ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

GUIDELINES ON ROAD SAFETY ACTION PLANS AND PROGRAMMES

UNITED NATIONS

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This publication is part of a series on road safety in the Asia-Pacific region. So far, this consists of:

Review of Road Safety in Asia and the Pacific

Asia-Pacific Road Accident Statistics and Road Safety Inventory

Road Safety in Asia and the Pacific - Report of the ESCAP/ADB Seminar-cum-Workshop, 2-6 September 1996, Bangkok

Guidelines on Road Safety Action Plans and Programmes

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CONTENTS

LIST OF FIGURES

Part I
BACKGROUND

Chapter 1 INTRODUCTION AND BACKGROUND

1.1 Introduction

Road safety problems are increasing in many ESCAP member countries and effective action needs to be taken if the situation is not to continue deteriorating. Over 235,000 people die in road accidents each year in the Asia-Pacific region and within 10 years this will increase to 450,000 people per year unless effective action is taken.

Experience in various developing countries around the world has demonstrated that safety problems need to be tackled in a comprehensive and coordinated manner in order to achieve success. It has also been shown that different types of intervention are effective at different stages of a country's development in safety and that the problem needs to be addressed within a systematic and strategic plan to maximize benefits.

Considerable experience has been gained in developing countries which have already attempted to implement road safety action plans and programmes - some very successfully and others with less success. This experience has been summarized and encapsulated as far as possible in these guidelines. Road safety related work done by Ross Silcock, the Transport Research Laboratory, international institutions and development banks, which are often involved in financing such road safety action plans and programmes, were also extensively consulted in the preparation of this publication.

This publication is aimed at senior decision makers and politicians with direct responsibility for developing and implementing road safety action plans. It seeks to provide a useful source of reference for countries facing growing safety problems. It covers all major phases and activities necessary at each stage in the implementation of effective Road Safety Guidelines for Asia and the Pacific published by the Asian Development Bank (ADB).

1.2 Structure and content

Part of this publication consists of Chapters and 2. Following the introduction and background in Chapter 1, Chapter 2 highlights the major cause for concern about road safety problem in the Asia-Pacific region and indicates recent trends in road accidents and the factors influencing road safety. Part II contains Chapters 3, 4 and 5. Chapter 3 discusses the coordinated approach to road safety activities and interventions (Stage I). Chapter 4 shows how priority action plans can be prepared and financed (Stage II). It further discusses the development of five-year road safety programmes. Chapter 5 then demonstrates how those five-year programmes can be devised and how such plans can be monitored to improve the likelihood of successful implementation (Stage III). Part III presents a number of annexes to provide examples of road safety action plan monitoring frameworks and details about implementation of a typical successful action plan.

1.3 Approach to safety improvement

Different countries are at different stages of development in terms of recognizing and addressing their road safety problems. Unless a country is at an appropriate stage of development (with respect to road safety issues) it can be difficult to mobilize the necessary political commitment for action in the field of road safety or to implement particular types of intervention in a country. It is necessary to develop and implement appropriate types of intervention to match the willingness of the society to take action.

Part II of this publication demonstrates how safety activities can be developed by implementing intervention in the three stages:

Stage Development of a coordinated approach

Stage II: Development and implementation of priority action plan

Stage III: Implementation of five-year national road safety programmes

The activities necessary during each stage are outlined and guidance on funding to cover technical assistance and intervention is provided.

Chapter 2 ROAD ACCIDENTS - A MAJOR CAUSE FOR CONCERN

2.1 Introduction

Growing concern about road safety problems led the Transport, Communications, Tourism and Infrastructure Development Division (TCTIDD) of ESCAP and the ADB to each commission major road safety studies in the Asia-Pacific region to quantify the scale and nature of the problem and assess its seriousness. These parallel but complementary studies have produced results which give cause for serious concern.

