

A FRAME WORK FOR ROAD SAFETY MANAGEMENT (RSM) IN INDIAN STATES

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ABSTRACT

Annually five hundred thousand road traffic accidents, resulting in hundred and fifty thousand deaths and five hundred thousand injuries are reported in the twenty nine states of India .National and State Governments are seized of the Road Safety problems, but the actions are not getting focussed and are not yielding any tangible results. The strategies adopted by some countries like Newzealand, United Kingdom are worth emulating. Planning, design, operation and regulation of road transport is the subject of the states. As such there is a need to establish a mechanism in each of the states to concertedly tackle the problems of Road Safety. In this paper an attempt is made to conceptualise a framework and a body to fit into this framework for addressing the road safety issues in each of the Indian States. The business of Road Safety must be looked at as a corporate business and not a casual approach.

KEY WORDS

Road Safety Management, Road Safety Council, Road Safety Management Board

1. BACKGROUND

About five hundred thousand road accidents are reported annually in India. There may be many more accidents which are not reported. About one hundred and fifty thousand fatalities are occurring from these accidents indicating that the severity of accidents is around thirty percent. It is imperative to evolve and implement a systematically developed Road Safety Management (RSM) system for India as a whole and this System may vary in magnitude but the basic aspects of the system could be more or less similar in structure for each of the states. This can be made possible only with the political will and appropriately created institution, entrusted with the task of addressing the Road Safety issues. In this paper an attempt is made to figure out the structure and functions of the institution to handle RSM in the states of India.

Road Safety is a multifaceted problem wherein the Roads, Road Transport, Police, Health, Education, and Legal departments have to work in close coordination to achieve the desired results. This could be achieved by creating an institution backed up with a political, technical, legal, and financial framework to systematically research and evolve mitigation measures to the Road Safety issues.

Road Safety Management should be treated as a serious business and not as a casual matter. For this purpose an organisation, or body, should be identified to address the Road Safety issues on a continuing basis at the state level with determined objectives and goals.

2. EARLIER EFFORTS ON RSM IN INDIA

Under the Central Government, a National Road Safety Council (NRSC) was set up in in nineties but the effectiveness of this NRSC is relatively limited. The NRSC constituted working groups covering the four Es (Engineering, Education, Enforcement and Engineering vehicles) that can influence the road safety in 2011. The major recommendations made by these four groups are:

- Comprehensive Plan of Action to bring down the road accidents.
- Constitution of State and District Road Safety Councils to evolve and implement Road Safety Action Plans.
- Creation of Separate Road Safety Education and Awareness Fund.
- Road Safety Audit for entire National Highways and State Highways network to be completed.
- Major improvements in vehicle designs are required with the help of full vehicle crash tests.
- Introduce mandatory Inspection and Certification requirements for all categories of vehicles.
- Enunciate a National Accident Relief Policy and a National Trauma System Plan.
- The penalty structure of Motor Vehicles Act, 1988 Act needs to be reviewed and penalty should be increased to make the impact.
- There must be no exemption in the wearing of helmets for two wheeler riders.
- Imprisonment must be imposed to discourage drunken driving.

As per the recommendations of the NSRC the State Road Safety councils (SRSC) and District Road Safety Councils were also to be established in the states. Some States have setup these bodies. But these Councils are mostly confined to paper and at best organising Road Safety weeks annually. The efforts and impacts of these councils are very inadequate to deal with the Road Safety in the states for various reasons.

3. STATE ROAD SAFETY COUNCIL (SRSC)

At present some of the states have setup Road Safety Councils headed by the Minister of Transport of the state and the secretaries of the departments of home, law, PWD(R&B), Education, etc as members. State Road Safety Councils are proposed to specially look into the Road Safety Management. But these councils have not been effectively functioning. This can be attributed to the absence of a dedicated body which consistently and continuously apply the mind to conduct research and analysis of the reasons for the accidents and identifying the appropriate mitigation measures. To make the SRSC more effective it is suggested to raise the participation to the level of ministers, supported by the lead agency as indicated in figure-1. The SRSC of State will act as a policy making body to enact and facilitate the implementation of the plans for reducing the Road Traffic Accidents and their impacts in the State.

