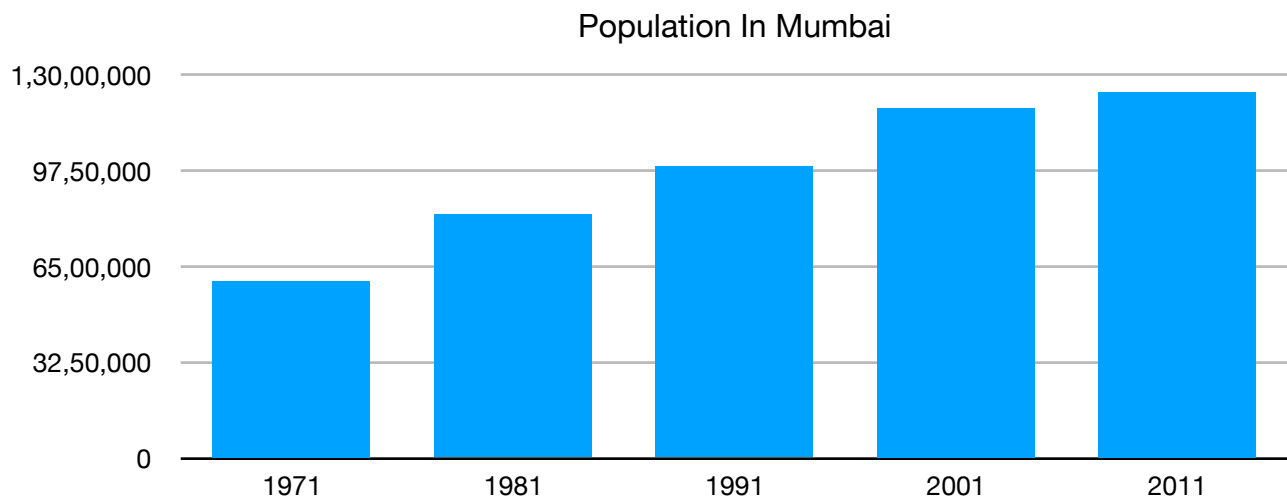


The Aarey Metro Project

The Problem at Hand

To say that the Aarey Metro Project has been a controversial undertaking, would be an understatement. It is an ambitious project which would put a metro car shed in the heart of 'Lungs of Mumbai' or the Aarey forest, that has been enshrouded in a fierce legal battle.

Environmentalists state that the project would really hamper the ecosystem and would upset the extremely fragile flora and fauna. Many in Mumbai want to preserve the greenery which they feel makes life worth living in the concrete jungle around it but the Mumbai Metro Rail Corporation Limited (MMRCL) remains adamant that the project should go ahead. The proposed car depot will have an administrative building, operation control, inspection and maintenance workshops and stabling lines for parking of trains, according to the MMRCL.



