



Urban
Pathways

INDIA
SUMMARY
BERLIN, 2018



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Author: Jaya Dhindaw, Santhosh Kodukula,
Shritu Shrestha, Madhav Pai

Editor: Oliver Lah, Stefan Werland

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Urban Pathways Secretariat

team@urban-pathways.org

Oliver Lah
Coordinator
+49 (0)30 2887458-16
oliver.lah@urban-pathways.org



Federal Ministry
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Urban Pathways Replication Cities

ABSTRACT

This study maps central, state and city level policy interventions relevant to Kochi, Kerala in alignment with the Nationally Determined Contributions of India. The study looks at specific areas, namely, urban transport, sustainable development and energy. Relevant stakeholders and institutions focusing on projects operational in the city are identified.





Urban Pathways



SUMMARY OF NATIONALLY DETERMINED CONTRIBUTIONS

Climate change is a major challenge for developing countries like India that face large-scale climate variability and are exposed to increased risks from climate change. Along with this challenge, growing wealth and population increases the demand for urban services such as electricity, transport, water and waste. For India's development process, it not only has to complete the current unfinished development agenda, but also needs to strategize for future pressures that may increase the magnitude of this development gap. While keeping a strong focus on its development agenda, particularly the eradication of poverty, India shows a strong commitment to advance its low carbon agenda. In that India puts an emphasis on the availability of clean technologies and financial resource from around the world and communicates its NDC in response to COP decisions 1/CP.19 and 1/CP.20 for the period 2021 to 2030.

With a global share of GHGs emission at 4.1%, India ratified the Paris climate agreement on October 2, 2016. India's NDCs include a broad scope of putting forward and propagating a healthy and sustainable way of living based on traditions and values of conservation and moderation. It aims at adopting a climate friendly and a cleaner path than the one followed hitherto. Though India's emission intensity of 0.36 kg CO₂/US\$ is 60% less compared to developed countries, India is part of the top 10 global emitters, who contribute over 72% of global GHG emissions.

India's target is to reduce the emissions intensity of its GDP by 33 to 35 % by 2030 compared to 2005 levels. The target will be reached through emphasis on renewable energy, promotion of clean energy, enhancing energy efficiency, climate resilient urban centres, sustainable green transportation networks, and through central and state level schemes like Swachh Bharat Mission, Cleaning of rivers, Zero Defect - Zero Effect and Make in India.

Encouraged by the recent growth in the clean energy sector, the Government of India intends to achieve 40% cumulative electric power capacity from non-fossil-fuel based energy sources by 2030. The target will be achieved with the help of technology transfer and low cost international financing options including the Green Climate Fund. India is currently running one of the largest renewable capacity expansion programs in the world and anchors the International Agency for Solar Policy & Application (In SPA). USD 2.5 trillion (at 2014-15 prices) is the estimated price required for meeting India's climate change actions between now and 2030.

India is working towards a low carbon emission pathway while endeavouring to meet its current development challenges.

India communicates its NDC for the period 2021 to 2030:



1. To reduce the emissions intensity of its GDP by 33 to 35% by 2030 from 2005 level.
2. To achieve about 40% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
3. To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
 - To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
 - To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
 - To better adapt to climate change by enhancing investments in development programmes

in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.

- To mobilise new & additional funds from domestic resources and from developed countries to implement the mitigation and adaptation actions in view of the resource required and the resource gap.
- To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

India also plans:

- To achieve a target of 60 GW of wind power installed capacity by 2022.
- To expand the ambitious solar programme to enhance the capacity to 100 GW by 2022.

NATIONAL URBAN TRANSPORT POLICIES

In cognizance with the NDC's, the NUTP hopes to achieve its objectives with a slew of measures that promote walking, cycling and public transport, focussing on a more equitable allocation of road space. In realising this objective, the central government would, encourage measures that allocate road space on a more equitable basis, with people as its focus rather than motor vehicles. This can be achieved by reserving lanes and corridors exclusively for public transport and non-motorised modes of travel. The policy also mentions introducing suitable provisions in the Motor Vehicles Act and other instruments to enable stringent penalties for violation of measures taken.