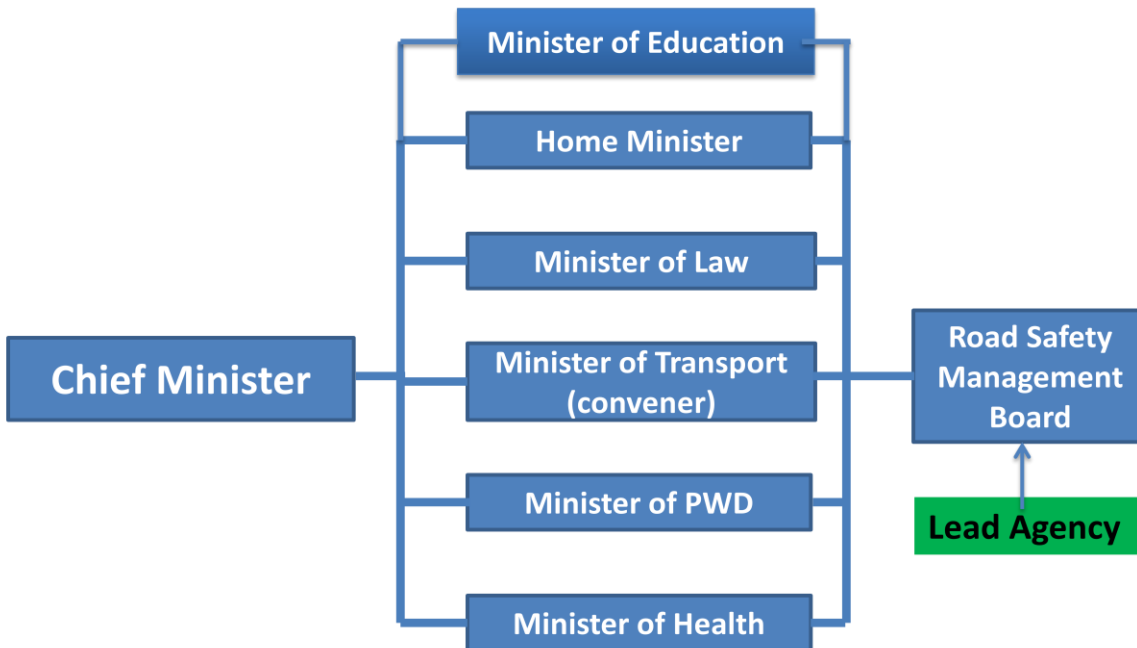


FIGURE 1 Organisation Structure of State Road Safety Council

The Ministers would be assisted by the Secretaries of their departments for formulating the actions to be taken under their Ministries. The State Road Safety Councils should take the following steps to achieve the desired results:

- Make road safety a political priority
- Develop a multidisciplinary approach to road safety
- Appoint a lead agency for road safety
 - provide adequate resources
 - make it accountable
- Institutional development.
- Set appropriate road safety targets
- Prepare plans to achieve targets
- Support road safety advocacy groups
- Create budgets for road safety
- Invest in effective road safety Activities
- Monitor the performance of plans

If the SRSC is to function effectively there is a need for a body/organisation which would evolve the plans of action to be implemented for reducing the road accidents. It is proposed that this body would be known as the Road Safety Management Board (RSMB).

4. ROAD SAFETY MANAGEMENT BOARD – NEED AND STRUCTURE

The RSMB will be the body which would undertake research and developmental activities relating to Road Safety issues and act as a think tank for SRSC in framing the action plans with the focus on the results.

The structure of the Road Safety Management Board (RSMB), which can be the lead agency, is proposed as indicated in FIGURE 2.