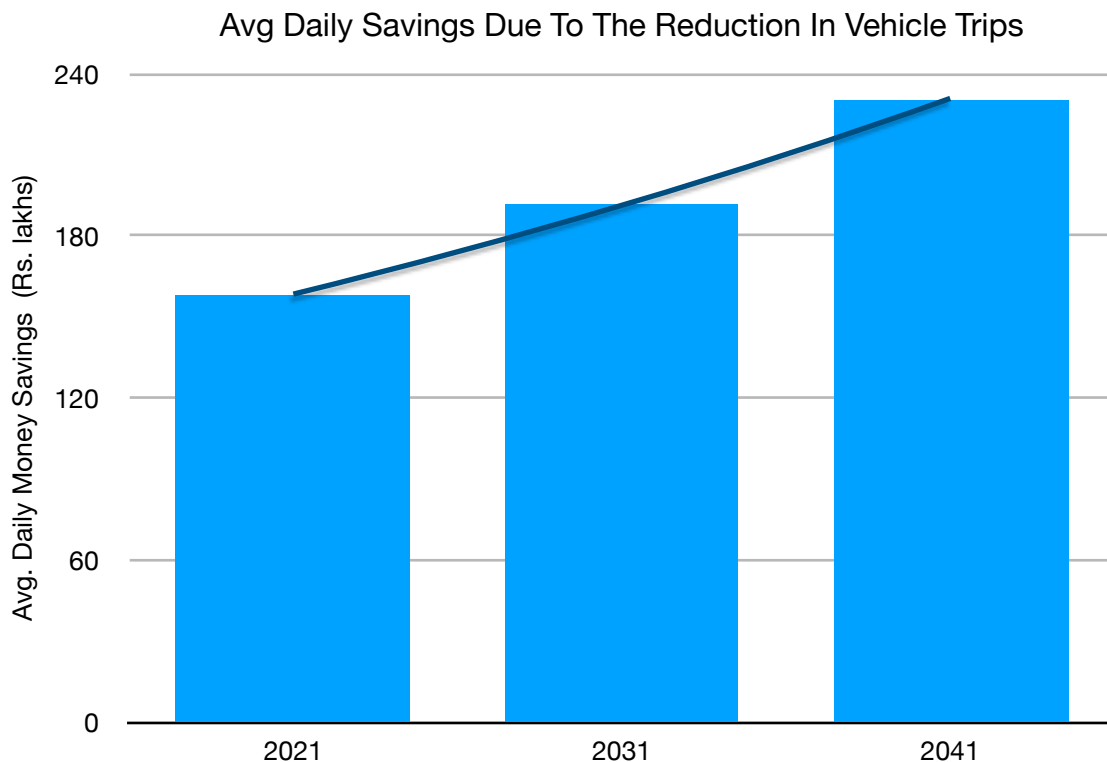
Source : Census

With an increase in the population of the metropolis and a surge in the ownership of private vehicles from 20.3 Lakh in 2011-12 to 32 Lakh in 2017 the metro rail is a step in the right direction. A further increase in private vehicles will lead to more congestion and a higher risk of mishaps and while the emergence of ride-sharing apps have been able to reduce and restrict more private vehicles on the road, a more feasible solution is needed. But what would be the externalities of such a project?

The Economic Consequences

It is evidently common sense that without the metro car shed the metro rail cannot run, and with a running metro the need to employ more people would arise - whether it is as a worker in building the metro shed or as a worker who is employed in the direct running of the metro as a cashier at the counter, as a janitor, as a metro operator and such other jobs. There would also be a demand for technically skilled workers to operate behind the scenes making sure that the entire process runs efficiently with minimal delays. It is safe to assume there would be a net increase in jobs something which the city should welcome considering it houses the biggest slum settlement in the world. Not to mention, that it would also cater to the creation of an unorganised market for knick-knacks around the stations as is common for most metro railway lines in India. Such a big investment in public infrastructure should in theory reduce the demand for private modes of transportation in the long run as affordable public transport alternatives should disincentivise private vehicle journeys.

The MMRCL has estimated that there would be a 45.6% reduction in vehicle trips per day from 2021 to 2041 which would lead to an increase in average daily money savings which is illustrated in the chart below.