2.2 The scale and urgency of the problem

Although only a small proportion of the world's motor vehicles is in the Asia-Pacific region, 235,000 traffic related deaths occur annually, which is almost half of the 500,000 annual deaths worldwide. The number of persons injured or crippled in traffic accidents in the region is difficult to quantify because of underreporting but is certainly around three to four million each year. Road accident deaths are now the second largest cause of death for the populations of aged five to 44 years in many countries, and the problem is now considered by the World Health Organization (WHO) to be of epidemic proportions. Road accidents cost between one and three per cent of annual gross domestic product (GDP) for many developing countries and are serious economic drain. In the developing countries of the Asia-Pacific region alone, such losses in 1995 cost at least US$ 20 billions, and much of these costs incurred foreign exchange losses, because vehicles, medicine and spare parts are often imported. Such annual losses, which are greater than the total annual lending to the region by the World Bank and ADB combined, undoubtedly inhibit the social and economic development of the region.

The annual increase in the number of vehicles for many countries in the region (such as China, India, Malaysia and Viet Nam) is currently about 15 to 18 per cent, which is equivalent to their vehicle fleets doubling in five years, and tripling in eight years. Together with the high proportion of two- and three-wheeled motorised vehicles in the region and the relatively young age of the majority of the population, this contributes to the very serious road safety problems now being experienced in much of the region.

While the number of deaths and injuries has been reducing steadily in the developed countries, the number of deaths in developing countries is still rising at alarming rates. For example, road deaths increased by 18 per cent in Thailand from 1984 to 1992, by 30 per cent in Malaysia from 1985 to 1993, by 44 per cent in Sri Lanka from 1984 to 1991, by 45 per cent in India from 1985 to 1991, and by 79 per cent in the Republic of Korea from 1985 to 1991.

From 1888 to 1997, over two million people have been killed and about 16 million people have been injured or disabled in accidents in the Asia-Pacific region. Many of these casualties have been crippling injuries which will impose ongoing financial burdens on the victims' families and their communities. Current trends suggest that there will be about 450,000 deaths annually in the Asia-Pacific region before 2007 if effective action is not taken. So far, the problem has been largely unrecognized, and insufficient effort and attention has been given to the improvement of road safety in the region, even though road accidents now impose a heavy burden on the medical and hospital resources of many countries.

2.3 ESCAP/ADB Seminar to discuss options and actions

The growing problem of road accidents has become a source of serious concern to the development banks and international organizations active in the region. ESCAP and the ADB jointly organized a Seminar-cum-workshop on Road Safety in Asia and the Pacific at Bangkok in September 1996 to discuss the issues. It was attended by representatives of the World Bank, Asian Development Bank, the British Department for International Development (DFID), GTZ and a number of other international agencies as well as government officials and safety experts from 23 countries throughout the region. At the Seminar, the participants discussed the problems and needs of the region in terms of

both national and regional initiatives required.

The major constraints inhibiting the improvement of safety in many of the developing countries of the region included the following:

a) Fragmentation of responsibility for road safety issues;

b) General absence of accurate information on the scale, nature and characteristics of the problem;

c) Inadequate resources and activities to coordinate and implement safety counter-measures in all sectors which require improvement;

d) Inadequate efforts to improve known hazardous locations;

e) Lack of safety planning and design of road schemes; and

f) Insufficient technical and financial resources to tackle the problem.

The main priorities for individual countries and ESCAP identified by the experts are outlined below.

2.4 Priorities at the national level

Priorities depend on the state of social development, motorization and economic development of a country. However the following sequence of steps can be taken:

a) Prepare an independent review of road safety sectors to identify weaknesses and inadequacies in each of the sectors affecting road safety;

b) Organize of a national seminar to raise awareness among political decision makers and the general public and bring together the key players to discuss road safety needs and issues;

c) Establish an effective accident data base involving a standard accident reporting form and a micro computer-based accident data storage and analysis system;

d) Establish a national road safety council with adequate technical and financial support to coordinate road safety activities across all sectors;

e) Develop key professionals through in-country and overseas training courses and study tours; and

f) Develop and implement a priority action plan to implement urgent improvements and to develop the institutional capacity of local agencies and organizations. This should be based on the Guidelines on Road Safety Action Plans and Programmes.

