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Cost Benefit Analysis of Nagpur Metro Rail Project (Phase – I) during 2019-20

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ABSTRACT: Infrastructure is vital for quicker financial development and mitigation of neediness in the nation. The sufficient infrastructure as road and railway transport system, ports, power, airports and their productive working is likewise required for coordination of the Indian economy with different economies of the world. The metro rail has turned into the most moderate and advantageous method of movement. Metro rail is giving great availability in the congested cities of India and its prosperity has put forth a case for setting up the metro rail in different cities where there is an extensive urban populace and traffic congestion. SCBA or EA is a feasibility study of a project from the viewpoint of a society to evaluate whether a proposed project will add benefit or cost to the society. SCBA model is based on the theory of welfare economics, according to which the welfare of a society depends on the aggregate individual utility levels of all members of that society. The objective of social cost - benefit analysis is, in its widest sense, to secure and achieve the value of money in economic life by simply evaluating the costs and benefits of alternative economic choices and selecting an alternative which offers the largest net benefit.

KEYWORDS: Cost Benefit Analysis, Benefit Cost Ratio, Economic Analysis, Internal Rate of Return.

I. INTRODUCTION

Capital is the limited resource in a developing economy like India and must be invested with utmost care. While a private individual investor is not expected to be an altruistic seeker of only national interest, he must be motivated by commercial return on his investment. It is also true that development financial institutions of country must examine social cost benefit implication of their investment decisions. Social cost benefit analysis is an appraisal tool to evaluate a project from the viewpoint of the society. It refers to the analysis of the costs and/or the benefits that a society may have to bear and/or get from the proposed project. It is a study of feasibility of a project in terms of its total economic cost and total economic benefits.

Infrastructure is vital for quicker financial development and mitigation of neediness in the nation. The sufficient infrastructure as road and railway transport system, ports, power, airports and their productive working is likewise required for coordination of the Indian economy with different economies of the world.

It should be underscored that great quality infrastructure is vital for quicker financial development as well as to guarantee comprehensive development. By comprehensive development we imply that advantages of development are shared by most of the general population of a nation. Consequently, the comprehensive development will prompt the easing of neediness and decrease in salary disparity in the nation. Absence of sufficient infrastructure not just holds need financial advancement; it likewise causes extra expenses as far as time, efforts and money of the general population for getting to basic social administrations. Rural economic growth as of late has put tremendous weight on existing infrastructure especially on transport, energy and communication except if it is altogether improved foundation will keep on being a bottleneck for development and obstruction to poverty reduction. At the end of the day, it is the challenge to guarantee strong, sustainable and balanced development through joining of the economy with environmentally sustainable development of infrastructure. It might be noticed that with extensive investment in infrastructure amid the most recent decade (2003 - 04 to 2013 - 14), India has turned into the second fastest developing economy of the world yet in the two years (2012 - 2014) economic development backed off and this has been basically because of the slowed down infrastructure ventures which kept down economic advancement. It is along these lines earnestly required that infrastructure ventures be given environment clearance rapidly and investment in them be speeded up if the Indian economy is to be brought back on the fast development direction. In the following five years, Indian railways market will be the third largest; accounting to 10% of the worldwide market and metro rail will be 70% of the railway market in India. In India, because of expanding populace and economic expansion, the electricity

demand and supply balance is skewed. To handle the circumstance, we must grow eco-friendly cities with more public transports. This need leads to the expansion of metro rail network.

The metro rail has turned into the most moderate and advantageous method of movement. Metro rail is giving great availability in the congested cities of India and its prosperity has put forth a case for setting up the metro rail in different cities where there is an extensive urban populace and traffic congestion. As the metro rail has been associated with major railway stations and airports, travel has turned into an enjoyable action. In India, there are equivalent number of challenges and opportunities. Rail experts believe that the rail transport system is six times more vitality proficient than street and four times more economic. The social expenses as far as environmental damage or degradation are significantly lower in rail. Rail construction costs are around six times lower than roads for comparable level of traffic. Currently, the Metro railway system and services are operational in 10 cities in India which includes Kolkata, Delhi, Bengaluru, Gurugram, Mumbai, Chennai, Jaipur, Kochi, Hyderabad, and Lucknow.