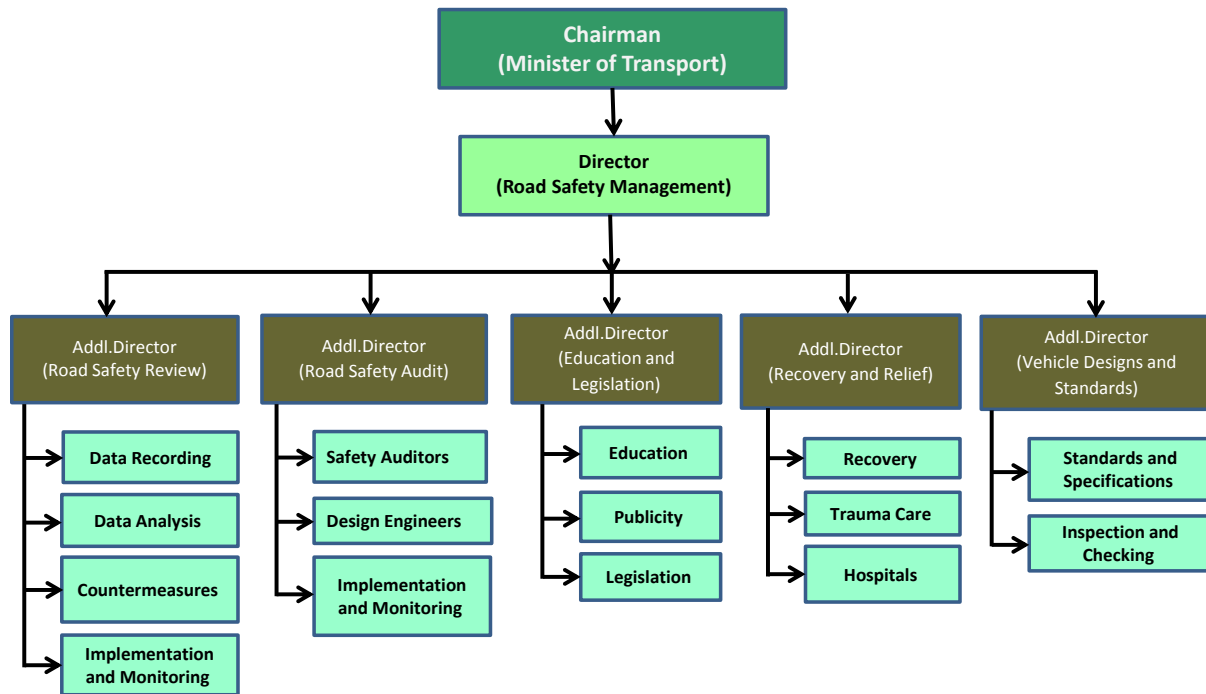


FIGURE 2 Organisation Structure of Road Safety Management Board

The Board must focus on the desired results, of reducing the casualties due to road accidents through the implementation of scientifically evolved plans and actions, to achieve the desired results. These results can be achieved as follows:

