

Accidents and Road Safety

Not High on the Government's Agenda

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Among all countries, India has the highest number of deaths due to road traffic-related accidents. Road accidents are the sixth leading cause of death in the country, and there were nearly 1,40,000 deaths from road accidents in 2012. Despite being a major public health issue that affects the most vulnerable and also the most productive sections of society, road safety has not received the attention it deserves. This paper discusses how the government has not recognised road safety as a key mobility, health, and equity issue, and has been slow in enacting legislation to establish the institutional mechanisms to promote it.

1 Road Safety: A Sustainable Mobility Issue

As noted by the Committee on Road Safety and Traffic Management,¹ “of all the systems that people have to deal with on a day-to-day basis, road transport is the most complex and the most unsafe mode of transportation” (MORTH 2007). The tragedy behind the regular road accidents attracts little or no media attention compared to other less frequent but more unusual types of disasters such as tsunamis because they are scattered, spatially and temporally. Yet, behind each of these deaths is a family hit by a tsunami, a family driven to distress and despair due to the loss of a loved one, and due to poverty and privation if the loss is of the breadwinner. There were reportedly 1.24 million deaths from road crashes the world over in 2010, that is, about 3,400 deaths every day (WHO 2013). Of these, 92% occurred in low- and middle-income countries and 50% of those who died were the most vulnerable – pedestrians, cyclists, and riders of motorised two-wheelers (ibid). There are more deaths from road accidents in some developing countries than from communicable diseases, and yet road-related fatalities are not addressed as a public health issue.

In India, the number of deaths in road crashes, both in absolute terms and per 1,00,000 population, is increasing monotonically (Figure 1, p 78). India has the highest number of road deaths globally (Figure 2, p 78). The mortality rate in India is 11.6 per 1,00,000 population (MORTH 2013) compared to 10.3 in Europe and 16.1 in the US (WHO 2013). The number of fatalities has been steadily increasing with the growth in vehicle population. In terms of mortality per 10,000 vehicles, the rate in India is as high as 10.5 (MORTH 2013), compared to less than two in the developed world.² Should the correlation between fatalities and vehicle growth continue, the number of fatalities in 2030 could be staggering unless we do something about it now.

Road safety, as the World Health Organisation (WHO) has noted, is not an accident. Road traffic deaths and injuries are predictable and preventable. The experience of high-income countries has demonstrated a significant reduction in road-related deaths and injuries in the last two decades. There are lessons to be learnt and applied in India. We surely cannot become a modern automobile nation unless we also make sure that our roads are safe and there is no conflict between people and vehicles.

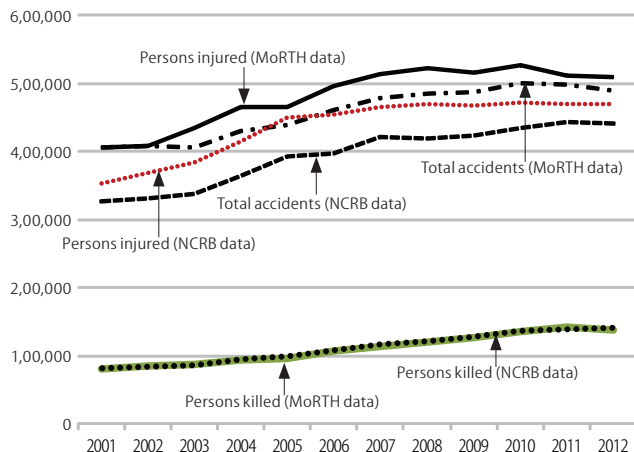
2 Road Accidents: A Public Health Issue

Road traffic injuries are the sixth leading cause of death in India (Ministry of Health and Family Welfare 2004) and could soon become the fifth. Road safety is clearly a public health