Assessing the viability or feasibility of a proposed project by the lending institutions is called project appraisal. Generally, commercial banks cannot finance on a long-term basis to industries as most of their funds are short term in nature. In the case of term loans, the bank provides them based on the purpose, and they differ from short term loans. While providing term loans, the lending institutions will have to find that the income received from the utilization of these loans by the borrower firm is sufficiently large that they are able to repay the loan. A banker must assess the project for which the loan is required. He must make sure that the project will provide enough contribution so that the loan could be repaid. Hence project appraisal is necessary. The problem for the banker will be more when there are different projects with different rate of return. It is here that the bank must adopt a technique and go in for the selection of a suitable project. There are four major criteria which must be studied in project appraisal to ascertain its feasibility which are:

1. Technical feasibility
2. Economic feasibility
3. Financial feasibility
4. Managerial feasibility

There are different aspects of a project appraisal which are as follows:

1. **Financial Appraisal:** It views investment decisions from the perspective of the organization. It assesses the viability of a project based on the direct effects on the cash flow of the organization. It considers whether the projected revenues will be sufficient to cover expenditures and whether the financial return is sufficient to make the investment commercially viable (profitable).
2. **Economic Appraisal:** It is a systematic means of analysing all the costs and benefits of various ways in which a project objective can be met. An economic appraisal differs from a financial appraisal in that it measures the external benefits and costs of the project (including any revenue foregone), as well as the impact of the proposal on the organization. The economic assessment assesses the broader community benefits and costs of the project to determine whether, overall, society will be better or worse off as a result of the investment.
3. **Social Appraisal:** A social appraisal of a project goes beyond an economic appraisal to determine which projects will increase welfare once their distribution impact is considered. The project analyst is not only concerned to determine the level of a project's benefits and costs but also who receives the benefits and pays the costs. Social appraisal therefore tackles the moral and theoretical dilemma that a project is worth undertaking if it has the potential to produce a Pareto improvement in welfare.
4. **Environmental Appraisal:** It analyze the environmental impacts, both positive and negative due to the upcoming of the project.

Overview of Nagpur City: Nagpur is the third largest city of Maharashtra (India) and furthermore the winter capital of the state, with a population of roughly 2.5 million. Nagpur Metropolitan Area is the thirteenth biggest urban combination in India. It has additionally as of late been positioned as the cleanest city and the second greenest city of India. Notwithstanding being the seat of yearly winter session of Maharashtra state get together "Vidhan Sabha", Nagpur is additionally a noteworthy business and political focal point of the Vidarbha district. It is also called as "Orange City" for being a noteworthy exchange focus of oranges that are developed in the locale. Nagpur lies on the Deccan level of the Indian Peninsula. As it is situated at focus of India, Nagpur has a tropical wet and dry atmosphere with dry conditions prevailing for a large portion of the year.

The objective of this study is to analyse the cost benefit analysis of Nagpur metro rail project based on the following analysis:

- The current situation of Nagpur Metro Rail Project.
- The financial feasibility of Nagpur Metro Rail Project of the current scenario.
- The economic feasibility of Nagpur Metro Rail Project of the current scenario.

The study involves comparative analysis in terms of Net Present Value (NPV) and Internal Rate of Return (IRR) of Nagpur Metro Rail Project in accordance with the detailed project report prepared by Delhi Metro Rail Corporation (DMRC) in 2013 for phase – I during project appraisal and the current scenario. A project is potentially worthwhile if the IRR is greater than the test discount rate. If projects are mutually exclusive, this rule would suggest that the project with the highest IRR should be chosen.

The general goal of the Nagpur Metro Rail venture is to improve urban mobility in Nagpur while advancing a sustainable development of the agglomeration. The Nagpur Metro Rail venture pursues several specific objectives such as:

- Increasing mobility and access to transport for individuals, ensuring a standard nature of administration.
- Serving key financial and administrative regions of the city.
- Stopping the movement of the quantity of private vehicles, including motorbikes, offering an elective public transport.
- Reducing local emissions and carbon emanations from street traffic.
- Promoting incorporated urban development, fortifying between methodology and densification around public transport routes.

Paper is organized as follows. Section II deals with reviews of previous work done in the field of metro rail projects and infrastructure projects by different scholars and research person from all over the world. Section III explains the meaning of cost benefit analysis, how Cost Benefit Analysis (CBA) is different from Social Cost Benefit Analysis (SCBA) rationale for SCBA, impacts of Nagpur Metro Rail on the city and explaining how the observations were calculated. Calculations of different aspects in present scenario is summarized in section IV. Finally, Section V presents conclusion.