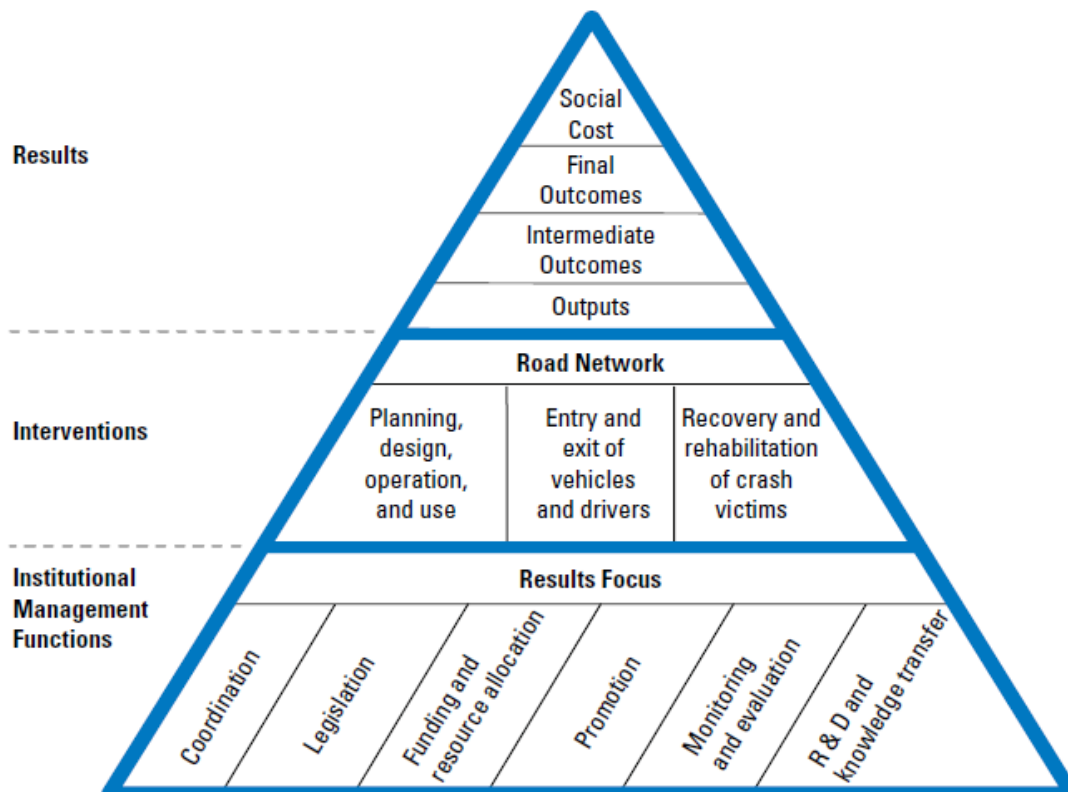
- 1) By reduction in the number of accidents i.e. by reducing the chances of accidents.
- 2) By reduction in the impact or consequences of the crashes. This can be achieved by installing the safety devices that will absorb the shock/impact through cushioning.
- 3) By reducing Casualties through the provision of timely emergency medical attention/trauma care. This is to say that the process of recovery and removal of the victims to the hospitals must be improved greatly.

The RSM Board will prepare long-term investment strategies and related programs and projects to overcome the Road Safety Problems in the state. The functions of Road Safety Management Board can be better illustrated with the help of a diagram, see Figure 3. This, the latest evolution of the road safety management system, is recommended for use by the World Bank and the OECD. Road Safety is produced just like other goods and services and the production process is viewed as a management system with three levels: *institutional management functions* which produce *interventions*, which in turn produce *results*.

The Board will have the *institutional management functions* of: coordination, legislation, funding and resource allocation, promotion of awareness, monitoring and evaluation, Research and Development and knowledge transfer.

Interventions: will be in the form of implementing the plans (i) to design and operate safer roads (ii) regulate safe entry and exit of vehicles with improved driver behaviour, and (iii) recovery and rehabilitation of crash victims.

Results will be in the form of Monitoring to measure the outputs, intermediate outcomes, final outcomes, and social costs.



Source: Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koomstra et al, 2002; Bliss, 2004.

FIGURE 3 Framework of Functions of the Road Safety Management Board

The broad expertise/competence of the Directors/Members of the Board is indicated below:

- (i) Road Engineering, Construction and Management and Traffic Engineering;
- (ii) Automobile engineering;
- (iii) Traffic laws, operations, management and enforcement, developing/implementing strategies for influencing road user behaviour, capacity building and education in the area of road safety;
- (iv) Data collection, reporting and analyses, accident investigation, statistics and research, finance and state relations; or
- (v) Accident related medical care, trauma management and rehabilitation

Director (Road Safety Management): Direct and coordinate the activities of reducing the numbers and losses due the accidents through the identification of appropriate preventive and corrective measures evolved through research and development.