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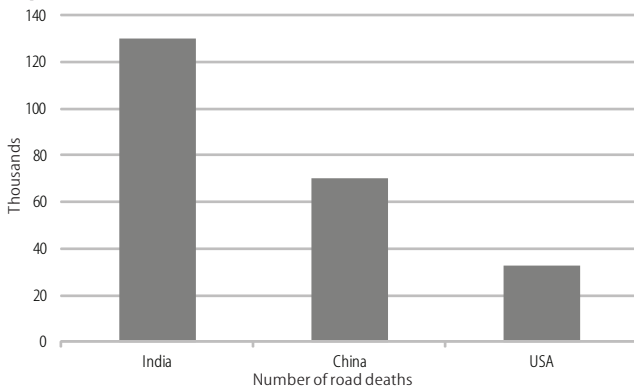
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Figure 1: Growth in Road Accidents in India



There is an inconsistency between the number of accidents and persons injured in the NCRB and MoRTH data, as can be seen in the graph. The data on number of deaths also does not match exactly, but is closer. Source: Ministry of Road Transport and Highways (MoRTH) 2013 and National Crime Record Bureau (NCRB), various years.³

Figure 2: Reported Number of Road Traffic Deaths in 2010: Top Three Countries



There is a difference in the number of road deaths in India reported in WHO (2013) and MoRTH (2013). As per WHO (2013), it was 130,037, compared to 1,34,513 in MoRTH (2013). We use WHO (2013) data for India in this graph, as data for China and the US is from the same source. The NCRB's 2010 figure of 1,37,255 deaths does not match WHO and MoRTH data. Source: WHO (2013).

issue requiring concerted efforts for effective and sustainable prevention. While there are structured programmes to combat communicable diseases such as tuberculosis, malaria, and AIDS, with substantial allocation of public funds and lead agencies to implement these programmes, we do not have a structured programme or a well-thought-out strategy to combat road-related

Table 1: National Schemes to Address Key Causes of Deaths in India

Disease	Number of Deaths in 2011	Centrally-Sponsored Schemes	Approved Outlay: Eleventh Plan (Rs in Crore)
Pulmonary tuberculosis	63,781	National TB Control Programme	1,447
Vector-borne diseases*	893	National Vector Borne Disease Control Programme	3,190
AIDS-related causes	1,47,729	National AIDS Control Programme	5,728
Cancer	5,56,400	National Cancer Control Programme; National Tobacco Control Programme	2,872
Road traffic deaths	1,42,485	Schemes administered by Road Safety Cell, Ministry of Road Transport and Highways	448

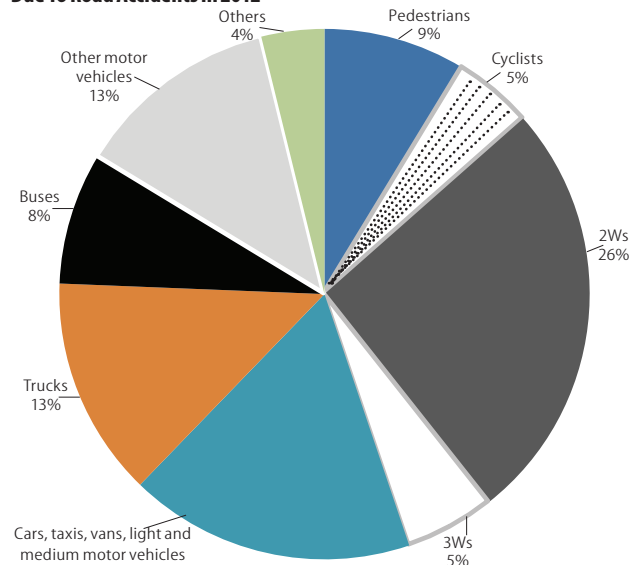
* Includes malaria, dengue, filaria, kala-azar, Japanese encephalitis, and chikungunya. Source: See Note 3 for online sources.⁴

morbidity and mortality (Table 1). Ad hocism prevails in whatever money we spend on road safety. It is time that we start developing and implementing programmes to promote road safety “using the public health approach of identifying the problem and the risks, identifying the appropriate interventions based on cost-effectiveness, sustainability and culture specificity, and finally evaluating these interventions by the actual reduction in injuries and deaths” (MoRTH 2007).