II. RELATED WORK

Ramteke and Gajgate (2015) in their study tested the feasibility of Metro Rail Project in Nagpur City. For this research, studies were made, and data were recorded for the population density at various railways and bus terminals, interviews were conducted from various passengers at major bus and railways terminal and conducted surveys of workers and workplaces to find the most populated areas and work places so that the proposed route of metro rail should be as near as possible to these places. After the research, it was found that that metro rail is feasible in Nagpur City.

In their research, Bhagat et al. (2018) concluded about the impact of Nagpur metro rail project on the city by studying the positive and negative environmental effect, impact due to project design, impact due to project construction and impact due to supply of construction materials.

In a report (2006) by Institute of Economic Growth, Delhi studied the social cost – benefit analysis of Delhi metro project. The Study mainly focused on the financial cost and benefits of the metro; identification and measurement of economic benefits and costs of the metro; economic evaluation of the metro and equity and social benefits of the metro.

In a report (2013) Jones et al. studied the importance of cost benefit analysis for decision making in project appraisal of mega infrastructure projects. The role of Cost Benefit Analysis (CBA) in helping the decision makers for selection of resource for the project is available in scarce.

In a report (2018) by Systra Group studied the detailed information of the performance of the scheme in terms of its economic viability which is measured in term of user benefits and benefit of cost Ratio. Transport modelling approach is used to determine the performance of the metro that is analyzed like how the demand of transportation is being served the metro system.

In their research, Raut et al. (2017) studied the various issues or impediments which are faced by the metro rail corporation in executing the metro rail projects by using the case of Nagpur metro rail project.

In his research, Matrai (2012) concluded that two Hungarian railway upgrade projects were evaluated economically and it was found that the change of CBA methodology had a more significant impact for the economic indicators

like specific environmental costs, value of time, than the changes of the input parameters like traffic level, Gross Domestic Product (GDP).

Jajodia and Burkul (2017) in their research studied the structural features of Nagpur metro. For decongestion of traffic within the city the metro work is started in the late 2015.

In a report (2016) by Indian Institute of Management, Ahmedabad studied that the Indian Railways (IR) has been considering two options for speeding up the rail route network – building of dedicated High Speed Rail (HSR) lines and upgrading the existing tracks to semi-HSR lines.

In a report by Dijkman et al. studied that the Dutch government is considering the construction of a HSR section, the “High Speed rail Links (HSL)-East”, between Utrecht and the German border, as a part of the HSR-link connecting Schiphol Amsterdam Airport with the German Ruhrgebiet.

In a report (2012) by Rahman et al. on Cost Benefit Analysis of Chennai metro railway limited, the various financial as well as economic aspects involved with CMRL were studied. The study was focused on phase 1 which consists of 2 corridors.

In his research, Amjad (2004) studied the cost benefit analysis for construction projects and observed that we are living in a civilized society which demands that much more thoughts should be given to all possible alternative schemes before arriving at the best solution obtainable.

Gupta et al (2017) in their study of evaluation of the cost and benefits of Mumbai sewage disposal project observed that Mumbai is the fourth most populous city in the World, with a total population of approximately over million (Census of India, 2011).

Amarasinghe and Srinivasulu in their study of cost and benefits of the National River Linking Project: An analysis of Peninsular Links found that according to the NRLP plan, a substantial part of the proposed water transfers in the Mahanadi-Godavari- Pennar-Cauvery subcomponent is only a substitute for the water transfers out of the upstream of river basins.

In their research, Bharath et al (2015) studied the economic analysis of Hyderabad metro rail project and observed that India (like many other developing countries) however has lagged, though its first metro, the Kolkata Metro, started working almost 25 years ago.

Sekar and Karuppanan (2012) in their study of contributions of metro rail projects in the urban dynamics of Indian metro cities (case study of Chennai and Bangalore) observed that most Indian metropolitan cities have histories encompassing many centuries of growth, and their complex morphogenetic characteristics go hand in hand with age.

