Case Studies in Low Carbon Urban Development in India

#4
E-Mobility Transition in Para Transit: A Case of E-Auto Rickshaws from Kochi

Introduction

Kochi (Earlier Cochin) Municipal Corporation located in the Ernakulam district of the state of Kerala is one of the most heavily populated urban area. Kochi urban agglomeration has a large population of 2.11 million (Census 2011) and it is commercially a very important city. Ernakulam district is often referred as the commercial capital of the state of Kerala. The district is extremely important for the state economy and is termed as highest revenue grosser as well. Greater Cochin Development Authority covers an area of 632 square kilometres and includes Municipal Corporation of Kochi, Municipalities of Aluva, North Parur, Angamali, Perumbavoor, Tripunithura, Kalamassery, Maradu, Thrikkakara, Eloor, and including 21 Panchayats (Rural Local Bodies). Kerala is a highly urbanised state with 47.7 per cent (Census, 2011) of the population living in urban areas.

Kochi is one of the few cities in India to move towards an integrated transport network including metro rail and metro water taxis and took an initiative to set up a Unified Metropolitan Transport Authority (UMTA). The Kochi Metropolitan Transport Authority (KMTA) was set up in November 2020 as per the provisions of Kerala Metropolitan Transport Authorities Act 2019. In terms of public transport, the GCDA area has various transport modes and companies. The metro rail service called Kochi Metro is run by Kochi Metro Rail Limited (KMRL), while suburban rail services are run by Indian Railways. The public bus system is run by Kerala State Road Transport Corporation (KSRTC) and private bus operators. There are also water ferries plying in between main Kochi and Fort Kochi area, while a water metro on 15 routes has also been planned by the KMRL which is to start operations this year.

In terms of para transit, Greater Kochi area is also dominated by auto-rickshaws which use all kinds of fuel from Diesel and Petrol to CNG. A study by RITES indicates that auto-rickshaws accounted for 12.5% of the vehicular trips and carried 4.2% passengers. The Ernakulam Jilla Auto Driver Cooperative Society (EJADCS) claims that there are more than 15,000 autos plying in the Greater Kochi area, with about 2800 new auto-rickshaws were registered in the last five years only. This along with a falling share of public transport in the Kochi area proves that autorickshaws are going to dominate the passenger transport scenario in the future as well. Therefore, reduction of fossil fuel usage in autorickshaws is going to create a large impact on reducing carbon emissions by urban transport.

Initiated and conceptualised by the UN HABITAT funded Urban Pathways project and supported by GIZ SMART SUT project, the Kochi Municipal Corporation has undertaken augmentation of an electric autorickshaw project called E-Auto. It is a unique intervention with a unique financing and infrastructure provision model. On 15th November 2022, the pilot was launched with the distribution of 30 auto rickshaws from the planned 100 auto rickshaws to the members of EJADCS.

3-seater E-Autos funded by the GIZ SMART SUT Project and beneficiaries in blue uniform

Low-Carbon Impact

A survey by GIZ suggested that 60-80% autorickshaws in Kochi use diesel as fuel. Electric Autos can easily replace the existing stock of autorickshaws resulting in long term benefits like improving air quality, noise reduction and achieving the goal of a low-carbon paratransit.

Institutional Enablers

The initial idea of E-Auto project was provided by the Urban Pathways project funded by the UNHABITAT to the KMC through its Centre for Heritage, Environment and Development (C-HED). The scope of the project was further increased by cooperation from GIZ SMART SUT project and EJADCS. EJADCS was specifically quite active in mobilizing its members for capacity building programmes and mobilizing a loan from the State Bank of India. Sun Mobility, which is a private company providing energy infrastructure and services specifically in e-mobility is supporting to open five battery swapping stations in Kochi area to facilitate efficient running of e-autos.

Financial Enablers

The e-auto initiative follows a unique financing model with a direct subsidy from both UN HABITAT (for 20 Autos) through the Urban Pathways project and GIZ (for 80 Autos) through its SMART SUT project to

a tune of INR 50,000 (USD 612) per autorickshaw which is almost 25% of the cost of each autorickshaw which is priced at about INR 200,000 (USD 2450). Rest of the cost is taken by EJADCS as a group loan through a Kerala government guarantee from State Bank of India (SBI). This financing model makes it affordable to own e-autos for the early adopters and helps them to earn enhanced incomes.

Learnings for Cities

There are two major learnings for cities which want to augment an e-mobility transition in paratransit.

1. Planning for Longer Term: Cities will have to plan transition with a long-term perspective which will require a basic understanding of the socio-economic profile of autorickshaw drivers and different ownership arrangements which enable them. In case of Kochi a detailed feasibility study helped greatly in scoping the financing arrangements and charging technology selection. In its initial phase it was also benefitted by cooperation with EJADCS which was able to mobilise the bank loan for its own beneficiaries through a Kerala state guarantee easily which made the selection of beneficiaries easier for the KMC. Cities will have to think creatively in utilising different capacities of various city level, national and international institutions to make this strategy a success.
2. Mobilising Local, National and International Institutional Capacities: KMC has been quite successful in mobilising all kinds of local institutions and create sections within the KMC umbrella to make projects successful and effective. KMC's C-HED is one such initiative which can push innovative ideas into the municipal corporation and is also able liaise with various national and international institutions which are generally keen to help but find local administrations impermeable. Most multilateral and bilateral funding agencies are interested to work with KMC to achieve its goals because of the efficacy of its institutional networks and initiatives to adopt new ideas.

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