3 Road Safety: An Equity Issue

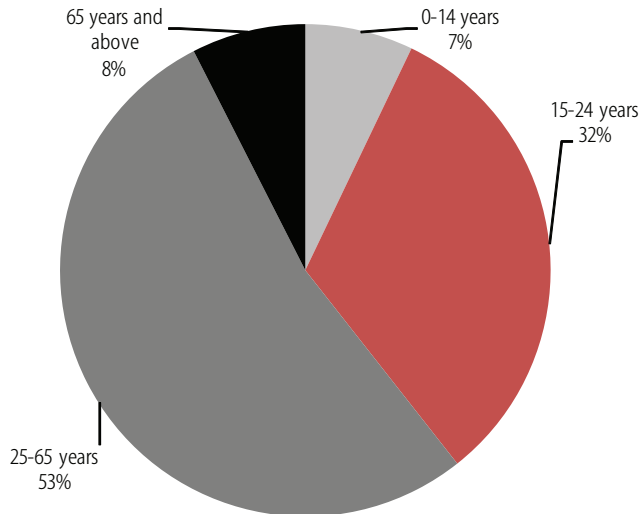
Road safety is also an equity issue. In India, a significant percentage of the victims are the vulnerable road users – pedestrians, cyclists, and motorised two-wheeler riders. However, reliable data is not available on the categories of the victims because of the manner in which data is recorded by the police. For example, a pedestrian killed by a truck is shown as a truck victim and not as a pedestrian. Given this, the data available with the Ministry of Road Transport and Highways (MoRTH) show that the vulnerable road users constitute nearly 40% of the total fatalities (Figure 3). They are mostly in the age group of 15 to 65 years, demographically the most productive section of society (Figure 4, p 79). We save children in their early years from communicable and infectious diseases and, as they grow older, allow them to become victims of this man-made epidemic (MoRTH 2007). Much of the deaths and injuries are in the second order metros, district towns, peripheral rural areas, and on highways, where motorised transport is rapidly increasing and healthcare facilities are very inadequate.⁵

Figure 3: Share of Different Road User Categories in Total Persons Killed Due To Road Accidents in 2012



Data from MoRTH (2013); however, the actual numbers may be different as shown by Mohan et al (2009). Source: Authors.

Since the 1970s, developed countries, with more cars per 1,000 population, have succeeded in reversing the trend of road-related mortality through adequately funded strategic interventions based on the safe system approach. On the other hand, the developing world, including India, with a lower vehicle population, is witnessing an increase in road-related mortality.

Figure 4: Road Accidents' Victims: Distribution by Age Group (2012)

Source: MoRTH (2013).

The interventions made by the developed countries are not based on rocket science. First, there is a strong political commitment in all of these nations to reverse the trend of increasing road-related mortality. Second, they have formulated road safety policies and strategies to reduce accidents and deaths. These strategies are based on the safe system approach, which addresses the problem as a multi-sectoral and multi-dimensional problem, and rests on three pillars – good road user behaviour, safe roads, and safe vehicles. Third, these interventions are backed by appropriate legal and regulatory frameworks. Fourth, there is a recognition of the need to have one agency, with adequate powers and funds, to lead and coordinate the implementation of the strategy.⁶ These are all interventions that are within the reach of developing countries, and there is no reason why they should not be adopted in India.

The scenario in developing countries now is what existed in the developed world in the 1970s, and they are yet to recognise the enormity of the problem. As a result, many developing countries do not even have a road safety policy. Road safety is not a priority and it does not figure on the agenda of the government agencies concerned.

4 Road Safety Policy in India

The situation in India is typical of many other developing countries. Road-related morbidity and mortality are increasing and road safety is emerging as a major public health issue. There are growing equity concerns even as massive investments are being made on road projects – national highways, state roads, and village roads. The investment on roads in the Eleventh Five-Year Plan period was Rs 2,79,000 crore.⁷ There has also been an exponential increase in vehicle population from around five million in 1980 to 142 million in 2011 (MoRTH 2012).