III. METHODOLOGY

Economic Analysis (EA) is also referred as Social Cost Benefit Analysis (SCBA). SCBA or EA is a feasibility study of a project from the viewpoint of a society to evaluate whether a proposed project will add benefit or cost to the society. That is, it is an approach that is concerned to judge the economic and social viability of a project especially public expenditure project or donor-led programs. As an aid to planning, decision-making, evaluation and control, the social cost benefit analysis provides a scientific and quantitative base for the appraisal of projects with a view to determine whether the total social benefits of a project justify the total social costs. To make a scientific and systematic social cost benefit analysis of projects, it is necessary to weigh each project’s advantages (benefits) and disadvantages (costs) to the society or nation. Thereafter, various projects under consideration are ranked based on social cost benefit ratio and the final decision about the selection of a project is taken based on the score in ranking.

Project Impact Evaluation

1. **Economic Impact:** The metro will connect the residential areas, employment centres and industrial areas contributing to the economic attractiveness of the agglomeration.
2. **Environmental Impact:** The carbon footprint of the project reports a reduction of 50 000 teq CO₂ / year. This figure is in the lower range of the carbon footprints of other public transport projects, due to the relative size of the city, low culture of using public transport (9% modal shares in 2015) and the strong competition of motorcycles (65% of motorized trips) which provide an economic door-to-door mobility solution.
3. **Social Impact:** The project aims to facilitate commuting and allows equitable access to essential goods and services. It will significantly reduce travel time of residents and provide better travel conditions. The living conditions along the lines should be improved with a reduction of pollution (air and noise) and the development of services and shops nearby stations. The metro route covers the major residential corridors of

the city, including many disadvantaged neighbourhoods. The fare of the metro will be progressive depending on the distance travelled, starting from Rs 8.

4. **Institutional Impact:** The strong political support for the project at all levels (municipal, state, national), the recruitment of a private General Consultant with international experience, and the direct involvement of municipal structures in the governance and financing of the project, are all factors which will ensure the quality of management of this project.
5. **Long – Term Project Impact:** Heavy equipment such as metros are structuring across an agglomeration. A metro is sustainable since its operational life is expected to be over 30 years. The integrated approach to urban development and transport guarantees the sustainability of the proposed action on the long term. The capacity-building program Mobilize Your City, which will be implemented along this project, aims at strengthening the sustainability of the impacts of this project.
6. **Environmental and Social Impact:** According to the available studies, the main social risks concern the compensation of 314 properties, including 151 private, 55 government-owned and 108 leased. Additionally, 45 informal settlers will be affected by the project. The full census will be done within the framework of the Resettlement Action Plan. A matrix compensation for rights for the affected people has already been defined in accordance with the Indian Act and the recommendations of the KfW and the World Bank, which AFD follows. The acquisition of 87.4 hectares of land will be needed, which 76.4% (66.8 ha) was already completed in 2015. The environmental impact study indicates that the impacts during the construction phase will include diversion of traffic, risk of embrittlement of buildings near the construction site, air quality, noise, water quality, hygiene, and safety measures in the construction of bases lives. In the operational phase, the impacts will include water quality, waste management, noise (19 km of anti-noise panels are provided). The realization of the Environmental Management Plan and detailed Resettlement Action Plan is currently ongoing and should be provided before the first disbursement of the work.

Financial Structure

- The Nagpur Metro consisting of two corridors was proposed to be constructed with an estimated cost of Rs. 6,862 crores with Central Taxes, State Taxes and land cost.
- For the purpose of calculating the Financial Internal Rate of Return (FIRR), the completion costs with central taxes & state taxes had been taken with an escalation factor @7.50% PA.
- The construction work was expected to get completed by 31.03.2018. The Revenue Opening Date (ROD) had been assumed as 01.04.2018.
- The total completion costs duly escalated would be Rs. 8,680 crores.
- Total investment provided in the FIRR calculation towards requirement of additional rolling stock to take care of incremental traffic, duly escalated @5% PA would be Rs. 1,493 crores for 54 cars for 20 years tenure of operation.
- The Operation & Maintenance costs can be divided into three major parts:
 - Staff costs
 - Maintenance cost which includes expenditure towards upkeep and maintenance of the system and consumables
 - Energy costs

The staffs were assumed to be provided @ 35 persons per kilometre. The escalation factor used for staff costs is 9% per annum to provide for both escalation and growth in salaries. The cost of other expenses was based on the actual O&M unit cost for the Delhi Metro Phase-II project. The average rate of electricity being paid by Delhi Metro for its Phase-I and Phase-II operations in Delhi is Rs. 5.80 per unit whereas in Nagpur the applicable rate is Rs. 5.00 per unit. The latter had been used for all calculations. The O&M cost (excluding staff cost) had been obtained by providing an escalation of 7.50% per annum.

