pedalling non-motorised transport in bengaluru

#Bengaluru moving | YLAC

authors

Jaison Jose

Sidharth Ganesh

Srija Gadamsetti

Subhrajit Chowdhury

The authors are Mobility Champions for the #BengaluruMoving campaign with Young Leaders for Active Citizenship (YLAC). The views expressed in this policy brief are the authors' own.

#Bengaluru moving | YLAC

executive summary

In the wake of a global pandemic, emphasis on socially distant non-motorized transport (NMT) is seeing a resurgence across the world. In Bengaluru, there exists a pressing need for the same, and utilizing the pandemic to push NMT might significantly increase its usage.
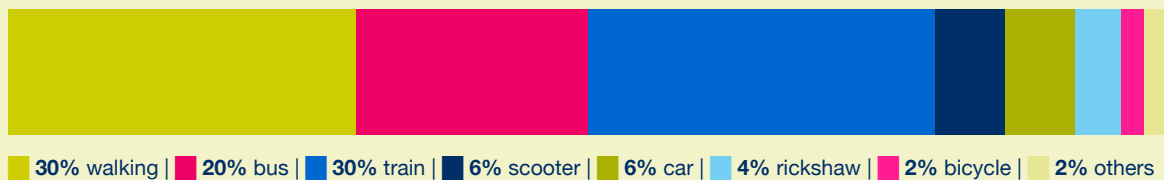
While infrastructure development, improved urban design and transit-oriented development stand out as the major action items, there also exists a need for inclusive data collection methods to aid planning processes. Better and informative public transit, along with making it more NMT friendly would help with better adoption.

The above steps when combined with pedestrianization and introduction of bicycle lanes would help people reclaim the streets and reap the benefits of reduced number of vehicles on the road. Along with cycle lanes, a well spread out shared bicycle infrastructure with enough cycles to support the populace of the city, would help in enticing more cyclists. Thus, a two-pronged approach which makes streets safe and footpaths a sought after mode of commute and at the same time entice people to ditch motorized transport for cycles would help in moving the needle a little bit towards spreading NMT.
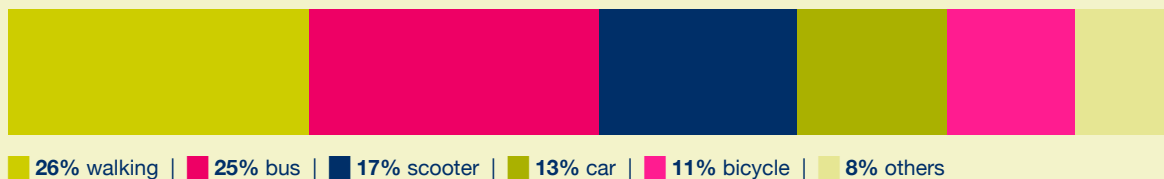
introduction

For most people in Bengaluru, walking is the primary mode of commute. It is estimated that over 28% of all trips in Bengaluru are by walk, one of the highest among the metro cities in India.[1] However, with increasing economic activity and GDP per capita, citizens "move up" into buying cars. The Directorate of Urban Land Transport (DULT), Govt of Karnataka reported that the modal share of cycling went down from 18% to 2%, from 1980 to 2011.
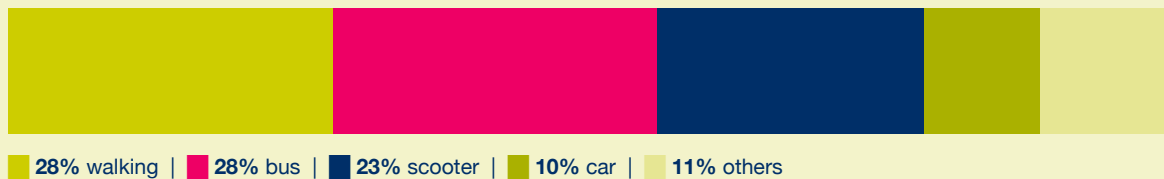
Mumbai

30% walking | 20% bus | 30% train | 6% scooter | 6% car | 4% rickshaw | 2% bicycle | 2% others