2.5 Priorities at the regional level

The main priorities at the regional level include the following:

a) Collect and disseminate comparative data on road safety statistics and activities in ESCAP member countries;

b) Identify the major road safety problems facing the region;

c) Encourage the development of regional initiatives and mechanisms to tackle major problems;

d) Collaborate with multilateral agencies and other funding institutions to develop a coordinated strategy and regional road safety initiative (RRSI) for tackling the road safety problems of the Asia-Pacific region over the next decade;

e) Maintain a regional road safety database which should be accessible as needed to encourage the analysis of accidents and the development of better understanding of road safety characteristics and trends in the region; and

f) Establish mechanisms to encourage dissemination of information regularly to a network of road safety professionals to provide a common source of information and clearing house for exchange of research results.

2.6 Guidelines on action plans and programmes

This publication offers consolidated guidance and advice on the activities necessary to do the following:

a) Coordinate road safety activities;

b) Develop and implement a two- to three-year priority action plan; and

c) Prepare and implement five-year road safety programmes.

The 'Guidelines on Road Safety Action Plans and Programmes' will be distributed throughout the Asia-Pacific region and will supplement the 'Road Safety Guidelines for the Asian and Pacific Region' developed by the ADB. In addition, ESCAP is collaborating with the World Bank, ADB and World Heath Organization to develop a regional road safety initiative which would coordinate activities of various international organizations and aid agencies and implement a series of interventions to improve the situation over the next decade. ESCAP, as a result of the recently approved Regional Action Plan (RAP) Phase I (1997-2001) for the implementation of the New Delhi Action Plan on Infrastructure Development, has a clear mandate that road safety is to be regarded as an issue requiring urgent action and one of the priority areas for ESCAP.

Countries in the region should also take the opportunity in discussions with donor countries, or with the development banks, to indicate their support for road safety issues. At each donor's meeting, countries should identify road safety as a key priority area within the regional development programme and their national development programmes.

2.7 Concluding remarks

In the period 1983 to 1994, over two million people died in road accidents in the Asia-Pacific region, and many millions more have been crippled or injured, some being disabled for the rest of their lives. Road accidents cost over US$ 20 billion annually for the developing countries of the region and this clearly inhibits their economic and social development. Action should be taken to tackle this growing and serious problem. ESCAP and other international organizations have recognized the problem and urge member countries to give it the priority it deserves. The following chapters discuss ways to tackle this growing and urgent problem.

Millions will die or be injured or crippled needlessly in the Asia-Pacific region if action is not taken to tackle road safety problems effectively.

Part II
GUIDELINES ON
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PROGRAMMES

Chapter 3 DEVELOPMENT OF A COORDINATED APPROACH STAGE I

3.1 In-country conditions conducive to Stage I activities

At the earliest stage of road safety development, several agencies and individuals may be involved in road safety activities for management of accident events, including the police and representatives of the Ministry of Interior and Department of Roads. These safety activities are not coordinated, and even accident records may not be properly documented and stored. Not much is known about trends in risks for road users or even the main organizations with road safety responsibilities. Remedial measures related to road accident reduction need to be dealt with through many different sectors and socio-economic approaches. The road safety issue has a multi-sectoral characteristic related to traffic law enforcement; legislation; engineering; vehicle safety; emergency services; driver training, testing and licencing; road safety publicity; children traffic education; and road safety research (see figure 1).

For the systematic planning of action and intervention required to tackle the problem of road safety, 14 major sectors are presented below.

1. Coordination and management of road safety,
2. Road accident data systems,
3. Road safety publicity and campaigns,
4. Traffic legislation,
5. Traffic police and law enforcement,
6. Driver training and testing,
7. Vehicle safety standards,
8. Safety planning and design,
9. Improvement of hazardous locations,
10. Road safety education of children,
11. Emergency assistance to road accident victims,
12. Road safety research,
13. Funding of road safety activities, and
14. Road accident costing,

These 14 major sectors of road safety are explained below:

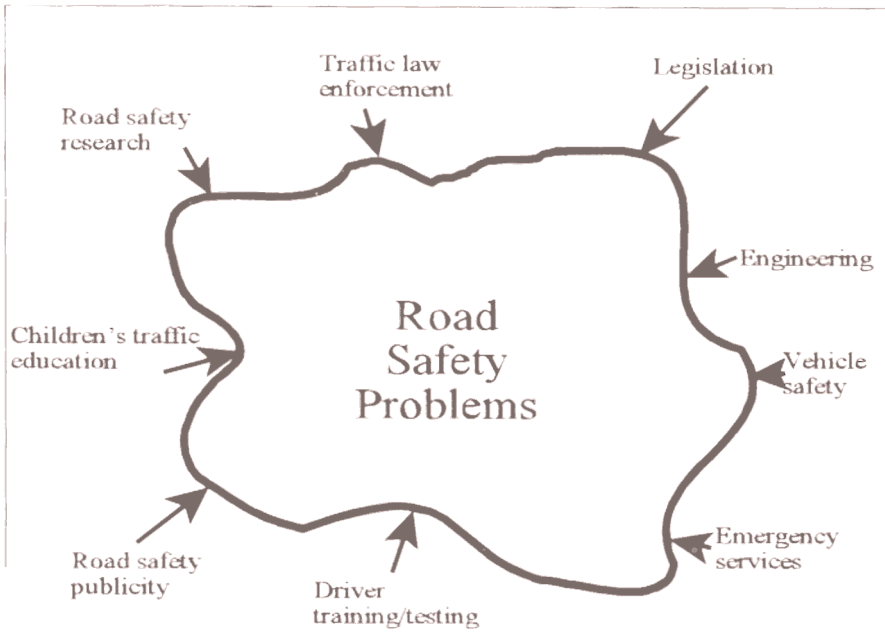


Figure 1: Road safety is a multidisciplinary problem - All relevant agencies need to be involved

Coordination and management of road safety

Road accidents involve social, economic, technological and overall development problems. Various government ministries such as Interior, Transport, Health, Justice, Defence, Education and Social Welfare and their agencies; public, private and personal transport operators; vehicle manufacturers; financial and insurance companies; and general road users are all concerned with the problem. The state must take a leading role and has a serious responsibility for the improvement of road safety. One fundamental step to be taken by the state is the creation of an organization dedicated to initiating and coordinating road safety activities.

Establishment of a national road safety council (NRSC) or other coordinating body with representation of relevant government agencies, non-government organizations and the private sector responsible or interested in road safety is vital. The major task of this coordinating body is to initiate and coordinate actions concerning management of strategies for the short-term and the development of long-term road accident management and road safety improvement plans, policies and strategies, with guidelines for implementation. The council's tasks also include horizontal coordination of all activities of the concerned parties as well as vertical coordination with regional and local organizations.

Road accident data systems

Accident data are essential to provide the basis for decision-making to improve road safety. Accident databases need to be established and decentralized so that they can be accessible to experts in all disciplines. Such databases enable analysis of the scale and characteristics of the problem in order that remedial measures can be devised at national and local levels. They also provide facts and figures to enable in-depth accident studies and research to identify issues and develop solutions. Periodic surveys provide the basis for updating databases.

Apart from the establishment of a database, accommodation of road safety databases with mapping facilities on microcomputers, linking road safety databases to other databases and linking central databases to regional databases, are required to support research and analysis.

3.1.3 Road safety publicity and campaigns

Changes in social attitudes about road accidents are the key to bringing about significant improvements in road safety, and effective road safety publicity is an important tool to achieve such changes. Widespread, well-targeted information campaigns undertaken regularly using modern means, as part of a comprehensive strategy to increase awareness of road safety, can create lasting changes in behaviour and attitudes among road users.

Campaigns must have deep emotional impacts on people depending on the local context and problems to be solved. Moreover, it is necessary to change programmes periodically to retain interest. When a new regulation is enacted, it is always necessary to launch a new information campaign. Effective publicity to target specific road behaviour and involvement of local authorities and various associations, especially automobile clubs, are important in national campaigns.