NUTP also speaks about encouraging greater use of public transport and non-motorised modes by offering central financial assistance for this purpose. This requires the central government to:

- Provide 50% of the cost of preparing comprehensive mobility plans and detailed project reports.
- Offer equity participation and/or viability gap funding to the extent of 20% of the capital cost of public transport systems.
- Offer 50% of the cost of project development whenever such projects are taken up through public-private partnerships, so that a sound basis for attracting private partners can be established. The remaining cost of such project development would come from the city development authority/state government, and a project developer.

In prioritising non-motorised transport, the foremost concern being addressed is safety of cyclists and pedestrians. By encouraging the construction of segregated right of way for bicycles and pedestrians. The policy also reiterates such access paths, coupled with safe bicycle parking places, will contribute towards increasing the use of public transport. The central government supports construction of safe pedestrian crossings, formulation and implementation of 'Area Plans' in congested urban areas that propose appropriate mix of various modes of transport including exclusive zones for non-motorised transport and would take up pilot projects in select cities. The NUTP strongly encourages on taking up pilot projects that demonstrate the potential of possible best and replicable practices in sustainable urban transport.

Transit Oriented Development (TOD), a planning strategy that seeks to optimize the use of land and address the problems of congestion, sprawl and inefficiency through walkable urban development located in close proximity of high-quality public transit, combining housing, office, retail and/or other amenities. TOD combines design, density and diversity to create places to live, work and play along well-connected and efficient mass transit corridors like the metro-rail and Bus Rapid Transit (BRT). TOD has the potential to transform current urban planning to a low carbon future where the mobility is primarily performed

through efficient mass transit with a strong integration with non-motorised transport. Thus, directly contributing to India's commitments in the NDC.

The use of TOD as an urban growth strategy is relatively new in India but it is recognized by the national government as a legitimate and effective guide for the future growth of cities. In May 2017, the Ministry of Urban Development has formulated a 'National Transit Oriented Development Policy'. The policy aims to address the growing problems of pollution, congestion and shortage of homes for the poor and middle class in the state. TOD has several tangible and intangible benefits for the community. TOD encourages public transit use, which in turn lowers dependence on personal automobiles. Thus, reducing congestion, air pollution and greenhouse gas emissions. TOD promotes walkable and bikeable communities, which accommodate more active and healthy lifestyles. The mix of commercial and residential land-uses, enhanced pedestrian realm and streetscapes, and reduced traffic congestion improve safety and quality of life in transit-oriented neighbourhoods. Further, TOD is shown to create added property value due to transit investment. From an economic standpoint, TOD promotes economic equity and increases access to jobs and services to all echelons in the society. Cities with broader mobility choices reduce dependence on automobiles, reduce transportation costs and enable households to use the saved costs for other purposes.