Delhi

26% walking | 25% bus | 17% scooter | 13% car | 11% bicycle | 8% others

Bengaluru

28% walking | 28% bus | 23% scooter | 10% car | 11% others

Chennai

20% walking | 23% bus | 30% scooter | 8% car | 12% bicycle | 7% others
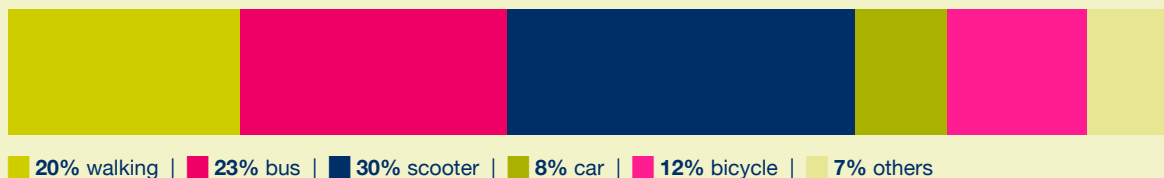
The benefits of walking and cycling are vast—walking has been linked to improved well-being of the individual. Studies have shown positive correlations between active mobility and mental well-being, physical well-being and longevity of life.[2] The environmental benefits of not utilizing a fossil-fuel based vehicle are decreased carbon emission, decreased air pollution, and lower fatalities on the road. Streets designed for walking often see decreased crime.[3] Commercial streets with broad pedestrian pathways create higher economic activity.[4]

To reinstate walking and cycling as the preferred means of commute for the citizens in Bengaluru, a range of measures need to be taken around the infrastructure, urban design, strong policy and cultural change. While it is possible to also achieve this through disincentivizing the usage of cars, there is also plenty to be undertaken to ensure that walking and cycling can independently serve as a convenient commuting mode for the common people.

NMT in bengaluru: what's the status quo?

Walking: an unexplored treasure

According to the Comprehensive Mobility Plan for Bengaluru (CMP), the draft of which was unveiled in October 2019, the average trip length for walking as a mode of transportation in the city is 1.0 km. Footpaths are only available along about 47% of the road length. Furthermore, the CMP doesn't contain any data about modal share of NMT. The options of cycling and walking are largely unexplored and only construction of a 548 km of footpath has been proposed.

Footpaths in Bengaluru are largely in a poor state. In a special drive against footpath encroachment, Bengaluru police booked 3916 cases in 6 days in April 2019.[5] Safe walking spaces for persons with disabilities are a rarity in Bengaluru. A. L. Janaradhan, Deputy Director, Association of Persons with Disabilities, has pointed out that most of TenderSURE projects are not wheelchair-friendly.[6] In September 2019, civic officials were directed by the BBMP commissioner to ensure that all civic works taken up henceforth should adhere to the principles under Section 3 of Rights of Persons with Disabilities Act, 2016.[7]

There have been efforts to pedestrianise certain streets. Although there do not exist any pedestrian-only streets in Bengaluru, the CMP has identified 8 streets which are commercial and witness a lot of foot traffic, and has proposed that those could be made pedestrian-only

during the weekends and holidays. The State Budget in 2019 also identified that Brigade Road and Commercial Street could be made pedestrian-only. The proposition received a lot of opposition from the traders along these streets—they feared the lack of parking spaces would hinder the footfall at their shops.[8] With the design of Church Street, urban design in the state seems to move towards pedestrianisation by making streets pedestrian-first instead of pedestrian-only. In June 2020, the Ministry of Housing and Urban Affairs (MoHUA) directed all smart cities, including Bengaluru, to identify and convert three high-traffic zones into pedestrian-friendly areas.

