Traffic Calming Strategies to Improve Pedestrian Safety in India
(November 2007-October 2009)

BACKGROUND NOTE

Background

Right to life and safety is a fundamental right of every citizen. This is guaranteed under the constitutions of every country in the world including India. Article 21 of the Indian Constitution guarantees 'right to life' as one of the fundamental rights**.** Right to safety is one of the basic consumer rights as well, as per the United Nations Guidelines on Consumer Protection (UNGCP) and Indian Consumer Protection Act (CoPRA 1986). On the other side, as per the first ever 'Global Status Report on Road Safety', more people die in road accidents in India than anywhere else in the world. Taking into consideration the worsening traffic situation in India and the rights of the road users for safety and life, from a rights perspective, a unique project was conceptualised entitled *Traffic Calming Strategies to Improve Pedestrian Safety in India* by Consumer Unity & Trust Society (CUTS International) and Lund University, Sweden in collaboration with Indian Institute of Technology (IIT), Delhi, and in partnership with the Swedish International Development Agency (SIDA). The project aims to identify flaws in road geometry affecting pedestrians, by studying the shortcomings and causes that make the roads accident prone and then developing and testing holistic traffic calming strategies on the roads.

Project Intervention

The field interventions were conducted in the city of Jaipur, which is ranked third in the country in terms of road accidents. Accidental sites were selected based on First Information Reports (FIRs – a written document prepared by the police when they receive information about the commission of a cognisable offence). After elaborate screening, a total of 24 sites were short-listed, based on geometrical similarity, where the study was conducted.

The study was based on 'conflict technique', which was used first time in India. Conflict technique primarily focuses on manual and video recordings near accidents between two road users. According to this technique, primarily there are two road users involved and the two basic factors to be observed are Time to Accident (TA) and Conflicting Speed (CS). The 'time' (tenth of second) begins from the moment somebody starts evasive manoeuvres, until a collision would have occurred if the two involved road users had continued with unchanged speed and direction and is known as Time to Accident. CS is the speed of the vehicle (km per hr) at the start of the evasive manoeuvre.

During intervention, video recordings up to 6½ hours of each of the sites for four days were done to obtain "conflicts" along with manual observations. Then these recordings were used to judge and verify the behavioural studies, counts, situation etc. The major problems identified during the study from the pedestrians' perspective are as follows:

- Dearth of safeguard for pedestrians
- Absence of pedestrian facilities
- Lack of channelisation (zebras not properly located, improper bus stops, poor side markings)
- Unmarked excessive space available at intersections
- Ineffective compliance with speed and other traffic rules
- Improper locations of speed breakers and inappropriate design
- Insensible interactive behaviour
- Children, elderly and the disabled are the most vulnerable and exposed

The relationship between speed and road accidents has been evaluated by means of a meta-analysis based on studies conducted during a research by Rune Elvik Department of Safety and Environment of the Transport Economics Institute in Oslo (Norway). This study gives strong support to the Power Model that validates the fact that if speed is reduced by 10 percent due to the presence of speed breakers, the effect on fatalities will be a reduction of around 35 percent and in case of serious injuries around 25-30 percent. Both the technique has been widely used by nations like USA, Russia, UK, Netherlands, Germany and many other European nations. The same has been adopted and benefited by Asian nations like China, Tiwan, Vietnam and Japan etc.

Therefore, the project incorporated the power model in its study as it has been approved as the best model ever in traffic safety science and can prove to be an effective measure in reducing the intensity of conflicts in Indian scenario. Measures for each site in Jaipur were suggested based on the mentioned conflict technique and power model. The measures are simple in nature and inexpensive too, which incorporates properly marked, raised and designed "zebra crossing", which reduces the fatalities by –49[1] percent and speed breakers, so that vehicle's speed be calmed and pedestrian movement be free and safe. In order to justifying the effectiveness of properly designed speed breakers as a befitting traffic calming tool, speed measurements on different types of humps at various locations across Jaipur city have been conducted.

Dissemination Meetings

The main objective of the dissemination meetings is to share the findings of the study with wider audience, in various cities of the country, who are directly or indirectly associated with formulation and execution of policy related to road use and safety, such as Traffic Police, Transport Department, City Planners, Development Authorities, Municipal Corporations, Civil Society Organisations (CSOs), Academic/Research Institutes and also the concerned Ministers. The dissemination of the findings is planned through four regional meetings scheduled at Jaipur, Bangalore, Mumbai and Kolkata. Bureaucrats, technocrats and policy makers along with CSO representatives are expected to participate in the meetings, who will provide feedback on the findings. Appropriate feedback will be incorporated along with the findings of the study in the form of a "Manual", which will be shared and submitted to the policy makers at the national level dissemination meeting scheduled in New Delhi, on October 28, 2009.

Expected Outcomes

The following are the expected outcomes in the form of a "Manual", first of its kind in India and the final product of the study:

- Light to the weakness of Indian road designs;
- New era of road accident 'treatment';
- Reduced accidents; and
- Protection of all road users, especially the vulnerable pedestrians.

Consumer Unity & Trust Society (CUTS International)
D-222, Bhaskar Marg, Bani Park, Jaipur – 30216, Rajasthan, India
Phone: 91-141-5133259, 2282823, 2282482 Fax: 91-141-4015395
Email:cart@cuts.org Web: www.cuts-international.org/cart.html

[1] Meta analysis by Elvik et al 1997