3.1.4 Traffic legislation

Traffic legislation provides a legal framework that enables concerned authorities to take action. In addition to legislation relating to roads, vehicles and drivers, legislation concerning speed zones, driving under the influence of alcohol, seat belts, motorcycle helmets and penalty points systems is required. However, details for penalties should be included within regulations rather than in the traffic legislation, to allow easier modification when needed in future. Furthermore, harmonization of legislation among neighbouring countries and within subregions of Asia and the Pacific would be helpful for effective implementation.

Legislation also needs to provide for the use of modern equipment such as speed detectors and alcohol testing devices. It would be worthwhile to develop a model traffic code appropriate for the country which should address issues concerning both non-motorized and motorized vehicles. For maximum effect, traffic legislation must also streamline judicial processing and prosecution procedures.

3.1.5 Traffic police and law enforcement

Traffic legislation alone, even when it includes large fines and penalties, has little or no deterrent effect, unless it is applied and

enforced effectively by traffic police. Enforcing compliance with road legislation is an important part of a comprehensive road safety policy, and a specialized traffic police force is an important asset in enforcement.

The system of controls and penalties is an important factor in accident prevention and the effectiveness of policies. The number of traffic police required depends on traffic volume and the number of road accidents. Provision of modern equipment to increase law enforcement efficiency and the positive image of traffic police, an enforcement strategy which can be effective for the system of penalties in a country and specialist training programmes to develop a trained force with enhanced working conditions and incentives based on performance are all important.

3.1.6 Driver training and testing

Driver training, testing and licensing are crucial. In many countries, new drivers are trained by friends or relatives. In some countries, training of new drivers is done in off-road areas, while some countries allow such training to be done directly on the roads in normal light traffic conditions. In some European countries, such training takes place after a person completes an accredited driving instruction course taught by professional driving instructors. No one way is best, and a country must decide which approach is most suitable. Regardless of how driving instruction is organized, traffic safety should always be a central objective of the driver training programme.

The methods for granting a driver's license vary significantly among countries. Some countries give a full license immediately after someone passes a test, while other countries give a probationary license with the full license being given only after the driver has gained some experience and has shown a capability to drive safely.

Supervising and regulating education, training and retraining is the prime responsibility of the government, although private organizations can be allowed to conduct the actual education and training. Training requirements for special target groups, the licensing process, special rules for new drivers, and the establishment of special criteria in terms of age and experience for people who drive public service vehicles and heavier vehicles are matters of prime concern in this sector.

3.1.7 Vehicle safety standards

Harmonization of standards and procedures for safety inspections for vehicles is also important in dealing with road safety. Methods of approving vehicles imported into a county and the periodic inspection of vehicles already in service are important for vehicle safety standards. It is also necessary to ensure the compatibility of national regulations with one of the three major vehicle manufacturing standards in use. Special attention must be given to the method for granting approval for imported vehicles designed to transport dangerous goods, mandatory equipment and other restraining systems for all categories of vehicles. Periodic inspection of pollution emissions and sound levels also requires attention. Frequent thorough inspections of older vehicles should be made as part of any inspection system. Particular care must be taken to prevent import of vehicles which do not meet safety standards.

3.1.8 Safe planning and design

A number of countries which have adopted road safety targets expect that casualties can be reduced by about half in the medium- and long-term through road infrastructure improvements. Some infrastructure improvements, like new roads and expressways, may be costly investments, but much can be achieved from targeted low-cost improvements at locations where accidents occur frequently and from preventive activities such as safety audits and safety checking to create safer road networks. It is important that these low-cost treatments be prioritized on the basis of cost-benefit analysis in order to optimize the road safety returns.

In addition, safety auditing of new designs, maintenance and rehabilitation of roads by specialized safety auditors is important to ensure that safety is taken fully into account during the design process, to check that designs and plans are in compliance with existing standards and to ensure that good safety practices are included in the design.

3.1.9 Improvement of hazardous locations

Considering the increased urbanization in countries of the Asia-Pacific region and the growing number of fatalities and injuries which now occur in most cities and towns, it is necessary to reconcile the conflict between traffic and living functions in urban areas. The basic need is to establish a hierarchical classification of the road network based on road

functions (flow, distribution, access and residential) and to ensure that each road fulfills its designated function.

