20%.

In the next five years with full fledged BRTS and improved AMTS it is expected to touch 40% and eventually increase the transit share of Public Transport System.

The CEPT Monthly Study reports, that around 35000 commuters have stopped using their cars, two wheelers or three wheelers to hop on to BRTS Buses.

The switching to Public Transport has contributed to the reduction of carbon emissions. Also, extensive planting of trees on the route has added to green cover in the city.

BRTS Ahmedabad has received the 2010 Sustainable Transport Award for the successful implementation of “Janmarg”, India’s first full Bus Rapid Transit System.

CONCLUSION

All the Indian cities are crowded with personal vehicles and the time has come to take quick decision for improving the public transport facilities and BRTS is one of way to do so. We can see that BRTS can greatly help in providing cleaner air to Amdavadis and other cities can also use it as an option to metro as it less costly and quick to implements.

Ahmedabad’s Janmarg BRT System is a sustainable model for the future transportation in India, where a quarter of the world’s population lives. BRT system can positively impact air quality if car and motor bike drivers start taking trips by bus.

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