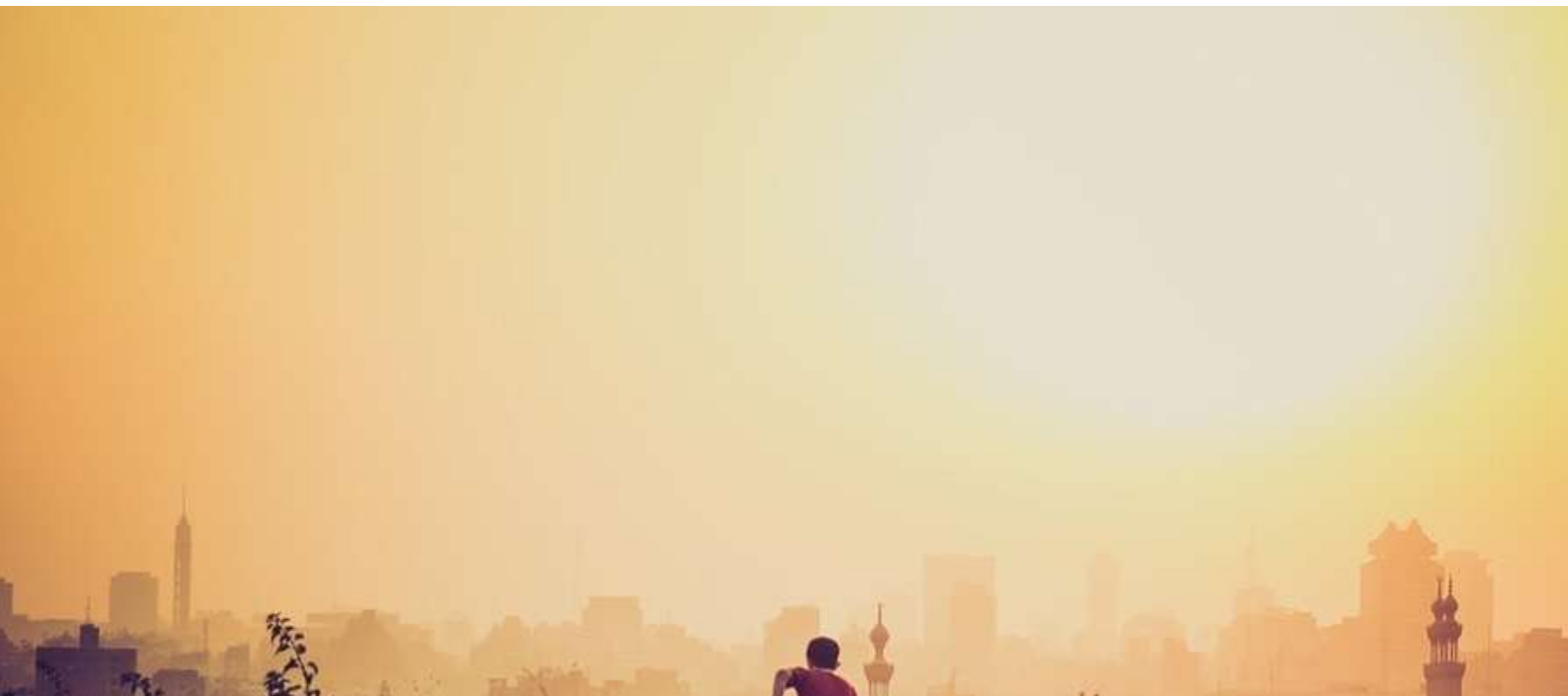
KOCHI

Kochi, formerly known as Cochin, is the second largest city in the south-western Indian state Kerala. Kochi is also a major Indian port-city on the south-west coast. The municipal corporation of Kochi has a population of over 600,000 inhabitants and the metropolitan region is home for over 2 million inhabitants.

With rapid urbanisation Kochi, like many other growing Indian cities, faces a pressure to increase the facilities to cater for the movement of its people. The traditional forms of transport in Kochi i.e. waterways, bus transport, walking and cycling, have come under pressure and have become unappealing to the users with improved lifestyles. This has led to a rapid motorisation, both in motorised two-wheelers and personal cars. To reverse the trend and bring back the pri-

ority to walking, cycling and public transport, Kochi has developed a comprehensive mobility plan, highlighting the various options for promoting sustainable mobility and people oriented urban planning.

Kochi Metro Rail Limited (KMRL) with the vision to provide a mass public transportation system, through government and international funding has implemented “Kochi Metro”, the rail based transportation system to cater to the ever-increasing demand for an efficient public transport system. KMRL has also initiated projects concerning last mile connectivity using electric buses and rickshaws and safe access by focusing on prioritizing NMT/pedestrian projects. The metro rail started operation in June 2017 and is the fastest completed metro project to date in India.



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The metro rail is also the first metro in the country to integrate with rail, road and water transport modes. Kochi has a plan for 25.6 km (with 25 stations) in the first phase of the metro construction and by the time of opening 13.4 km (with 11 stations) are operational. The cost for the first Phase of the metro is about INR 55,373 billion (US\$ 860 million) .