There are now well-established "traffic calming" and speed reduction techniques which can slow the speed of vehicles and sharply decrease the number and severity of accidents. In future, the concept of "sustainable safety" should be adopted, which means ensuring that safety is a key criterion for all decisions concerning road infrastructure, vehicles and road users. The possibility of accidents and their severity should be reduced by prevention of traffic conflicts and reduction of traffic speed.

3.1.10 Road safety education of children

The aim of road safety education for children is to teach of appropriate survival skills covering topics which need to be covered gradually as the child progresses through school. Subjects taught, materials and methods will vary with the age of the children being taught. At the pre-school level, emphasis should be on the parents or care-givers, to inform them of the dangers when children play unsupervised near roads. As the child becomes more independent, the focus should be on the child and aspects such as walking to and from school, crossing roads. and getting in and out of vehicles.

3.1.11 Emergency assistance to road accident victims

Timely and effective assistance to road accident victims is important to reduce deaths and permanent disabilities. Assistance to road accident victims (through trauma management) can be seen as a process involving at least five steps: alarms, quick access to the scene, early diagnosis and therapy, transfer of the stabilized patient, and hospital treatment. Initiatives to organize and coordinate the rescue system is the primary responsibility of the state, although some services may be provided by non-government organizations and private enterprises.

3.1.12 Road safety research

Road safety research provides the framework for making effective policy decisions and for cost-effective investment in road safety. One prerequisite for effective road safety research is the existence of a national accident database which is accessible to all, defines the nature and characteristics of the problem and helps to monitor interventions.

Normally, universities and research institutes conduct research work or provide expertise in targeted research. However, development of one or two research centres for road safety research is desirable, and these centres should be linked to centres in neighbouring countries and within the region, so that a network of road safety researchers can exchange experience and information.

3.1.13 Funding road safety activities

State and local budgets from fuel and vehicle taxes or other sources, the insurance system, the private sector (such as oil companies and transport operators) and non-governmental organizations can all be considered as sources of funding for road safety activities. Income from fines can also be allocated, at least in part, to road safety activities. Funding assistance is now available from the World Bank and other aid agencies for road safety improvement or safety components in highway, transport, health or other projects.

Current expenditure on road safety is far below what is needed. Decision-makers should be made aware that road safety activities are highly cost-effective and funding increases are justified in order to finance well-prioritized action plans based on cost-benefit analyses. However, each country must decide how to best finance its road safety policy in accordance with its needs.

3.1.14 Road accident costing

Road accident costing estimates the socio-economic costs of road accidents. The costs of road accidents have traditionally been regarded as too difficult and insignificant to document. However, in developed countries, the regular, reliable costing of road accidents is extremely important, because it tends to encourage accident reduction schemes into justifying appropriate expenditures and proving their cost effectiveness. Without road accident costing, the only indicators of road safety problems are the accident and casualty figures reported by police, and these often suffer from severe under-reporting. In order to estimate the total economic and social costs of road accidents, comprehensive accident and casualty data are required. Once realistic estimates are available, the costs in lost output and medical services can be calculated and added to the accident-related costs of vehicle damage and administration.

Once the total extent of the human casualty toll and economic costs of road accidents are known, the road safety situation will be better understood by politicians and decision makers. They will encourage their governments to invest in improving road safety measures.

3.2 Primary focus/purpose of Stage I activities

The primary purpose of Stage I activities is to raise awareness among decision-makers from concerned agencies, organizations and institutions that road safety is a multi-sectoral, growing problem which needs coordinated urgent actions. Given the complexity of the problem, which includes road infrastructure, physical planning, development, management, administrative, legislative, educational, technological, financial, economic and social aspects, coordination is required. Rigorous effort may not produce many tangible results if it comes from only one or from a few sectors. However, coordinated efforts from several sectors can result in substantial effects.

