"Post COVID-19 World: Sustainable Transportation Interventions and Solutions Required"

A White Paper by:

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1. Background

Covid-19 pandemic is an unprecedented event which showed us that our present transportation system is not resilient enough in terms of evacuating people from workplaces to their homes or to address problems people are facing in the lock down period. There are significant changes which people witnessed in the lockdown period that will affect the behavior of people. Even after recovery period, people may continue to exercise precautions against a possible second pandemic wave, which researchers suggest might hit in Fall 2020. Hence it is of utmost importance to understand the behavioral changes in people, the travel choices they make, and the planning and policy interventions required during BAU (Business As Usual) scenario after recovery period (pandemic's peak period ends). This understanding will help government to prevent any second wave and can make transportation system integrated with response mechanism.

Government needs to prepare a detailed plan beforehand so that post COVID-19 world is quickly supported by proper scientific interventions. Such interventions are required to solve problems which will arise during the BAU scenario such as managing transport demand, promoting sustainable transport interventions, improving resiliency of transport system to withstand any further COVID-19 wave and response to such disasters etc.

This white paper aims to showcase different issues that government, state and private agencies are required to address as soon as possible and provides suggestions to tackle such critical issues. Following sections introduce each issue one by one with possible solutions to solve them.

2. Problems and Recommended Solutions

2.1 Demerits of skewed development (Need for Balanced Development and Opportunities in all Regions)

India has a large population. Yet we have a very limited number of cities where we have a huge concentration of all the opportunities. Having opportunities is not a problem in itself. However, many of them are not available in remaining parts of the country. Some of these are education, employment, income, healthcare, transportation, housing, sanitation, water, electricity, etc. The people deprived of these opportunities migrate to the cities to improve their lives and uplift their families out of misery. As more and more people migrate to the cities, the population density increases and creates a burden on the existing facilities and opportunities. Additionally, because of large scale migration, the requirement of resources needed to sustain the city increases to an extent that even those are brought from outside the city. The city no longer remains self-sustained. Problems of traffic congestion (e.g. in cities like Bengaluru), overcrowded public transportation system (e.g. in Mumbai), and pollution (e.g. in NCR Delhi) are direct consequences of this skewed development.

We need long term plans so that the very basic opportunities of quality education, healthcare, transportation, housing, income, sanitation, water, electricity, etc. are accessible to people all across the country. People must not be deprived of their basic necessities and other requirements to progress and live healthy. They should not migrate just to meet these ends. The big cities and the metros should serve the purpose of providing only specific and special facilities to the residents. For example, super-specialty hospitals, corporate offices, government nodal centres, etc. could find a place in the cities. The aim should always be to equitably distribute the facilities catering to the needs of remote places as well. Good distribution of facilities and opportunities would ensure less burden on the transportation system. For example, the issue of overcrowded trains that are commonly observed in the festival seasons could be addressed and the railways can focus more on providing higher quality of service.

In the long term, decentralization can help in making the cities more resilient to outbreaks such as the one we are facing now. Smaller cities with less population density, and better medical facilities and infrastructure would be easier to administer and manage in the event of such outbreaks. We will also be less likely to see the unfortunate situations of large number of panic-stricken migrants trying to reach their home towns walking, or crowding state borders waiting for buses, etc. Such situations, if they arise, increase the risk of uncontrollable explosion of such unfortunate outbreak. Cities like Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Mumbai, etc., have presence of a large number of strategically important government and non-government institutions. If such an outbreak goes uncontained, it can wreck the economy and create a huge risk to the security of the country. The current outbreak serves crucial lessons on demerits of skewed development.

