

Study on Nagpur Metro

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Abstract— Nagpur is the second capital of the state Maharashtra and also the third largest city in the state and 13th largest urban conglomeration in India having the area of 217 sq.km. while the Nagpur metro region has the population of 35 lakhs and the area of around 3576 sq.km.

Mihan is the biggest project which has been made in Nagpur. This project is all set to give a big boost to economic development and creating economic development at mass level and is ready to provide employment of at least 2 lakhs of jobs. This will lead to tremendous rise in the population of Nagpur.

With the growing economic activity, it is necessary to plan for the infrastructure development so as to support the growth of the city. One of the major impacts of economic development will be increased traffic on the city roads. Currently the Public Transportation System contributes only 10% of the total trips. The motorized transport is dominated by two wheelers (28%) and so is the vehicle ownership in the city (84% of all owned vehicles are two wheelers). Which encouraged the idea of metro in Nagpur city .

Keywords— Economic Development, Population, Transportation System, Metro.

I. Introduction

Infrastructure plays a vital role in the economic development of the society. Poor infrastructure and transportation inhibits the growth of developing countries in the world of production networks. Thus it suggests that all this can be overcome by the improvement in the transportation and infrastructure system. It depends on various factors. For an instant, proper arrangement and guidance during the field and operation affects it on a large basis. Such projects require large funding for the completion and implementation.

Transport situation in most Indian cities is rapidly deteriorating because of the increasing demand and inadequate transportation system. There is a crisis in every Indian cities for the urban transport.

Details about area study of Nagpur Metro rails

Nagpur Improvement Trust (NIT) requested DMRC to provide Consultancy services for preparation of a Detailed Project Report for Metro Rail System in Nagpur. The project initially was asked for 30km which was then again revised to 42km.

The area of proposed for the construction was approximately 217 sq. km which was consisted under Nagpur Municipal Corporation. The whole Traffic survey, Geotechnical survey , Topographical survey and Environmental assessment test was done by Delhi Metro Rail Corporation (DMRC).

After these surveys done by DMRC and studying the traffic patterns and load of the traffic the final alignment for the Nagpur Metro was approved. There are Two corridors for the working of the Nagpur metro first one is north-south corridor and the other one is east-west corridor.

N-S corridor includes 17 stations starting from Automotive Sq. to MIHAN depot covering 19.658km all of these stations are elevated sections except the one at grade in 4.6km at airport to mihan near khapri railway station and the E-W corridor includes 19 stations starting from Prajapati nagar to Lokmanya nagar covering 18.557kms. These both the corridors link at Munje Sq. All of these stations are elevated stations and Sitabirdi is the interchange station.

Advantages of Metro Rail Transport

Cost Factors

Metro rail projects are meant to serve the cities with more than four million population and the cost involve is largely depends on the underground and elevated sections or sections on grades. The larger the involvement of the underground and elevated sections large is the cost involved in the project .

Metro rail is a cheap mode of transportation which helps in low energy consumption. It is eco-friendly (runs on electricity, thus minimizing air and sound pollution), resulting in reduction in the number of accidents, is efficient in terms of space occupancy and provides ultra-modern facilities coaches and modern serving systems like automatic ticketing, advanced signaling systems, automatic train protection system and integrated security systems.

- To avoid the delay in these other cases with the help of the study given.
- To know the basic requirement for the unobstructed construction and maintenance of the project.

IV. Distinct Features of Nagpur Metro

❖ BIO DIGESTER TECHNOLOGY

Nagpur metro has gone one step ahead of any other organization to create a green environment by adopting the technology of Bio Digester. NMRCL and DRDO has collaborated the idea by MoU for the better and clean environment and to use the organic waste and reduction in its quantity.

❖ GREEN BUILDING

Nagpur Metro Corporation is following all the Green building parameters so as to create an eco-friendly environment for the occupants of the buildings and also to contribute towards the Environmental stabilization. Currently Metro house is generating **16Kw** power with the help of the installed solar panels in the premises. The under construction Metro Bhawan is supposed to produce **260Kwp** in future.

❖ GREENEST METRO

Nagpur metro has become a role model for the adoption of the solar energy integration starting from project implementation to planning its energy requirements up to **65%** of the total need of NMRCL.

❖ IMPLEMENTATION OF 5D-BIM TECHNOLOGY

NMRCL has been a pioneer in this 5D implementation in the project successfully. It is an IT based initiative to ensure the quality, safety, time management and cost of the structure.

❖ MULTIMODAL INTEGRATION

NMRCL has integrated with all the other modes of transport in Nagpur so as to provide seamless traffic and better facilities to the metro commuters and citizens.

❖ COMMON MOBILITY CARD FOR SEAMLESS TRAVEL

Common mobility cards for the seamless travel of the metro commuters through any travel mode will be provided to them for their convenience.

❖ SOCIAL CONNECTIVITY INITIATIVES

NMRCL is getting connected to the population and commuters through their various social media initiatives like Nagpur Metro Facebook page, magazine naming Metro Samwad, conversations on radio on a daily basis naming "Metro Samvaad". Along with that the official site of metro also has many followers and the local cable channels also include in the connective modes of the NMRCL.

V. Opportunities for employment

Metro has become a very important source of employment generation in Nagpur and nearby areas of Nagpur. It may be in terms of entrepreneurship or in the form of jobs.

In developing the cash and quality goods for the construction purpose can be the ways for the entrepreneurs for generation of employment. The buildings are pre-constructed for which the local consultants will suggest the names of the locals for their help; this will turn into an employment chance for them.

Along with the entrepreneurs it is also creating a lot of job opportunities specially for the engineers in the field of civil, electrical, electronics and also in the inventory and telecommunication skills.

VI. Conclusion

From all the literatures based on the Nagpur metro and metro system we can say that looking towards the growth of the city it will be going to turn into a metro Politan city very soon in the near future. So before facing the worst situations like other metro Politan cities facing from the increased traffic issues and transportation inconvenience to the commuters the idea of launching metro in Nagpur this early was a good decision. It is going to be a very useful project for the development of the infrastructure and employment growth of the area. The environmental initiatives made by NMRCL will go to help a lot in the control of pollution and its adverse effect on the city climate and nature.