3.3 Typical activities to be undertaken

The main activities which need to be undertaken include the following:

a) An interim working group needs to be established by drawing from senior staff in each of the agencies concerned with one or more of the 14 sectors (see section 3.1). This would function as a coordinating group until a more formal national road safety council (NRSC) can be established.

b) A review of road safety activities needs to be carried out to quantify the scale, nature and characteristics of the problem and identify deficiencies or weaknesses in the sectors and organizations related to road safety.

c) A national road safety seminar should be organized, involving senior personnel from all government agencies and non-government organizations with responsibilities or an interest in road safety (such as representatives from ministries, government organizations, large commercial companies, the insurance industry, and automobile manufacturers). Each of the main agencies could present a short paper on road safety problems and what needs to be done in their area of responsibility in order to tackle the problem. The national seminar should result in agreement among the key agencies on the actions to be taken.

3.4 Resources required and time-scale needed for completion

The time needed to complete this stage can be as little as two to three months. The technical assistance of a specialist road safety adviser may be needed to carry out a critical review of existing road safety and to develop action plans. It is recommended that this be done prior to the organization of the national road safety seminar, so that the results can be presented at the seminar to all participants.

3.5 Sources of funding

There are a number of funding sources for Stage I activities. These fall into two types: *(a)* technical assistance *(b)* implementation costs.

3.5.1 Technical assistance costs

Technical assistance can be financed by development banks such as the World Bank or the Asian Development Bank (ADB) which often finance short-term technical assistance from their own funds or from trust funds. The development banks provide technical assistance in order to assist countries in putting together potential road safety components which might be later financed by such banks. Technical assistance is also available from bilateral agencies such as the British Department for International Development (DFID), the Japan International Cooperation Agency (JICA) and other bilateral aid and development cooperation agencies which are sometimes willing to provide experts to review road safety activities and to develop action plans. This type of assistance tends to be on a grant basis.

It is also possible for governments to use funds from existing development bank project loans in order to carry out reviews of safety. Both the ADB and the World Bank actively encourage reviews of safety so that a better understanding of problems and needs can be achieved. Countries should seek such assistance when bank project officers visit the country or via their contacts at the ADB and the World Bank.

3.5.2 Implementation costs

The only implementation costs involve organizing and carrying out the national road safety seminars. Costs tend to be minor and can often be financed through sponsorship from the larger automobile manufacturing companies, petrol companies or other commercial concerns which see involvement in sponsorship of road safety as part of their social obligations and public relations. The costs typically include the cost of printing posters and perhaps pamphlets and information about the seminar, plus publicity in the media, hiring an appropriate hall or conference room, the cost of logistics and the cost of refreshments. Sufficient time has to be spent in inviting the participants, drawing up a programme for the seminar and instructions for those presenting papers. Much of the technical input can be provided by the road safety specialist providing the technical assistance, and the administrative inputs can be provided by staff from any agency which is working with the specialist, usually the Ministry of Transport or another government department which has overall responsibility for road safety.

3.6 Impact of Stage I activity

The main impact of Stage I activity is to raise overall public awareness of road safety as an issue through media coverage of the national seminar, raising awareness and interest among major players who can influence road safety and raise willingness and commitment among the relevant government agencies. By consciously encouraging press coverage and providing articles, information and statistics to coincide with the national seminar, it is possible to built up public awareness and media interest prior to the seminar. It is particularly important to make some estimation of the annual losses to the economy resulting from road accidents. In the absence of detailed information or costings, it is possible to assume that road accidents cost the country at least one per cent of the annual GDP. In fact, the true costs often lie between one and three per cent of GDP, but assuming one per cent provides at least a minimum figure for general discussion.

National road safety seminar, Western Samoa

Chapter 4 DEVELOPMENT AND IMPLEMENTATION OF PRIORITY ACTION PLAN STAGE II

4.1 In-country conditions conducive to Stage II activities

Typical conditions which exist when a country completes Stage I and is ready for Stage II activities include the following:

a) By the time the government has received technical assistance to review road safety activities and has organized a national road safety seminar, the multi-sectoral nature and extent of the problem will have been emphasized and the general public will have an idea about the problem of road safety through the news and media coverage of the seminar. Various researchers, medical practitioners and the media may be interested in creating awareness among the general public through road safety-related research and publicity.

b) The interim road safety working group will coordinate activities and obtain periodic sponsorship for road safety initiatives, publicity campaigns and materials. A national road safety council might be established and start coordinating and managing national road safety activities.

c) Individual agencies with road safety responsibilities may start to take action to improve safety.

d) The ministries which deal with external funding agencies should request assistance from bilateral aid agencies and multilateral development banks to finance some or all of the proposed road safety improvements by the road safety review undertaken during the previous stage.

e) Some funds should be incorporated into existing and future project loans for implementation of road safety initiatives.

f) The government should be aware of the broad aspects of the cost of road accidents to the economy and be interested in implementing an action plan to tackle the problem.