Additional Director (Road Safety Review): Develop a sound and reliable data base on accidents and analyse the data for formulation the preventive and corrective measures. This would help in determining the actions to be taken at macro, messo and micro levels for prevention and minimising the losses due to accidents.

Additional Director (Road Safety Audit): The Road Safety Audit unit will undertake audits for the identified black spots. It will also undertake Road Safety Audits of all the major roads which carry heavy volumes of the traffic. Preventive measures will be identified and action plans developed for implementation by the road maintenance agencies (PWDs).

Additional Director (Legislation/Education): Education can be at various levels – in schools, colleges, print and electronic media (general public), through seminars, promoting competitions amongst children to propagate the Road Safety Education. This unit will also identify fresh laws and rules that can strengthen road safety and evolve a sound system of driver training.

Additional Director (Recovery and Relief): This unit will design and monitor the trauma care units by locating them at appropriate places based on the data units analysis and advice. Research should be conducted into advanced methods of handling trauma care and implementing same to reduce losses and prevent the damages.

Additional Director (Vehicle Design and Standards): This unit shall monitor the safety performance of vehicles and advise on improving the safety performance of vehicles. The unit will also undertake the monitoring of the production standards at the factory and standards on road.

5. ROAD SAFETY MANAGEMENT ACT

The Road Safety Management Board should be established through an Act of the State Legislative Assembly. The Act, which should be administered by the Ministry of Transport in the State, should clearly spell out the objectives and functions of the Board, its structure, processes, powers and relationship with the Ministry of Transport. It should address road safety issues in respect of all the roads and mechanically propelled vehicles and set guidelines on road safety on all the roads. It should contain enabling provisions to set up Road Safety Management Committees in the Districts. It should also encompass the provisions related to road safety contained in the other relevant Acts like the Motor Vehicles Act.

6. POWERS OF THE ROAD SAFETY MANAGEMENT BOARD

The Board should set standards and monitor their adoption and implementation through the directions from the SRSC. For this purpose, the Board would empanel auditors to undertake spot checks and audits on the roads under design, construction, or operation to ensure that safety standards are adhered to. If standards are not met the Board would have powers to levy penalties and to issue suitable directions with regard to corrective measures.

The Board could monitor compliance of Mechanically Propelled Vehicles either through the Conformity of Production (CoP) tests carried out by the testing agencies or through audits. The Board should monitor the adoption and implementation of the procedures and guidelines.

The Board could undertake the task of creating awareness through publicity and curriculum in the school education.

The Board through their research and analyses could evolve and recommend promulgation of certain acts to improve driver behaviour and traffic operations.

7. BUDGETS FOR THE BOARD

The budget of the Board should be approved by the Legislative Assembly and should be funded by grants from the Road Safety Fund created under the State Act. The Board should also be free to receive contributions, with the approval of government, from national and international organisations supporting road safety. A minimum of one per cent of the total proceeds of the cess on diesel and petrol should be available to the Road Safety Fund of the State.

Alternatively, certain percentage of cess on the vehicle insurance may be levied and used for funding RSM.

In addition, at least 50 per cent of the amount retained by the Government of India by way of the share of the National Highways and the Railways should be allocated to accident-prone urban conglomerations and States over and above their entitlement. Assistance to the States from the National Road Safety Fund should be released to support road safety activities provided that the States enter into agreements with the Government of India in respect of these activities and faithfully implement the agreements. The Board would facilitate the agreements and monitor their implementation.

8. PROCESS OF DEVELOPING MITIGATION MEASURES TO ENHANCE ROAD SAFETY

8.1 Road Safety Review (RSR)

This hinges on studying and analysing the current road safety situation through the research and analysis of existing accident records in addition to identifying and establishing accident recording system. The accident review and analysis process can be categorized as macroscopic and microscopic analysis.