- Although depreciation did not enter the FIRR calculation (not being a cash outflow) unless a specific depreciation reserve fund had been provided, in the calculation, depreciation calculations were placed for purpose of record.
- The replacement costs were provided for meeting the cost on account of replacement of equipment due to wear and tear. With the nature of equipment proposed to be provided, it is expected that only 50% of the Signalling and Telecom and 25% of electrical works would require replacement after 20 years. Further, 50% of the Signalling and Telecom and 25% of electrical works would require replacement after 30 years. These costs have been provided duly escalated @ 5% per annum.



- The Revenue of Nagpur metro mainly consists of fare box collection and other incomes from property development, advertisement, parking etc. The Fare box collection is the product of projected ridership per day and applicable fare structure based on assumed trip distribution at different distance zones.
- The growth rate for traffic was assumed at 2.10% Per Annum.
- The trip distribution had been worked out by considering average lead of 6.28 km.
- The Delhi Metro fares structures fixed by fare fixation committee in 2009 had been assumed, which had been duly escalated @ 15% for every two years to arrive at the initial fare structure for Nagpur Metro.
- Other revenues from Property business i.e., advertisement, Kiosk, ATM etc. had been estimated at 10% of the fare box revenues during operations. Apart from development of property on metro stations and depot it is possible to raise resources through leasing of parking rights at stations, advertisement on trains and tickets, advertisements within stations and parking lots, advertisements on viaducts, columns and other metro structures, co- branding rights to corporate, film shootings and special events on metro premises.
- The Financial Internal Rate of Return (FIRR) and costs for 30 years business model including construction period is 10.35%.

The various sensitivities regarding increase/decrease in capital costs, O&M costs and revenues are as follows which were calculated independently for each factor:

Table 1: FIRR Sensitivity

Capital Costs with all Taxes			
10% increase incapital cost	20% increase incapital cost	10% decrease incapital cost	20% decrease incapital cost
9.44 %	8.63 %	11.39%	12.59 %
Revenue			
20% decrease intraffic revenue	10% decrease intraffic revenue	10% increase intraffic revenue	20% increase intraffic revenue
8.93 %	9.67 %	10.99 %	11.58 %
O&M Costs			
10% increase in O&M cost		10% decrease in O&M cost	
10.03 %		10.66 %	

Economic benefits are social and environmental benefits which are quantified and then converted into money cost and discounted against the cost of construction and maintenance for deriving Economic Internal Rate of Return (EIRR). When actual revenue earned from fare collection, advertisement and property development are discounted against construction and maintenance cost, interest (to be paid) and depreciation cost, Financial Internal rate of Return (FIRR) is obtained. Therefore, EIRR is viewed from socio-economic angle while FIRR is an indicator of pure financial profitability and viability of any project. Depending upon methodology of estimation, economic factors are assumed. Overall economic value of benefit components was 93% of the market value. Similarly economic value of the cost components was 80% of the market cost.

Table 2: Benefit Components due to Metro

Sl. No.	Benefit Components	Economic Factors
1.	Construction Cost	80 %
2.	Maintenance Cost	80 %
3.	Annual Time Cost saved by Metro Passengers	90 %
4.	Annual Fuel Cost saved by Metro Passengers	90 %
5.	Annual Vehicle Operating Cost saved by MetroPassengers	90 %
6.	Emission Saving Cost	100 %
7.	Accident Cost	100 %
8.	Annual Time Cost saved by Road Passengers	90 %
9.	Annual Fuel Cost saved by Road Passengers	90 %
10.	Annual Infrastructure Maintenance Cost	90 %
11.	Overall Economic Factor for the Benefit Components	93 %

Benefits in terms of money value were estimated directly from the projected passenger km saved for the horizon years (2016, 2021, 2026, 2031 and 2041) and values for other years were interpolated based on projected traffic. Market values were used for calculating costs and then appropriate economic factors were applied. For each year values of each benefit components were obtained and thus benefit stream was estimated.