2.2 Risk of surge in use of personal vehicles and associated negative impacts

In Indian cities, overcrowding of public transportation systems is a common scenario. With the increased cases of COVID-19 pandemic, people resorted to the primary precautionary measure which is social distancing. Because of the associated health risk, this measure may not be feasible in public transportation systems like buses and metro rail which are already not catering to the demand sufficiently and drive people to use personal vehicles. This pose a huge risk to the present transportation system of India as this will lead to more traffic congestion, increased air and noise pollution ultimately leading to adverse health impacts. People would need to exercise precautions to safeguard themselves from any potential second wave of the pandemic that might occur, as expected by some, in Fall

2020. Consequently, the transportation system should be planned to function well and support social distancing during that period. Also, people of low-income groups who do not have a personal vehicle rely on public transportation system. Therefore, it is of high importance that the transit services in city are made safer for these groups.

Hence it is required to address this issue with properly planned policies and interventions backed with scientific studies. Possible suggestions to prevent this risk are:

- Make public transportation more attractive by dis-incentivizing private transport through congestion pricing, parking fee and incentivizing public transport with reduced ticket fare, more frequency and adequate number of buses.
- Since safety of passengers is a prime factor for choosing or ignoring public transportation. It is the responsibility of the concerned organization to take necessary steps to keep the premises of bus stops and buses clean by disinfecting these areas.
- In Kerala, some of the local panchayats have installed wash basins and hand sanitizers at every bus stop. A similar system can be implemented in other cities to ensure the safety of the commuters.
- Social distancing in public transport systems can be created by reducing the occupancy of the bus. This can be done by cross marking some seats in a systematic way to ensure there is enough safe distance between each passenger.
- Data of COVID-19 cases showed that predominantly old people are susceptible. This will act as a driving factor for old age group people to choose personal vehicles. Therefore, transit services should come up with passes and subsidy for persons above 60 years of age along with provision of a greater number of reserved seats.
- One possible and effective way of spreading the safety measures message to public transportation commuters is to use agency website, social media platforms, newspapers etc, which shows the measures taken by the transit agency to ensure the passengers safety.
- With the lack of proper public transportation infrastructure, implementing social distancing norms in public transport modes will be a challenge. Therefore, private companies (predominantly IT and other MNC's) should reconsider the option of work from home (maybe few days every week) for their employees thereby, giving more flexibility to workers. Due to reduced demand, there will be a significant reduction in congestion on roads, emission levels go down. It will also help in ensuring social distancing inside public transport vehicles.
- Combined policy interventions such as government insisting private companies to allow work from home if possible, if not then have staggered work timing for such companies in a location; different level of safety provisions for intra-city and inter-city transit services, etc.
- The government needs to focus on the safety of the general public who will commute after the recovery period ends to prevent a second wave of the pandemic. But also, must look for strategies to recover the financial loss which occurred till the recovery period. At hand solution of financial loss can be through government subsidies provided to these transit agencies.
- Since COVID-19 primarily attacks the respiratory system of an individual, it is of utmost importance that the air quality in the Bengaluru is not deteriorated. Since transportation is one of the major contributors to emissions in the city, the Government should act upon the gravity of the situation and ensure that usage of personal vehicles is restricted, and the public transportation system infrastructure is improved.

2.3 Negative impacts on operations and sustainability of transport organizations

A pandemic like COVID-19 will cause significant changes in economy, medical solutions, supply chain and day-to-day lifestyle of common people. All of these have substantial effects on operations and sustainability of transport organizations. Planning for these effects in advance will help the transit agencies to absorb the changes and attaining greater sustainability. It is the duty of policy makers to provide executive support in preparing and executing these planning decisions and provide an appropriate level of service based on their capabilities and capacities. Impacts to any or all transport organization due to a pandemic can be summarized as:

- Disruption to supply chain, resources, services and operations.
- Significant absenteeism among employees
- Increased need for change in public transport services, procedures and restrictions.
- Increased need for coordination among local agencies.
- Increased safety concerns among passengers and workforce.