8.1.1 Macroscopic Analysis

Accident records are pooled and analysed statistically to identify major causes and types of accidents. The recording and analysis would be carried out using suitable computer software. From this analysis

- The Black Spots (Most accident Prone locations) can be identified and remedial/corrective/mitigation measures can be suggested.
- Broad policy measures could be evolved which can be applied at an aggregate level to reduce the number and impact of road accidents.
- The measures could be directed towards drivers, vehicles, and roads.

Some examples of policy instruments are making the wearing of helmets mandatory to minimize fatalities in two wheeler accidents. Monitoring drunken driving on selected roads more rigorously, providing at least a 3 meter wide hard shoulder on high speed roads to avoid rear end

crashes because of parked vehicles. Cautioning the drivers of the impending danger of accidents at selected spots.

8.1.2 Microscopic Analysis

An in depth analysis is made into the causes by making studies at the site of frequent accidents. An example could be the deficiency in sight distance and inadequate controls at an intersection resulting in frequent side crashes. Another example could be a sharp right angle curve on a high speed road resulting in vehicles overshooting and toppling over.

The road safety review is primarily based on research and analysis of accidents which lead to evolution of mitigation measures. The remedial measures could range from the installation of markings/signs to modifications to geometry of the road layout to manage the speeds and behaviour of the road users.

8.2 Road Safety Audit (RSA)

For new roads the Road Safety Audit provides the opportunity to eliminate or minimize the chances of accidents by undertaking RSA at each of the stages in a sequential manner from pre-feasibility stage to pre-opening stage. The findings of the RSA could provide an opportunity to revisit the alignment, designs, and operational strategies and address the safety of users and non-users of the roads before actually completing the construction and correcting the deficiencies before they actually occur on ground.

The RSA would cover:

- (a) Pre-feasibility Stage
- (b) Preliminary Design Stage
- (c) Detailed Design Stage
- (d) During the Construction Stage
- (e) Pre-opening Stage
- (f) After Opening Stage

For existing roads the audit should take place during the hours of daylight and also at night and also under both wet and dry conditions. The objective is to identify any deficiencies that could result in accidents, and to propose remedial measures to overcome them.

8.3 Road Safety Education and Enforcement

The institution should address the issues of Road Safety Awareness and Education since efforts to create road safety awareness pays rich dividends in reducing the number and severity of road traffic accidents. Educating drivers and pedestrians as to how to use the roads in a safe manner will have to be undertaken. This can be done through electronic and print media. The institution should also have expertise to frame the required laws and regulations which need to be made legally enforceable. Undertake the training of Traffic Police and other officials concerned with the Traffic Management and Control.

8.4 Recovery and Rehabilitation

Many of the fatalities and miseries can be avoided if medical help is available in time. The institution should also coordinate accident Recovery and Relief operations. The facilities to address trauma care and relief to the accident victims need to be deployed over the state road

network and located appropriately. Ensure the availability of Hospitals with trauma care within reasonable distance.

8.5 Vehicle Design and Standards

The institution should address all the issues related to safe vehicle designs and operation on road through appropriate testing and evaluation. Conduct research into the vehicle design that can minimise the impact of accidents on the occupants as well as non-occupants of the vehicles.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions:

- Annually about one hundred and fifty thousand lives are lost combined in all Indian States in about five hundred thousand road accidents.
- The efforts of National Road Safety Council and State Road Safety Councils are not yielding the expected results in the absence of a dedicated lead agency.
- There is imminent need to have a focussed and dedicated institutional framework with capacity to conduct research and analysis of Road Safety Situation in the states to achieve the desired results.

9.2 Recommendations

- State Road Safety Council Should be high powered Council headed by the Chief Minister of the State with Ministers of Home, Health, PWD, Education, Law, Transport as members supported by a Lead Agency.
- The lead Agency should be manned by adequately experienced and qualified professionals to take lead in conducting review and research into the causes of Road Accidents and evolve appropriate mitigation measures and be capable of monitoring the results of the mitigation measures for their effectiveness.

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