The relentless increase in road-related mortality at a time when massive investments were being made to create more road space became a major cause for concern and the Government of India felt the need to develop a road safety policy and strategy. Recognising the urgent need to put in place an effective institutional mechanism to promote road safety, in

2005, the cabinet committee on infrastructure headed by the prime minister directed the MoRTH to come up with a proposal for the creation of a directorate of road safety and traffic management. The ministry then set up an expert committee in November 2005 under the chairmanship of the lead author of this paper, comprising academics, road safety experts, trauma care specialists, road engineers, vehicle manufacturers, transport authorities, police officers, and road users to advise it on appropriate institutional arrangements.

The committee's first recommendation was that the central and state governments make a commitment at the highest political level to achieve a reduction in road accidents. This commitment had to be backed by a road safety policy at the national and state levels to bring about a targeted reduction in road accidents through raising awareness, promoting a safe system approach, enforcing safety laws, providing adequate funds, and establishing appropriate institutional and regulatory arrangements.

The committee noted that there was a draft road safety policy and suggested amendments to it. It recommended that the amended draft policy be formally adopted by the central government. It also proposed that as a part of the proposed policy, the government commit itself to a targeted reduction in traffic accident-related morbidity and mortality. In March 2010, the draft national road safety policy as amended by the committee was approved and adopted by the central government. The policy commits the government to effect reductions in mortality and morbidity due to road accidents, though no specific targets were set. It recognises the joint responsibility of the central and state governments in achieving this objective.

The committee then sought to identify the interventions necessary to effectively promote road safety. After detailed deliberations and extensive stakeholder consultations, it came to the conclusion that an effective strategy would involve a variety of interventions, as detailed below.

(a) Road Engineering and Construction

- Set road safety standards; conduct road safety audits at all stages; and eliminate accident blackspots.

Standards for road engineering and construction, including safety standards, are proposed by the Indian Roads Congress (IRC), New Delhi, and are notified by the MoRTH. There is, however, no mechanism to ensure the adoption of these standards and their application in the design, construction, and operation of roads. The committee therefore recommended road safety audits at all stages of road design, construction, and operation.

(b) Vehicle Safety Design

- Set safety standards for vehicles.

As vehicles are the main cause of road accidents, building safety features in automotive components and automobiles assumes great importance. Safety features should not only address the safety of vehicle occupants, but also of other road users who could come into contact with vehicles. Safety features relevant to India need to be introduced and mandated for all categories of vehicles – two-wheelers, cars, public buses, trucks, school buses, and so on and harmonised with international standards. India

should also consider introducing safety standards for non-motorised vehicles, especially bicycles, to make them more visible.

(c) Crash Investigation, Data Collection, and Analysis

- Establish procedures for data collection, transmission, and analyses at various levels; maintain a comprehensive database; and establish procedures and centres for multidisciplinary crash investigations.

One of the fundamental requirements of the public health approach is good quality, reliable, and sustainable information systems and data on road transport injuries. The availability of data is a major problem. Not all road accidents are reported due to reluctance to file police cases on the part of those involved. Deaths that occur some days after accidents are often not reported or registered as road-related deaths. There is significant disparity between the data reported by hospitals and police stations, and this leads to a disparity between the data maintained by the National Crime Records Bureau (NCRB) and the MORTH, as seen in Figure 1. The procedures for crash investigation are faulty, and there is a tendency to attribute road crashes to drunken driving or brake failure. In a large country such as India, the collection of data from police stations and hospitals across a state to a database at the state level, and then from the states to a database at the national level, is not easy. It is absolutely essential to establish and maintain a comprehensive and credible database, and establish procedures for multidisciplinary crash investigations so that the true causes of accidents are known.

(d) Knowledge Production, Research, and Institutional Linkages

- Identify areas and subjects for research; commission research projects; and create linkages between institutions at the local, regional, and national levels.