Kochi Metro Rail Limited (KMRL) through National Transportation Planning and Research Centre (NAT-PAC) has engaged Urban Mass Transit Company (UMTC) to prepare a Transit Oriented Development (TOD) Plan along the proposed metro corridors in Kochi City. The TOD plan would, inter alia, identify all the options available for high-density development along the transit corridors and at transit stations recommending implementation of these measures on priority up to 26 km. The project shall also assess

revenue that may be derived from the transit oriented development planning initiatives along the corridor through various value capture techniques. The plan reviews and assesses existing situations in the corridor based on extensive GIS based mapping for the entire delineated TOD influence area. UMTC has developed a property development strategy defining optimal best use mixes for various station areas. Multi-modal integration, non-motorised transport, accessibility and direct connectivity are other important components included as part of the TOD Plan. The TOD plan also estimates infrastructure demands for future scenarios with respect to utility requirements. This plan will also discuss the implementation strategy of these measures on priority as per market demand, and a broad revenue estimation that may be derived from TOD planning initiatives along the corridor. The TOD projects would be implemented by KMRL.

STREETS FOR ALL RAAHGIRI

Kochi Metro Rail Limited (KMRL), in cooperation with the Ernakulam District Administration, Kochi City Traffic Police, GCDA and Kochi Biennale Foundation along with the partnership of WRI India, SOLUTIONS and ICLEI South Asia, organized 'Raahgiri' on 1st May 2016, where a major road was temporarily closed to traffic and given back to pedestrians, cyclists and other Non-Motorised Transport (NMT) users. It is a great opportunity for people to 'reclaim the streets' for peaceful and festive uses. The reclaimed public space is used for open-air activities such as sports and cultural activities.