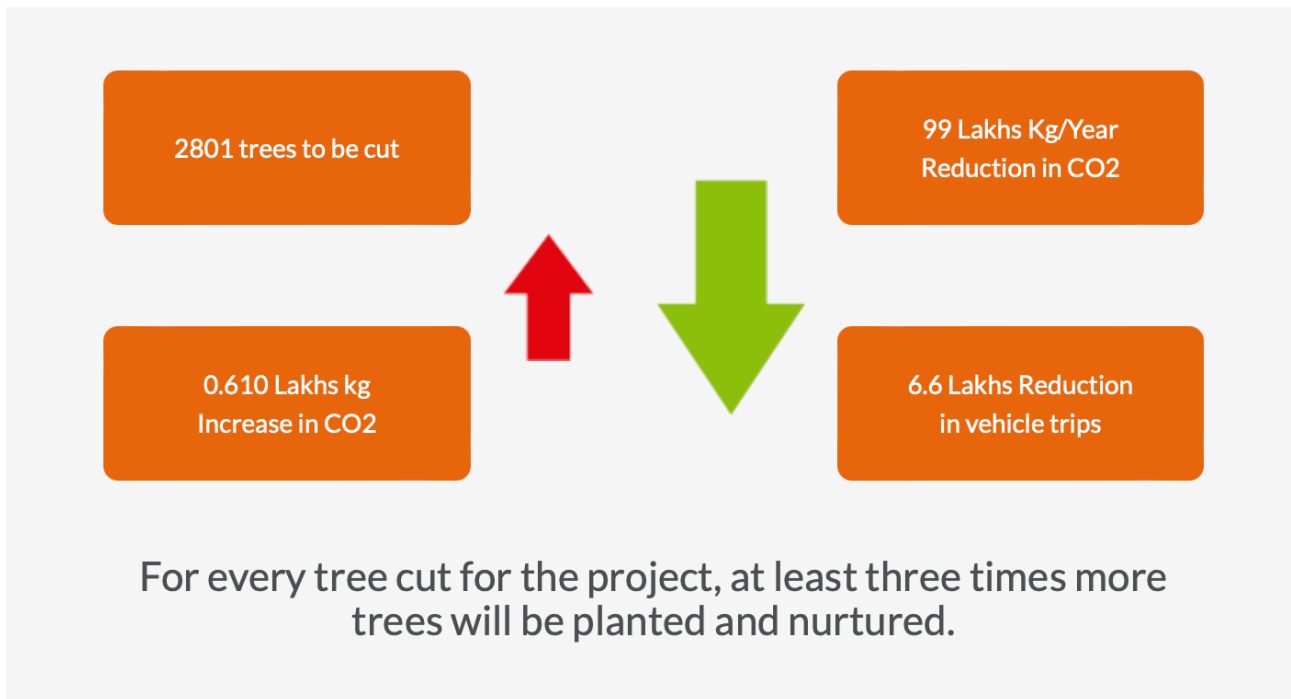
Source : MMRCL

“On account of reduction in approx. 4.5 lakhs vehicles on road per day, there will be saving of approx. 2.5 lakhs litres of fuel per day i.e. about Rs. 550 cr. per year.” - MMRCL
 India had imported 84% of its crude oil during 2020-21 to meet its energy security needs and needs to lessen its reliance on oil imports - specifically the over-reliance on the Persian Gulf, taking cars off the road should lessen the burden ever so slightly and in the long run save precious foreign exchange.

The Mumbai Metro Line 3 was expected to cost around INR 23,136 crore of which 57.2% would be facilitated by loan assistance worth Rs.13,235 Crore from the Japan International Co-Operation Agency (JICA) but the cost has been escalated by over Rs 10,000 crores due to an increase in land acquisition costs as well as terrain differences among other things.

The Environmental Consequences

2702 trees would need to be cut in the ecologically sensitive Aarey Colony for building the metro car shed, but the MMRCL claims that 63,952 kg of CO₂ is sequestered by 2702 trees in a year which the metro should be able to offset in 197 trips. According to the same, if each tree is given an average lifespan of 20 years then it would take the metro 3948 trips to offset the lifetime sequestration of the trees. But that isn't the complete story, A metro rail would demand electricity to run and here is where the issue lies - a significant majority of electricity generated from India is from Fossil Fuels which would lead to more CO₂ generation as a big chunk of it is emitted at the Coal-Powered Plants themselves. A study by The Energy And Resources Institute (TERI) states “metro system generates more carbon dioxide (CO₂) emissions/passenger kilometres (PKM) as compared to a Bus Rapid Transit (BRT) system”, which at first makes it seem that a bus system would be a better alternative but fails to consider the tradeoffs. A metro will always prove to be a more rapid mode of transport and the Mumbai Metro Line 3 is going to run underground which



Source : MMRCL

would preserve everything above ground while also providing a more convenient and hassle-free experience.

The significant reduction in the levels of noise pollution and an improvement in air quality as more people get accustomed to the metro route and start favouring it over private transport make a compelling point in favour of the construction of the metro shed.

Conclusion

The economic and environmental benefits far outweigh the costs of building the car shed. The sad reality is that the city of Mumbai was built without appropriate planning and has expanded in all directions forcing all infrastructural plans and public facilities to be either extremely cramped or unconventional. The metro is a great initiative that will induce more business investments, reduce accidents, decongest the overcrowded roads, and over the span of the next 20 years should be able to offset the loss of biodiversity in the Aarey Colony as well as bring the people of Mumbai closer together.

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