ACCESSIBILITY SOLUTIONS IN PUBLIC TRANSPORTATION: COMPARATIVE STUDY OF EVOLUTION IN INDIA & 5 COUNTRIES

EXECUTIVE SUMMARY BY **SUHAS PEELA** AND **NUPUR JAIN** | AUGUST 2020

With inaccessible transportation being an impediment to the social and economic mobility of Persons With Disabilities (PWDs), India's slow progress towards creating accessibility in transportation comes with a serious economic cost. The United Nations estimates that countries can create an additional 1 to 7% GDP growth by integrating PWDs in the workforce–making transportation access for PWDs an economic priority for countries. This paper will compare solutions adopted by the countries of Singapore, Germany, the United Arab Emirates (UAE), the United States (US), and Cambodia, along with the European Union (EU), to create better transportation accessibility in their own countries. Ultimately, it is this paper's findings that "In order to its achieve goals for accessible transportation under the Accessible India Campaign and the National Urban Transport Policy, 2014, India's Ministry of Social Justice Empowerment should retroactively adopt a design code for pedestrian routes (Singapore), personnel training (Germany and EU) in existing transport systems, and launch a public-private partnership to make "auto-rickshaws" in India accessible."

The study was conducted with the guiding principle of being cognizant of the fact that Western disability standards and facilities should not be assumed to be applicable to low and middle-income countries like India. Baseline preliminary research was conducted which showed a real lack of globally comparative research on the issue of accessible transportation with the exception of some informal sources and sources on accessible tourism. The selected countries were chosen in order to use a range of geographically and economically diverse countries in the analysis. Each of the selected countries had a strong approach to one or more of the types of accessible transportation: fixed route-systems, paratransit systems, pedestrian services, along with disruptive or miscellaneous solutions. The research considered the known challenges, relative cost, spillover benefits (to non-PWD groups), and scope for retroactive implementation of these solutions.

Analysis of fixed-route systems in these countries finds that creating accessibility in fixed-routes systems was easy when accessibility was a design and construction consideration of the system. Systems that attempted to incorporate accessibility after the construction of the system achieved a lower degree of success in creating accessibility and the cost of said accessibility was much higher than systems that incorporated accessibility into the design of these systems. It is found that many of India's mass rapid transit systems (usually called "metro rails") were fairly accessible like many fixed-route systems in Germany and the UAE. Key features

that created this accessibility included dual-mode communication, tactile floor strips, priority seating, and barrier-free turnstiles. The low-cost solutions that could be adopted retroactively are noted to be personnel training for transportation staff to better identify and assist PWDs along with simply updating the transportation protocol to include mandatory announcements of stops and route details by transport personnel.

Paratransit systems are also discussed. These systems allow for a transportation system for PWDs where fixed-route systems cannot provide fair access to transportation that PWDs deserve. While a novel and well-intentioned system, paratransit systems, particularly those in the United States, were found to be inconsistent in terms of quality, reliability, and cost of service. Given these constraints and the shortage of the required economic resources and infrastructure that may exist in India, it is found that these systems are likely not appropriate for India's unique economic and population constraints.

Pedestrian services are very important to a country's transportation landscape because they ensure accessibility in the lowest level of transportation and can be an affordable, scalable way to ensure accessibility. The simplest way to increase accessibility at a pedestrian level is to make it established design practice to use visual contrast, color coding, and intuitive signs in pedestrian routes. Singapore has achieved a high degree of accessibility in pedestrian services by having a robust design code that is inclusive of PWDs. The key features of this are lighting at night time, increased numbers of crossings, and footpaths along all roads. These features also have a variety of spillover benefits for non-PWD groups as well in terms of safety, ease of access, and reduced dependency on motor vehicles. These services should be a priority in India, particularly in suburban and rural areas where the most frequent destinations of PWDs are within pedestrian distance.

Finally, disruptive and miscellaneous solutions are considered. As a low to middle-income country, Cambodia has come become a hub for innovative solutions on accessibility that are uniquely suitable for developing countries. The first is the Journey Access Tool (JAT). This auditing tool allows PWDs and government workers to work in tandem to map and measure a variety of barriers along routes frequented by PWDs. While there are some additional measures to prevent biases in this auditing processing that need to be worked out, early indicators show that this tool can create high-quality information for data-based advocacy in policy making. Secondly, the "Mobilituk" model - an accessible 'tuk-tuk' made by upgrading tuk-tuks to be mobility-aid friendly - is an easy and affordable way to provide end-to-end transportation to users with mobility aids. These novel approaches provide substantial ways to affordably improve accessibility in India. Additionally, it is found that all countries provide a level of subsidization for public transportation fares in order to account for economic inequity.

The research points to three main recommendations for India to adopt: (1) intuitive signage and visual contrast to create better navigability in a new design code that increases the number of crossings, footpaths along roads and reduces hazards like steps in pedestrian routes, (2) a public-private partnership based on 'Mobilituk' model to upgrade auto-rickshaws to be accessible (auto-rickshaw aggregators Uber and Ola can play a key role), (3) transport personnel training to better identify assist PWDs and a personnel protocol for announcing stops and route details.

ABOUT THE AUTHORS

Suhas Peela is a student at the University of Southern California majoring in International Relations and Global Business. In addition to VOSAP, he is involved with USC Project RISHI, an India-centric, student-run non-profit and works on implementing projects in service of the local Los Angeles community. Suhas is passionate about problem-solving when it comes to global issues and loves to travel!

Nupur Jain is a second-year student at North Carolina State University, double majoring in Industrial Engineering and Economics with a focus in Health Systems Management. Her hobbies include organizing dance competitions at the college level, emceeing events, and public speaking on important issues.

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WHY THIS MATTERS TO VOSAP

Inclusion of Persons with Disabilities require accessibility of places, accessible public transportation and accessible digital assets. VOSAP developed the "Accessible India Campaign" to promote accessibility everywhere. This research project is aimed to learn about transportation solutions that exist outside India and what could be implemented in India.

ABOUT VOICE OF SPECIALLY ABLED PEOPLE INC.

The Voice of Specially Abled People (VOSAP) is a global advocacy organization built on the principles of Empowerment of Specially Abled People. In Special Consultative Status with UN ECOSOC, VOSAP is working to create an Inclusive and Accessible world by accelerating implementation of UN Sustainable Development Goals (SDGs) and goals of UN CRPD (Convention on the Rights of Persons with Disabilities) treaty. The organization has created the VOSAP Mobile App through which volunteers can take a pledge to volunteer and rate the accessibility of public places, creating a crowdsource platform to aggregate demand for accessibility.