India's road traffic patterns and crashes are a new phenomenon, which has no precedent in highly motorised countries. The highly motorised countries have never had a high proportion of two-wheelers, cars, buses, and trucks sharing the same road space with pedestrians, bicyclists, and other non-motorised transport. That these patterns are new and that they need to be understood through careful scientific research is not often realised. Reliance on western standards and research findings to solve problems in India inevitably lead to unsatisfactory outcomes. There is therefore a compelling need to carry out research that is relevant to India. Unfortunately, the institutional capacity and effort devoted to road safety research is almost negligible in India. There is the need to establish research capacities and institutions in different regions of the country, commission research projects that are relevant, and fund them appropriately.

(e) Road User Behaviour Strategies, Public Awareness, and Education

- Promote education and campaigns on road safety among all user groups; and recognise non-governmental organisations (NGOs) working in the area.

Road users such as vehicle drivers and passengers, and road users outside vehicles have different risk factors. These risk factors and the limitations of different users need to be recognised and the traffic environment should be designed keeping them in view. A traffic system that is better equipped to address the needs, errors, and vulnerabilities of its users is more likely to reduce accidents than a traffic system that expects its users to deal with complex traffic situations as they please.

(f) Capacity Building and Training

- Set guidelines for building capacity and skills in the traffic police, hospitals, highway authorities, NGOs, and other organisations involved with road safety.

Addressing the various factors and functions that have a bearing on road safety call for capacity in each area, and in each discipline, including the police, urban and transport planners, transport departments, highway authorities, hospitals, and so on. None of the tasks that have to be addressed to promote road safety can be carried out successfully unless the relevant players have the capacity to do so. Such capacity is woefully lacking in India and there is an urgent need to invest in capacity building.

(g) Traffic Management and Enforcement

- Encourage state governments to implement laws for helmet use, seat-belt use, and to prevent drunken driving; encourage them to computerise details on vehicles and licences, regulate drivers' working hours, and set guidelines for driver training and testing; and prescribe safety standards and infrastructure for non-motorised transport.

Traffic management to ensure the safe and smooth movement of all categories of road users with no or minimum conflict between them has a major role to play in promoting road safety. Unfortunately, traffic management in India is far from satisfactory. The laws for it are archaic and unsuitable to deal with current traffic conditions. Penalties for traffic offences are no longer punitive. The institutions that enforce traffic laws and deal with traffic management are weak and their responsibilities are not clearly delineated. They need to be strengthened. A committee set up by the central government to review the Motor Vehicles Act, 1988, which was also chaired by the lead author of this paper, has made far-reaching recommendations to modernise it. These recommendations are also intended to promote road safety. The government will hopefully adopt these recommendations at an early date.

(h) Post-Trauma Medical Care

- Set guidelines to establish a grid of trauma care centres in the country; to create a grid of medical and paramedical facilities for dealing with highway injuries; and to emphasise pre-hospital care, acute care, and rehabilitation.

Road-related mortality can be considerably reduced if competent first aid is provided at accident sites, followed by immediate trauma care, and rehabilitation in the long run. There is a need to create a grid of medical and paramedical facilities for

dealing with highway injuries, as well as a grid of trauma care centres. There is also the need to improve pre-hospital care and rehabilitation.

5 Lack of an Integrated Institutional Mechanism

As can be seen from the discussion, road safety is a multi-dimensional and multi-sectoral issue calling for multiple interventions. These interventions need to be combined, co-ordinated, and implemented in an integrated manner to derive maximum benefits. Responsibility for road safety in India is fragmented between governments and within them, as described below.