CHART 2
Total road deaths and pedestrian deaths in 2018

Total road deaths (2018) | Total pedestrian deaths (2018)
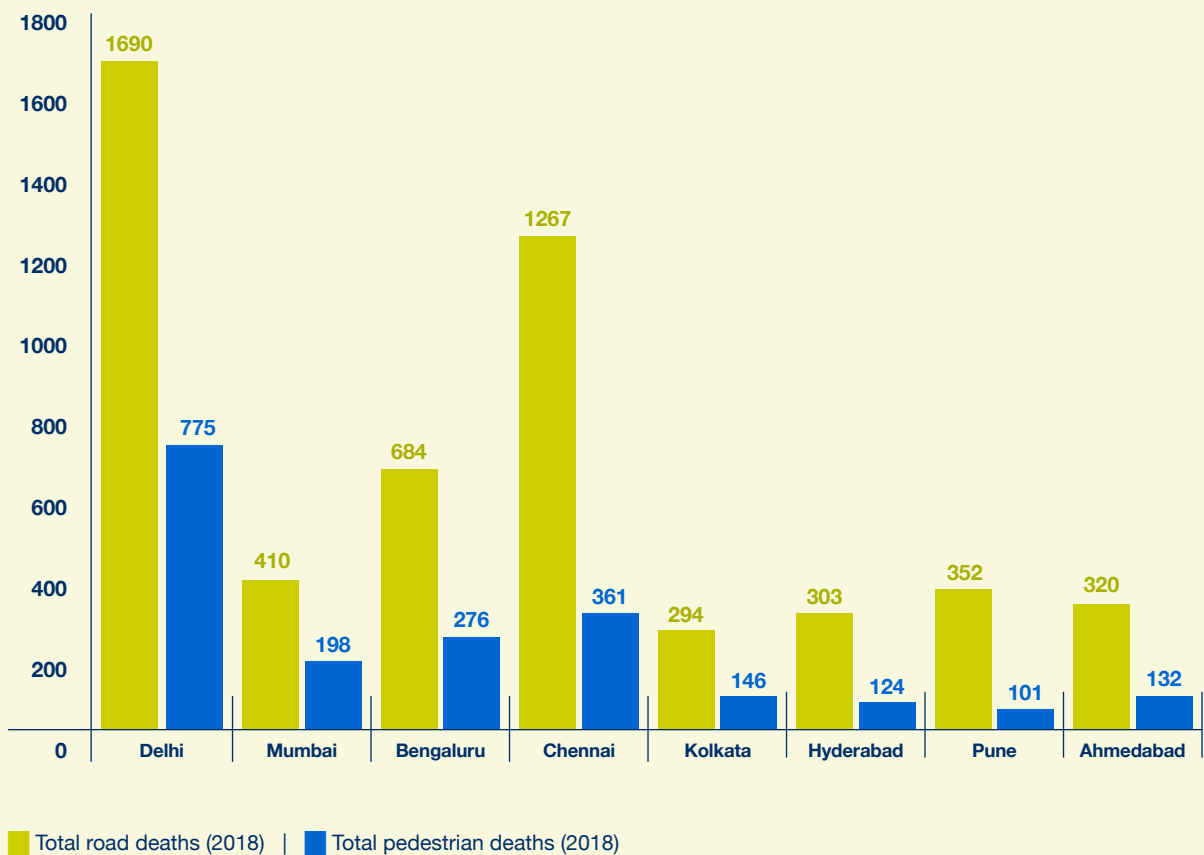
As per RTI data obtained from the traffic police, Bengaluru witnessed third highest number of pedestrian deaths among a comparison between 8 major cities.[9] Two-thirds of deaths happened on arterial roads, 33% of victims were aged 60 and above, and nearly 60% of victims were crossing roads when the crashes happened.[10] This data provides us with patterns that can be tracked and understood while crafting an NMT policy.

Cycling: the ignored sister of the NMT family

Considering the conducive weather and the terrain of Bengaluru, cycling should have been an easy go-to for the citizens of the city. But the lack of cycling infrastructure, the constant pressure to move faster than other vehicles and the risk to life that Bengaluru roads pose has reduced bicycling to a leisurely activity.[11]

Public Bicycle Sharing ventures that originally started with bicycles, such as Bounce and Yulu have added a motorized fleet to better serve their customers. According to the DULT, there are around 4,000 shared bicycles in the city, a measly amount compared to the number of people and the sprawl of the city. Even the existing shared bicycles are only limited to Central Bengaluru or the IT corridors such as ORR and Koramangala.[12]

There is a lack of infrastructure that supports cycling—such as cycle lanes or parking for bicycles—which has turned away prospective cyclists, deterring cycling from becoming a popular mode of everyday commute. There have been efforts to ensure that cyclists take to the roads such as the cycling lanes developed on 22 roads in Jayanagar, but they have been of no use to the cyclists due to encroachment by vehicles. Additional lanes have not been taken up due to financial constraints. Bicycle lanes are rarely respected by motorized vehicles, creating hazardous environments for cyclists.