Total cost of metro construction (Capital Cost) was derived after considering cost of all major component such as Relocation and Rehabilitation (RR), Civil construction for underground and elevated portions, Stations and Depots, Track laying, Signalling and telecommunication, Power traction line, Rolling stock, Manpower etc. Recurring Cost includes energy cost, maintenance cost, and operation cost. This cost stream was generated with Central taxes.

After generating the cost and benefit stream, values of economic indicators was derived. Project period is 2013-2043, EIRR (with central tax) is found to be 17.70% and B/C ratio as 3.45 and with 12 % discount, EIRR is 5.09% and B/C ratio is 0.70. NPV without discount is Rs. 512.1 billion and with 12% discount rate, NPV is Rs.34.04 billion which shows that the project is economically viable. Sensitivity analysis for EIRR and Benefit Cost (B/C) ratio was performed for both with and without discount. EIRR and B/C ratio after discount of 12% shows that the project is economically viable. Other quantified benefits based on calculations and details, it was found that in 2020, CO₂ reduction will be 65.86 thousand tons and reduction of other gases will be 3.168 thousand tons, amount of travel in terms of vehicle reduced due to shifting of passengers to Metro Rail is equivalent to reduction of 57 thousand vehicles on the road in 2020. More than 19 fatal accidents and 182 other accidents may be avoided. Hence, it is expected that there will be some improvement of the overall ambience of the city.

IV. EXPERIMENTAL RESULTS

Nagpur Metro operating between Sitabuldi and Khapri stations is not receiving much ridership. However, the number of people using it has gone up due increase in the frequency. Before increasing the frequency from June 28, the average daily ridership was 1,358. The collection used to be Rs. 47,360. Presently, the ridership is 2,593 and the revenue collection is Rs. 90,540. Earlier, there used to be 12 trips per day. The current figure is 25. Based on the current scenario, the Net Present Value (NPV) for 30 years i.e., from 2013 to 2043 is calculated out of which initial 6 years were construction period during which no fare box revenue was generated. By keeping all the other factors responsible for NPV and FIRR calculation to be same as that was present in the Detailed Progress Report (DPR) provided by Delhi Metro Rail Corporation (DMRC) in 2013 except the ridership details and the fare box revenue generated which is taken from the report published by CMRS the NPV for Nagpur Metro for 30 years' time period is found out to be Rs. -5,232.70 crores (without discounting factor) and Rs. -3,868.73 crores (with 12% discounting factor) and FIRR is coming out to be less than 0%. As the current ridership for the year 2018 – 19 is only 0.80% of what was proposed in DPR by DMRC in 2013. Also, in the DPR it was stated that all the economic benefits are directly proportional to the number of ridership, so, as the revenue generation is reduced by 99.20% in the current scenario from the proposed one that means the ridership has fallen by the same ratio, therefore, all the economic benefits will also reduce by the same the same proportion in the current scenario. Based on the report, the Economic Net Present Value (ENPV) for 30 years i.e., from 2013 to 2043 is calculated out of which initial 6 years were construction period during which no fare box revenue was generated. The ENPV for Nagpur Metro for 30 years' time period is found out to be Rs. -20,337.40 crores (without discounting factor) and Rs. -5,765.73 crores (with 12% discounting factor) and EIRR (Economic Internal Rate of Return) is coming out to be less than 0%.

V. CONCLUSION

Nagpur metro had been designed to meet the long-standing traffic need in Nagpur, offering an alternative transport means to the existing users of road transportation. From our cost benefit analysis, we can draw a valid conclusion that the project has given that the net present value under different scenarios give a negative result. The financial evaluation yields an internal rate of return (IRR) of less than 0%. The economic evaluation is made considering the various benefits and cost to various economic agents in context. The financial evaluation was made considering the annual financial flows consisting of annual cash inflows and outflows. Even under different social discount rate and costs, the project is not considered worthwhile economically and financially due to negative NPV.

Apart from many advantages Nagpur metro rail have some serious challenges also, as Nagpur is neither having big industries and industrial workload nor the good places to see hence it is biggest question that how Nagpur metro will take out their expenses. Unlike other metro rail project Nagpur is different and having its own socio-economic difficulties. Second thing is that distribution of Nagpur population is also a problem which will not covered in metro rail project.

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