Some of the recommendations provided below that may be adopted by transit agencies and policy makers in their planning framework to minimize the negative impacts:

- Transport agencies should be able to identify their vulnerabilities during a pandemic. They may face several complex challenges that include change in commuter habits, overloaded healthcare systems, legislative and administrative issues etc. Identifying the existing vulnerabilities will improve the robustness of transit agencies. The key actions may involve, conducting a comprehensive pandemic vulnerability assessment, develop comprehensive, usable and relevant plans. They should also develop strong relationship with community and allied organizations; acquire equipment needed during emergency, conduct regular internal and external exercises to identify organization strengths and shortfalls.
- It is the time for transportation agencies to start work as an overall community. They should communicate their capabilities and resources to emergency and public health agencies. This may convey their needs to response agencies, ensure effective information exchange, coordination and decision making.
- Even if the COVID-19 has led to reduced travel activities and temporary decline in greenhouse gas and global carbon emission, they tend to bounce back shortly once the global disturbances ends. It is therefore of great importance, that we adopt a cleaner travel mode such as walking, cycling and electric vehicles. Otherwise, sudden surge in travel demand may tip off the balance. It might be the right time, when authorities create/improve and promote sidewalks, bike lanes and attract a latent population which has remained under lockdown for a long time. They may use sensible advertising ideas like "***loose the weight you gained during lockdown, cycle to work etc.***", to promote these healthier modes.

2.4 Insufficient Disaster Resiliency of Indian Transportation System

Disaster resiliency is not considered as a core component while formulating transport policies and planning measures usually. Having a resilient transport system helps government during disaster evacuation. After COVID-19 recovery period, a resilient system will help in future if any second wave of the pandemic occurs. To this effect some possible solutions are suggested:

- Provide exclusive pathways to emergency response vehicles like ambulances and fire services. A system similar to ride-sharing services can be provided such that any of the nearest hospitals within a search radius provides a spare ambulance to receive the patient and transfer to the critical care unit.

- Bus priority lanes or high occupancy vehicle lanes could be made an essential part of the transportation system. This network could then be used by emergency vehicles for their fast navigation as well.
- Government can also divide entire cities and states into zones. These zones can be segregated based on a risk index which can be formulated using number of COVID-19 cases in a zone and we can run different transit service for such zones for intra-zonal trips. This is important as if a second wave hits then those potentially vulnerable zones can be locked down immediately to prevent further spread.

3. Hidden opportunity of achieving a Sustainable Transportation System

Currently, the traffic (intra-city and inter-city) is at its minimum and it is likely to come up to BAU slowly in stages. It is like a "restart" for the traffic. Thus, it is the best opportunity for the local authorities to come up with policies and make transport system sustainable. It is easier to implement policies for the local authority now than in normal situation. Few measures that can be taken are:

- Priority lanes for buses and separate for high occupancy vehicles.
- Integration of auto-rickshaws/ride sharing services with Bus/Metro transport system to provide first and last mile connectivity.
- Subsidized fare for people preferring integrated public transport above others.
- Segregation of commuters by having measures like; staggering of work hours, morning and afternoon shifts, allowing to work from home for one day in a week, and also one day in a week study from home for students. The habit and experience of using online tools for work and studies during the lockdown period will come handy in making these measures feasible. This can lead to substantial travel demand reduction on a sustained basis.
- Allowing monthly pass for delivery personnel in integrated PT.
- It has been noted from data that pollution has reduced considerably in about 90 cities all over India. This could be taken as a cue to enforce restrictions on personal vehicle usage, possibly in the format of limiting the number of days a person/ household can use personal vehicles.

Though the long-term objective should be to come up with a good land use plan such that it minimizes the VKT (vehicle kilometers travelled) at every level i.e. city, district, division, state and country. But the idea of "Equitable opportunities at all levels" as discussed in previous sections can be implemented along with other suggestions.

It is important that we learn from this pandemic outbreak that achieving sustainability is the only option to survive in this planet. Aim for different sectors should be to move towards sustainability and rebuild a country where all live a healthy, happy life. Balance with nature is what this pandemic taught us, so let's learn our lesson and live accordingly.

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