Another issue is around a centralized sponsorship and governance for coordinated implementation of initiatives to improve cycling in the city. There is lack of enforcement in making sure that the bicycle lanes are maintained and used for the purpose that they were built for. This has also created a gap in integrating cycling with larger transport systems, such as buses or metros, further causing issues in promoting and incentivizing people to join the cyclist movement.

According to the CMP, BBMP plans on building only 174 km of cycling tracks in the next 15 years and having around 550 hubs where shared bicycles can be docked. The requirement for both the tracks and the hubs are much greater and the proposed numbers only satisfy 2–4% of the actual requirement.[13]

As of August 2020, pop-up cycle lanes stretching over 16 kms on the Outer Ring Road (ORR) are in the works. DULT has also begun to crowdsource data about vastly used cycle routes in Bengaluru that can be expanded from the cycle lanes in ORR to form a cycling district.[14]

NMT policies + infrastructure in bengaluru

To encourage walking and cycling, the presence of an NMT policy is essential. While cities like Chennai and Delhi already have an NMT policy, Bengaluru is yet to have one. In 2019, Karnataka Non-Motorized Transport Agency (KNMTA) was formed under the DULT—a dedicated body for financing and monitoring of NMT operations in Karnataka, responsible for preparing the NMT policy. KNMTA aims to implement NMT initiatives like:

- public bicycle-sharing projects,
- design and create safe bicycle and pedestrian transportation networks in cities,
- organize vehicle free programmes that temporarily convert public roads into free spaces for walking,
- cycling and other community activities

Though there are a lot of initiatives in the pipeline, many are still in the works and have not yet been implemented.

comparative analysis of NMT in indian cities

Chennai

In 2014, Chennai became the first city in India to have adopted an NMT policy.[15] The policy aimed to arrest the decline in walking and cycling in the city by creating a safe and pleasant network of footpaths, cycle tracks, greenways and other NMT facilities. The NMT policy in Chennai mandates that a minimum of 60 percent of the Corporation's transport budget be

allocated to construct and maintain NMT infrastructure. Important initiatives include implementation of high-quality footpaths on all arterial streets as well as the implementation of pedestrian zones in certain quarters. Special emphasis is laid on pedestrian-oriented multimodal street design.

As a result of these policies and infrastructure projects, more than 100km of street with safe and continuous footpaths were created over the last 5 years, capable of responding to the needs of not only pedestrians and cyclists, but also vulnerable road users such as children, women, elderly and persons with disabilities. The Chennai model of NMT is now being implemented in 10 cities across TN, including Coimbatore and Madurai.

Delhi

In 2019, the Delhi Development Authority sanctioned a "walkability plan" which was to be designed by the National Institute of Urban Affairs. Focus areas included guidelines on ensuring that footpaths were 6 inches above road level, presence of ramps for persons with disabilities. A 1.3 km stretch between red fort and Fatehpuri Masjid was converted into a car free zone and a beautification of the area was carried out. There were multiple stakeholders in the project like traders, trader unions, residents, heads of religious structures on the stretch, and the Delhi Urban Arts Commission.[16]

Chandni Chowk: Before and after pedestrianization[17]

Some of the challenges faced during the course of this project and their resolutions are listed below:

1. The misconception by the traders that their business will suffer due restriction of vehicular traffic:
    a) A multi-level car-parking parking facility at Chandni Chowk's Gandhi Maidan to be built to accommodate 2,300+ cars. It will have eight floors and three underground levels, and **b)** Traders were accommodated by having on-loading and off-loading of goods.

2. Water lines had to be changed.
3. Power cables had to go underground.
4. Transformers had to be shifted.
5. Telephone lines had to be moved.[18]

The Delhi government has identified 6 more streets for pedestrianization and will be going ahead with their revamp and the beautification. The most important takeaway from this project is that extensive discussions between multiple stakeholders is vital to successfully implementing such a revamp and also resolution of important objections should be done by involving all the parties involved.

recommendations

Improvement of pedestrian infrastructure

Improvement of footpaths:
1. Increase the footpath coverage from current 47% to higher and track this as a metric in the policy.