- The MORTH is the nodal ministry responsible for road safety in the country. It sets standards for safety in the design, construction, and operation of roads in consultation with the IRC, for safety features in motor vehicles, and for works that create road safety awareness.
- The MORTH is advised by the National Road Safety Council (NRSC), headed by the union minister for road transport and highways. The states are also required to set up road safety councils on the lines of the NRSC.
- The NCRB collects and maintains data on road accidents, injuries, and fatalities.
- The National Highways Authority of India (NHAI), which is implementing the National Highway Development Project (NHDP), has ambulance services and highway patrolling to provide medical care for accident victims on national highways.
- The state transport authorities are responsible for issuing driving licences, registering vehicles, and ensuring their fitness.
- The police is responsible for regulating traffic, enforcing laws, and educating the public on road safety issues.
- Health departments are responsible for providing trauma care to accident victims.
- Insurance companies are responsible for providing insurance cover and compensation.

The other organisations working in the area of road safety include⁸

- The IRC, which recommends standards and guidelines for road and bridge engineering, and road safety;
- The Central Road Research Institute, New Delhi, a laboratory under the Council of Scientific and Industrial Research (CSIR), which carries out research and development on roads, road safety, and transportation;
- Automotive testing and research institutions such as the Central Institute of Road Transport (CIRT), Pune; the Automotive Research Association of India (ARAI), Pune; and the Vehicle Research and Development Establishment (VRDE), Ahmednagar, which test vehicles and components for safety;
- Universities and academic institutions such as the Indian Institutes of Technology (IITs), National Institutes of Technology (NITs), Schools of Planning and Architecture (SPAs), and the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, which provide research support for road safety; and

- NGOs such as the Institute of Road Traffic Education (IRTE), New Delhi, which provides solutions dedicated to driver training programmes, road safety audits, education, traffic management, and road accident investigations.

These various agencies carry out different functions related to road safety without any mechanism to coordinate their working to achieve a common objective. The committee was of the considered view that one agency should be adequately equipped and funded by the law to direct and coordinate all these functions. It noted that while no country had one agency solely responsible for addressing all aspects of road safety, efficient inter-agency and inter-departmental coordination in some countries had brought about a significant reduction in road traffic injuries. To bring the different agencies dealing with different aspects of road safety under one umbrella and equip them to take an integrated and holistic approach, the committee recommended setting up a National Road Safety and Traffic Management Board with adequate expertise and autonomy through a specific enabling legislation, and a National Road Safety Fund.

The functions of the board were to include the various activities and interventions described earlier. The committee recommended that the board be autonomous, fully empowered to discharge these functions with objectivity and integrity, and accountable for its performance. The committee was fully aware that the government was in favour of setting up a directorate of road safety and traffic management and not a board. It deliberated at length on this issue and concluded that while a directorate in the ministry could help in focusing attention on road safety, it would not provide for continuity or bring together the expertise required to promote road safety under one umbrella. It also felt that a directorate would not enjoy the authority and status to coordinate central ministries and agencies and relate to state governments, as well as have the necessary autonomy to set standards and ensure compliance. It noted that integrated agencies such as the National Highway Traffic Safety Administration (NHTSA) in the US and the Swedish Road Administration (SRA), which had the power and budgets to plan and implement road safety programmes, were very successful in promoting and ensuring road safety.

China, which not long ago had the highest number of fatalities, has succeeded in bringing down the number of road accidents and deaths significantly through focused and targeted interventions. In 2005, China recorded 1,07,000 deaths in road accidents. This number came down to 62,000 in 2011 largely due to concerted and coordinated action, with specific targets and strategies to bring down the total number of deaths (RIH China 2012).

In India's federal set-up, several activities relating to road safety, such as the enforcement of safety laws, fall within the jurisdiction of state governments. The committee recognised that the responsibility for road safety was fragmented between different agencies in the states and recommended that road safety boards be set up. It also recommended that, as in the US, states should be required to make commitments annually on the activities they will undertake and the reduction in

fatalities that they will achieve, and be funded on the basis of their performance.

6 National Road Safety Fund

The committee recommended that a National Road Safety Fund be established with a minimum of 1% of the total proceeds of the cess on diesel and petrol. It favoured allocating at least 50% of the amount retained by the central government by way of its share in national highways and the railways to accident-prone urban areas and states. Allocation to the states from the fund had to be conditional on their entering into agreements with the centre to reduce road traffic injuries and deaths, and fulfilling their commitment.