The effectiveness of 'Raahgiri' has been proven in

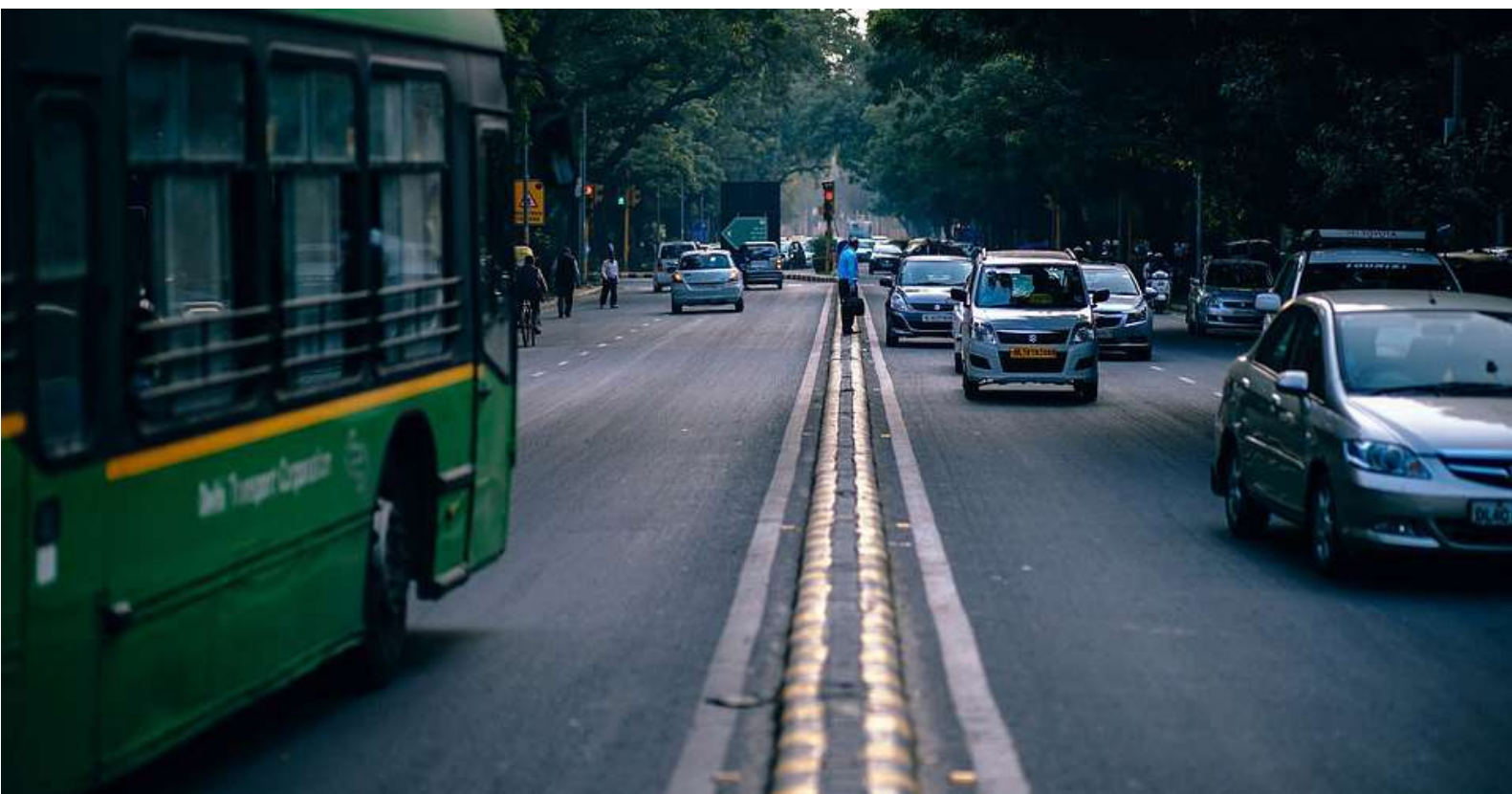
many ways. It has helped to increase the number of bicycles on the roads (28% of the participants bought bicycles after Raahgiri), and the modal share of NMT (87% of the participants started walking/cycling on a regular basis after Raahgiri). The image of 'Raahgiri' itself changed dramatically amongst the citizens, from 80% opposition before the event to 79% in favour, post the event. Beside its positive effects on health and the increased use of NMT systems like walking and cycling, 'Raahgiri' days have had a positive influence on the sales for local business. It led to an increase of 27% in the sales compared to that of a regular Sunday. The administration is looking to continue the event on a regular basis.



CONCLUSION

To complement the transformation in urban mobility, Kochi is also making great strides to shift from conventional energy sources to renewable energy. Kochi is selected for a national government supported solar city project. The goal of the solar city project for Kochi City is to shift at least 10% of the projected total demand of conventional energy to renewable energy by the end of five years. The solar city project is being launched as part of the Ministry of New and Renewable Energy's (MNRE) plan to develop 60 solar cities in India. MNRE has approved the nearly INR 696 million (approx. 11 million US\$) master plan for the Kochi solar city project. The master plan has envisaged that the city will need 975 million units (MU) of power annually by 2021. It is estimated that the city can achieve an "aggregate reduction of 155.42 MU" in five years. The Kochi International Airport is home to 46,150 solar panels laid across 45 acres (182,108 m²) and produces 50,000 to 60,000 units of electricity per day, consumed for all its operational functions, which technically makes the airport power neutral.

Kochi is one of the many Indian cities working on actions to complete the national efforts to improve the quality and life and mitigate climate change. Kochi is supporting the nation's commitment to mitigation and adaptation from both the urban mobility front and the energy front. By transforming its streets and giving them back to people through Raahgiri, promoting and implementing mobility options that cater for the movement of people, Kochi demonstrates a positive image in creating a people friendly city. By participating in the solar city project, Kochi is also transforming the source of energy from a conventional fossil-fuel based source to clean solar energy. The energy neutral international airport of Kochi is a testament to show Kochi's commitment to the cause. With strong support from the national government through enabling legislative framework and policies that support and encourage climate mitigation and adaptations, Indian cities can support the national governments cause in reducing the emissions yet support the local economic growth.



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