2. Increase the width of the footpath where the traffic on foot is high.

3. Bengaluru has around 2½ lakh street vendors.[19] Enlist their help in keeping the streets well-maintained and clean. Their presence will also lend safety (to a degree) to the streets.

4. Provide street furniture to make the streets pleasant areas to walk on. Place dustbins, benches and water-taps at regular distances.

Creating inclusive and accessible walking environments and public spaces:
1. For streets where the public transport vehicles do not have access and the right-of-way is less than 12 m, lower the traffic speed limit (about 15 km/hr) and restrict the entry of big vehicles.

2. Restrict the construction of footover bridges. Instead, construct at-grade pedestrian crossings.

3. Motorists should give the right-of-way (RoW) to pedestrians and cyclists.

4. Identify streets with high crime-rate and take measures to ensure safety of pedestrians. For example, add more street lights.

5. Replace the steps on street spaces with ramps.

6. Lower the traffic speed limit near pedestrian crossings.

7. Invest in awareness training for the Bengaluru Police to be more pedestrian-friendly and cyclist-friendly.

Availability of passenger information systems to help pedestrians plan walking routes to public transit hubs:

To incentivize the use of public transport and also make sure that people who can walk down to bus stops use it as a means of transport we propose the following.

1. Realtime information on the city buses could be shared to allow the creation of apps by startups or other businesses in this domain. This will enable accurate tracking of buses and their ETA for different bus stations. This would help in improved usage of buses by people who would have used other more reliable alternatives as means of daily commute.

2. Showcase the arrival of the next bus using the same system on various bus stations.

Transit-oriented development:

1. Provide provision to procure Floor space Index premiums/air rights around transit hubs.

2. Require mandatory affordable housing around transit hubs.

3. Allow Transferable Development Rights to be redeemed around transit-hubs.

4. Decrease FSI allowance for locations that require more than 350 m of walk from a transit hub.

5. Introduce an additional cess on property tax on developments that are far away from transit hubs, preferably to a fund earmarked for mobility infrastructure.

Improvement of urban design:

1. Improved urban design can substantially improve pedestrian's perception of safety:

- Enforce a minimum number of commercial establishments with store-fronts to open up every 100m, to aid safety and surveillance.

- Provide FSI exemption on balcony area only if it opens up to the street

- Ensure adequate lighting and shading on every street with an RoW of 12m and above. Wherever possible, have trees between the NMT corridor and the carriage way to improve safety.

- Have traffic calming measures such as table-tops, tiled-streets and visible signages on the roads around high-pedestrian areas.

- Create multiple openings around buildings with long blank walls on a street, especially tech parks and gated communities.

- Increase development fee and levy additional cess on property tax on all gated communities if they do not allow pedestrians and cyclists to walk through the campus.

- Enforce transparency and height restrictions on boundary walls in residential and commercial areas.

- Charge higher development fees and property taxes to residences that have more than one parking slot.

- Erect bollards over the footpaths to prevent motor vehicles from encroaching.

- Increase curb height to discourage on-street parking.

2. To enforce these interventions, it would be required to:

- Develop urban design toolkits, and undertake capacity building exercises within all agencies that undertake public works within the Bengaluru city limits.

- Set up an urban design board/commission consisting of technical experts to enforce urban design guidelines on private developments, beyond a certain built-up area.

Pedestrianization of commercial streets:
1. Open street days: close down main streets on Sundays and public holidays for use by cyclists and pedestrians.

2. Introduce traffic light signalling that prioritizes pedestrians and cyclists (e.g. through shorter wait times to cross the road, avoiding red signals for cyclists etc).

3. Face opposition from businesses concerned with loss of revenue by demonstrating majority support for pedestrianization through polls and surveys, as done in cities like Sevilla in the past.

4. Adopt novel urban layouts such as superblocks that confine motorised access to the perimeters of three by three blocks.

Improvement of cycling

Improvement of cycling infrastructure:
1. Enable buses to be able to mount bicycles.

2. Incentivize local businesses to provide secure cycle parking spaces for employees, construct employee showers on-site and organize Bicycle ERGs.