After extensive consultations and detailed deliberations, the committee submitted its report in February 2007. Six years have gone by since then, and the number of fatalities from road traffic injuries continues to rise. From 1,14,444 in 2007 it reached 1,38,258 in 2012. The recommendations of the committee, though endorsed by the states and approved by the central government while adopting the road safety policy, are yet to be implemented because there is no sense of urgency. Road safety is not high on the government's agenda, and the happenings in the last six years are worth recounting. In 2010, the MORTH introduced the National Road Safety and Traffic Management Board Bill, 2010 to set up the road safety board and fund. That bill was a diluted version of the draft bill the committee had submitted.

(1) The committee had recommended that the qualifications for appointment of the chairman of the board should be wide ranging and include special knowledge and professional experience of not less than 10 years related to road safety, with expertise in urban or rural transport planning, road safety, traffic management, road design, engineering or construction, automobile technology, law, health, commerce, administration, finance, or consumer affairs. It drew up these qualifications after detailed deliberations to broaden the catchment area, to provide a fair opportunity to every discipline concerned with road safety, and to avoid the oft-repeated criticism that these posts are essentially created to accommodate superannuated civil servants. Sure enough, the government modified the recommendation and limited the qualification to "eminence with ability, integrity and outstanding calibre with adequate knowledge, professional experience in administration and road transport". The message was loud and clear. The post could, indeed, become a haven for a retired civil servant.

(2) The committee was of the view that safety standards for roads and vehicles should be objectively set by an expert body. It had therefore recommended that safety standards, which are currently set by the government, which does not have the necessary expertise, should be set by the board. The government was reluctant to empower the board to do so, and the draft bill enabled the board to only "recommend" standards, not "specify" them.

(3) The committee recognised that road accidents, even if they occurred on national highways, happened within the jurisdiction of states and that state governments had a major

road to play in promoting road safety. It had recommended that road safety boards and road safety funds be set up in the states. The draft bill submitted by the committee contained a chapter to enable states to set up road safety boards by having their legislatures adopt it, on the lines of the Electricity Act, 2003 for setting up state electricity regulatory commissions. The bill introduced by the government did not include this enabling chapter, apparently because transport was not on the concurrent list in the Constitution, but was divided between the union list and the state list and the union government cannot legislate on a subject that falls in the state list.

The recommendations of the committee that the national board provide technical assistance to the state boards and also monitor their performance for the purpose of additional funding from the National Road Safety Fund were also not accepted by the government.

The bill introduced by government in Parliament in May 2010 was referred to the parliamentary standing committee on transport, tourism and culture. The standing committee noted,

- (1) The present bill addresses road safety issues relating to only national highways. Road safety is a common problem to national, state and other roads. Therefore, there has to be a common solution for a common problem.
- (2) The proposed functions and powers of the board are advisory in nature, which would render it ineffective.
- (3) The powers and functions of the board would lead to unnecessary duplication, particularly with regard to specifications and standards to be laid down for national highways, which will be different in different states and for other roads.
- (4) The bill does not provide the board with express powers to effect coordination among different agencies.

The standing committee returned the bill to the government in July 2010 with the recommendation that it be withdrawn and replaced with a more comprehensive legislation.

Again, the government showed no sense of urgency in dealing with the comments of the standing committee. The ministry even began to consider alternatives to the board such as working groups to deal with different aspects of road safety. The need for establishing an integrated approach to road safety was abandoned yet again and road safety activities continued to be undertaken in an ad hoc and fragmented manner, with funds being spent without a target for reduction in road-related morbidity and mortality.