3. Develop dedicated cycle lanes on arterial and major collector roads where the speed limits are greater than 30 km/hr.

4. Provide locking systems for bicycles at metro-stations.

Inclusive data gathering:
The majority of the cyclists who use bicycles for daily commute are livelihood workers but a lot of the times they do not get a say when the cycling infrastructure is set up.[20] There are quite a few reasons why this happens.

1. They are harder to reach out to than the technology equipped youth and the bicycle club members.

2. Even if they are included in the planning, acquiring the relevant data is a task.

Though these problems are a major hurdle for Inclusive Data Gathering, any kind of planning without including the majority stakeholder will not have the desired impact. Thus, including the urban poor who are mainly captive users of cycle is of utmost importance in planning of cycling districts and lanes.

Availability of safe parking stations for cycles:
1. Incentivize bicycle sharing ventures by setting up parking stations and delineating them as proper parking zones for shared cycles.

• This would ensure that the existing infrastructure setup by bicycle ventures has proper validity and is encroached upon

Increased availability of community cycles:
1. Incentivize RWAs to set up and operate bicycling sharing within themselves.

• Increased accountability from users as a percentage of the maintenance fee would come from the RWAs.

2. Improve bicycle availability at transit hubs like select bus stations and metro stations.

• Executed by roping in the existing bicycle ventures and using their technological infrastructure while bearing the cost of maintenance.

Urban-design and traffic calming measures:
1. Create table-top intersections, speed bumps, etc to decrease traffic speed on intersections

2. Demarcated cycling paths with differentiated colouring / pigmentation of streets, and wherever possible, a line of bollards or trees between the cycling lane and the carriageway

Cycling friendly infrastructure and policies at work places:
1. Mandate facilities for showers, lockers and drying to incentivize cycling in tech parks and offices

2. Initiate Bicycle User Groups (BUGs) for employees who cycle, to make the workplace cyclist friendly and conduct knowledge sharing sessions on repair, maintenance etc.

3. Provide adequate dedicated cycle parking space

4. Provide community cycle pooling/sharing services

5. Tax incentives for employees who use cycles for work commute

Induce behavioural change in citizens through nudges to cycle:
1. Create adequate awareness about personal health and environment benefits through adoption of cycling

2. Introduce logging mechanisms for tracking reduction of individual carbon footprint, GHG emissions and cost based on cycle/walking commute

3. Make it aspirational and attractive to cycle by partnering with popular figures, leadership in work places

conclusion

"A journey of a thousand mile starts with a simple step".