As this approach did not yield results, the MORTH constituted a task force under the chairmanship of Sudhakar Rao, former chief secretary, Karnataka, in 2011-12 to advise it on the most appropriate institutional framework to be set up for promoting road safety. The lead author of this paper appeared before the task force and argued the case for establishing a board and for revising the legislation in accordance with the draft provided by the committee. He further said that a bill on the lines of the draft provided by the committee would substantially allay the doubts expressed by the standing committee. He also submitted that there would be no duplication of functions as the board would be lean and carry out its functions through existing agencies. The task force decided in July 2012 that the ministry should revise the bill to incorporate the

recommendations made by the committee on the qualifications of the chairperson, the powers of the board, and the setting up of similar boards in the states. It is understood that the government has accepted this and is now in the process of revising the bill of 2010. It appears that given that the term of the current Lok Sabha ends in May 2014, the board may be set up through an executive order, to be followed by a specific enabling legislation. While this will no doubt expedite the creation of the board, there is the danger of it ending up as a directorate or a department of the government unless it is created through a specific enabling legislation.

The six years that have passed since the report was submitted to government has been spent largely on having the recommendations endorsed by the states, deciding on the qualifications of the chairperson, deciding on the powers of the board to set standards, and deciding whether there should

be a provision in the bill to enable states to set up state boards and funds. And in these six years, traffic-related morbidity and mortality has continued to increase. In recommending a National Road Safety and Traffic Management Board, the committee was neither unaware of the NRSC nor did it recommend the board to merely create a new institution. It was of the view that if road safety was to be addressed as a public health issue, all the relevant interventions had to be brought under one umbrella, and this needed a dedicated lead agency with the necessary funds. To fight a battle, you need a unified command.

Time and lives lost can never be regained. But wisdom lies in preventing future loss as far as possible. A government committed to building 20 kilometres of national highways every day should surely commit itself to saving at least 200 lives a day.

NOTES

- 1 Committee set up by the Ministry of Road Transport and Highways (MoRTH).
- 2 Data for 2008 from <http://www.monash.edu.au/miri/research/reports/papers/fatals.html>, accessed on 20 September 2013.
- 3 NCRB data includes road accidents and rail road accidents.
- 4 Eleventh Plan: <http://cbhidghs.nic.in/writereaddata/linkimages/9%20Health%20Finance%20Indicators492967711.pdf> and http://planning-commission.nic.in/plans/planrel/fiveyr/11th/11_v3/11th_vol3.pdf, accessed on 18 May 2013; Pulmonary TB: <http://www.cbhidghs.nic.in/writereaddata/mainlinkFile/08%20Health%20Status%20%20Indicators%20%202011.pdf>, accessed on 18 May 2013; Vector-borne diseases: <http://www.cbhidghs.nic.in/writereaddata/mainlinkFile/08%20Health%20Status%20%20Indicators%20%202011.pdf>, accessed on 18 May 2013; AIDS: http://www.naco.gov.in/upload/Publication/Annual%20Report/Annual%20report%202012-13_English.pdf, accessed on 18 May 2013; Cancer: Data for 2010 from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)60358-4/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60358-4/abstract), accessed on 18 May 2013. Road accidents: MoRTH (2013).

- 5 According to MoRTH (2013), "National Highways accounted for 29.1% in total road accidents and 35.3% in total number of persons killed in road accidents during 2012, whereas the State Highways accounted for 24.2% of total accidents and a share of 27.3% in the total number of persons killed in road accidents during same period of time." MoRTH (2013) reports, "In 2012, the total number of road accidents that occurred in rural areas was more than that in the urban areas; the former accounting for 54.3% (2,66,450) and the latter accounting for 45.7% (223,933) of total accidents. Rural areas had more fatalities (61.6%) than urban areas (38.4%). The number of persons injured was also more in rural areas (60.2%) as compared to urban areas (39.8%)."
- 6 Findings on international institutions focusing on road safety are summarised from MoRTH (2007).
- 7 Summarised from MoRTH (2007).
- 8 Revised projections for Eleventh Plan period, as on Jan 2011, 2006-07 prices, <http://www.infrastructure.gov.in/pdf/inv-infra.pdf>

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