Through this campaign we hope that that step refers to that of a footstep and not that of a gas pedal. We often underestimate the effect city design has on one's happiness. Transport planning plays a critical role, as it affects our motivation to socialize and gain a sense of trust in our society. Empirical evidence by Charles Montgomery, the author of "Happy City", shows how streets without cars are incredibly vibrant, dense and fun, and aid social connections.
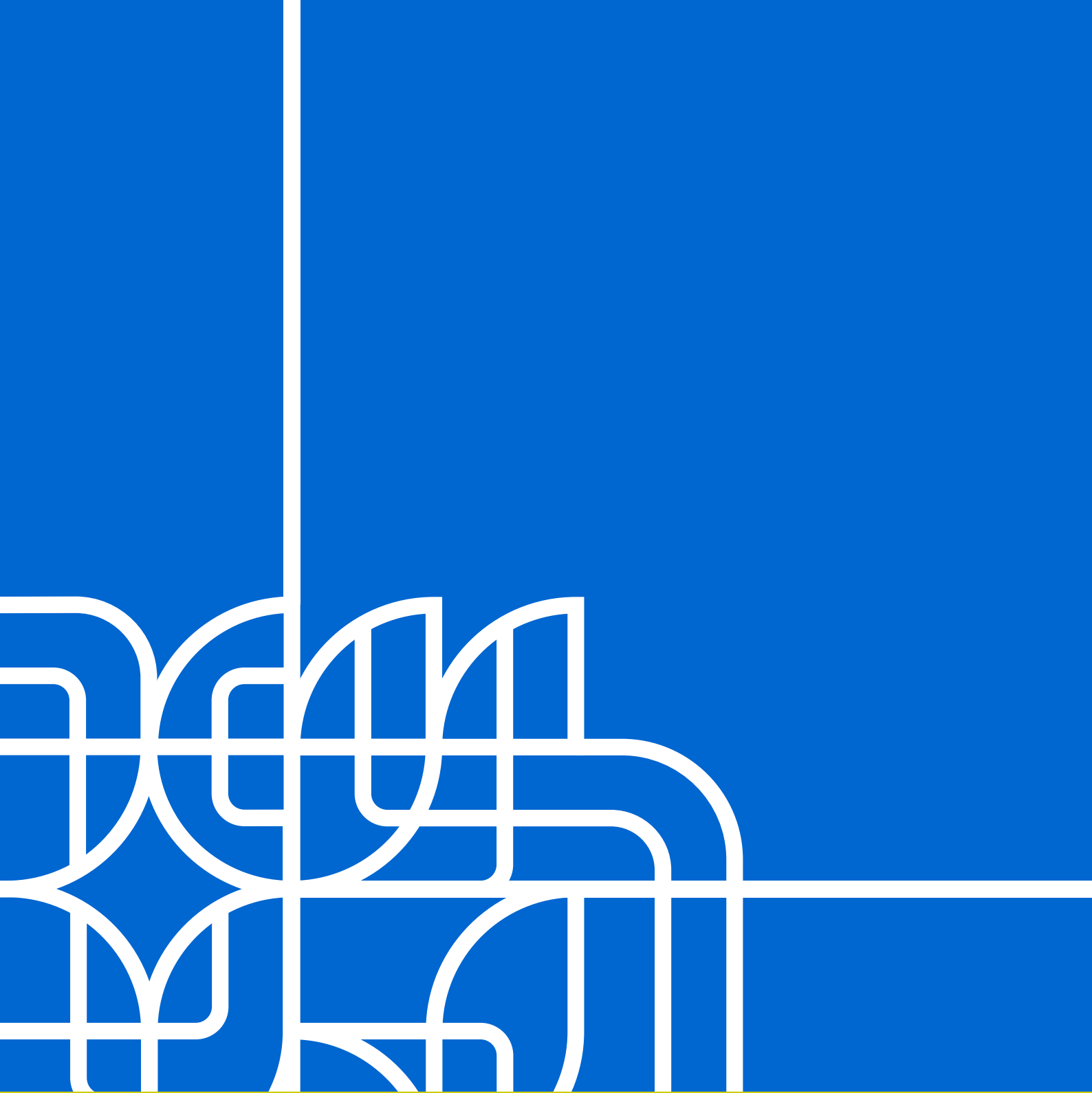
Several cities around the world are now building its future around cycles, including the likes of Bogota, Barcelona, Bologna, Lisbon and Paris have utilized this time during the lockdown of the COVID-19 pandemic to build bicycling lanes.[21] Even though more citizens are cycling and bike acceptance is widespread, every step generates conflict between stakeholders.

Through this campaign and policy recommendations, we hope to build momentum towards a collective vision of cycling and walking in Bengaluru. We hope through the stakeholders see the value in improving non-motorized transport and the increased gender inclusivity in our public spaces, improved public transit usage, increased safety on our streets, a reduction in carbon emissions and most importantly, healthier and happier people.

endnotes

1. The Latest Decennial Census of India conducted by the Office of the Registrar General and Census Commissioner of India in 2011

2. The benefits of non-motorized transport in the city of Rio de Jeneiro, L.Basto et. al, The Sustainable City VI, pg 311 – 321, https://www.researchgate.net/publication/271431196_The_benefits_of_non-motorized_transport_in_the_city_of_Rio_de_Janeiro

3. Enrique Penalosa: Bogot's Former Mayor Advocates for a More liveable City www.foxnews.com/lifestyle/enrique-penalosa-bogotas-former-mayor-advocates-for-a-more-livable-city

4. Pedestrianisation of a commercial area: A case study of Aminabad, Lucknow. Chanda Malhotra, International Research Journal of Engineering and Technology, https://www.academia.edu/34509555/Pedestrianisation_of_Commercial_Area_A_Case_Study_of_Aminabad_Lucknow

5. 4,000 cases of footpath encroachment booked in 6 days in Bengaluru, 1st May, 2019, https://timesofindia.indiatimes.com/city/bengaluru/4k-cases-of-footpath-encroachment-booked-in-6-days/articleshow/69120596.cms

6. BBMP to consider accessibility for differently-abled citizens, 14th September, 2019, https://www.thehindu.com/news/cities/bangalore/bbmp-to-consider-accessibility-for-differently-abled-citizens/article29411992.ece

7. The Rights of Persons with Disabilities Act, 2016, http://legislative.gov.in/sites/default/files/A2016-49_1.pdf

8. Karnataka budget: Church Street, Brigade Road and Commercial Street only for walkers, https://timesofindia.indiatimes.com/city/bengaluru/karnataka-budget-church-street-brigade-road-and-commercial-street-only-for-walkers/articleshow/67907898.cms#:~:text=BENGALURU%3A%20Brigade%20Road%2C%20Church%20Street,has%20proposed%20in%20his%20budget.&text=Since%20there%20are%20no%20parking,off%20and%20then%20come%20here.

9. Over 2000 pedestrian deaths in the top 8 Indian cities in 2018, 12th June, 2019, http://footpathinitiative.org/2019/06/12/over-2000-pedestrian-deaths-in-the-top-8-indian-cities-in-2018/

10. Pedestrian crashes in Bengaluru: Who are the most at risk, and when?, Anusha Chitturi, Citizen Matters, 30th January, 2020, https://bengaluru.citizenmatters.in/bengaluru-pedestrian-crashes-deaths-arterial-roads-elderly-speeding-42365

11. Why bicycling in Bengaluru is a cruel joke on cyclists, Naveen Menezes, The Economic Times, 3rd May, 2019, https://economictimes.indiatimes.com/news/politics-and-nation/why-bicycling-in-bengaluru-is-a-cruel-joke-on-cyclists/articleshow/69157348.cms

12. Why bicycling in Bengaluru is a cruel joke on cyclists, Naveen Menezes, The Economic Times, 3rd May, 2019, https://economictimes.indiatimes.com/news/politics-and-nation/why-bicycling-in-bengaluru-is-a-cruel-joke-on-cyclists/articleshow/69157348.cms

13. Bengaluru's Mobility Plan: "Proposed cycling tracks are just 4% of what could be built", Sathya Sankaran, Citizen Matters, 14th January, 2020, https://bengaluru.citizenmatters.in/cycling-allocation-comprehensive-mobility-plan-bengaluru-modal-share-cycling-tracks-pbs-39905

14. DULT crowdsources cycle routes along Outer Ring Road, The Hindu, 10th August, 2020, https://www.thehindu.com/news/cities/bangalore/dult-crowdsources-cycle-routes-along-ring-road/article32311811.ece

15. Chennai Adopts NMT Policy: A Quantum Leap Towards Safer Streets, Aswathy Dilip, ITDP India, 27th October, 2014, https://www.itdp.org/2014/10/27/chennai-adopts-nmt-policy-quantum-leap-towards-safer-streets/#:~:text=The%20policy%20mandates%20that%20a,the%20needs%20of%20all%20users.

16. Explained: What will the new Chandni Chowk look like?, Somya Lakhani, 27th July, 2020, The Indian Express, https://indianexpress.com/article/explained/delhi-chandni-chowk-redevelopment-program-what-it-will-look-like-6523140/

17. Nitin Panigrahi, Twitter

18. Explained: What will the new Chandni Chowk look like?, Somya Lakhani, 27th July, 2020, The Indian Express, https://indianexpress.com/article/explained/delhi-chandni-chowk-redevelopment-program-what-it-will-look-like-6523140/

19. Bengaluru's street vendors: A vibrant community deprived of rights, Bhargavi S Rao, Citizen Matters, 28th July 2019, https://bengaluru.citizenmatters.in/bengalurus-street-vendors-a-vibrant-community-deprived-of-rights-35469

20. Bicycle Use in Indian Cities: Understanding the Opportunities and Threats, Premjeet Das Gupta and Kshama Puntambekar, Research Gate, December 2016, Page 2, https://www.researchgate.net/publication/311671415_Bicycle_Use_in_Indian_Cities_Understanding_the_Opportunities_and_Threats

21. An Urban Planner's trick to making bike-able cities; https://www.bloomberg.com/news/articles/2020-08-05/an-urban-planner-s-trick-to-making-bike-able-cities

#Bengaluru
moving

YLAC