4.2 The purpose and primary focus of Stage II activities

The main purposes of Stage II include the following:

a) develop an overall strategy for the improvement of road safety in the country,

b) identify the most urgent improvements to be included in a priority action plan,

c) begin implementation of the priority action plan so that basic systems and procedures can be established to enable more effective activity in road safety, and

d) strengthen the key organizations and individuals who need to be involved in the improvement of road safety in the long term.

The primary focus during Stage II should be to strengthen the key organizations, systems and procedures so that once the priority action plan has been implemented, local organizations will be able to tackle the road safety problems of the country more effectively.

Typical activities which need to be undertaken during this stage include the development of a strategy, development and implementation of a priority action plan and development of five-year programmes.

4.3 Development of a strategy

An overall strategy needs to be developed in this stage, within which the priority action plan will play a major part, with the aim that by the end of implementation of the priority action plan key organizations are in a position to smoothly implement road safety programmes and to continue tackling road safety problems in the country.

4.4 Development and implementation of a priority action plan

A road safety action plan must be comprehensive to facilitate road safety programmes in future and must include all the 14 major sectors identified earlier (see 3.1.1 - 3.1.14).

An overview of the road safety priority action plan is presented in figure 2. The overview uses a DEE (Disaggregated Effectiveness Evaluation) framework which provides systematic and consistent vertical and horizontal integration of activities. The major thrust of the DEE framework is that the activities of the plan or project are disaggregated into a number of subtasks or elements. Each element is then broken down further until it is specified by the achievement of a number of simple quantitative and/or qualitative performance indicators. The whole road safety action plan is thus disaggregated into the established 14 sectors. Each sector is disaggregated into several components, and each component has at least one minimum output. For monitoring, each output is further broken down into performance indicators.

To undertake the activities within the 14 sectors to implement road safety programmes and activities effectively, some basic systems are needed. These are set out below, they are the most urgent activities of the road safety programmes.

a) **Road accident data system:** One essential priority is the early establishment of an effective road accident data system which allows accident data to be collected nationally and stored at a central location to be analyzed and retrieved as needed. The analyses and statistics have to be widely disseminated in order to let all agencies participate fully in solving the problems of the country.

b) **National road safety council or other coordinating mechanism:** It is necessary that representatives of the important organizations with road safety responsibilities meet periodically to discuss and coordinate activities, and that such a coordinating mechanism has adequate funding and technical resources to allow decisions to be implemented. This is best done by establishing a national road safety council with its own secretariat and funding.

c) **Demonstration projects:** In each section where improvements are to be carried out, demonstration projects should be implemented to provide training to individuals involved in the key agencies and to establish procedures and practices conducive to the improvement of national road safety. In the field of road engineering, it would be appropriate to improve two or three dangerous locations (or "accident blackspots") and to train the relevant staff in carrying out investigations of them, developing countermeasures and implementing improvements. Development of a safety auditing system could first involve developing guidelines for the inspection of proposed road schemes and their application to two or three schemes by local traffic engineers under the supervision of a road safety specialist to gain practical experience in identifying potential safety problems. The development of control guidelines would also benefit from the development of draft guidelines and their trial application by local traffic engineers under the supervision of the road safety specialist.

In a similar way, practical demonstration projects can be devised for each sector where road safety activities are to be undertaken. These projects should be used as opportunities to train local personnel in techniques, methods and new practices. It is also important to start some research at a university or economic research institute into the true costs of road accidents to the economy in the country.

Demonstration project: road marking to improve road safety

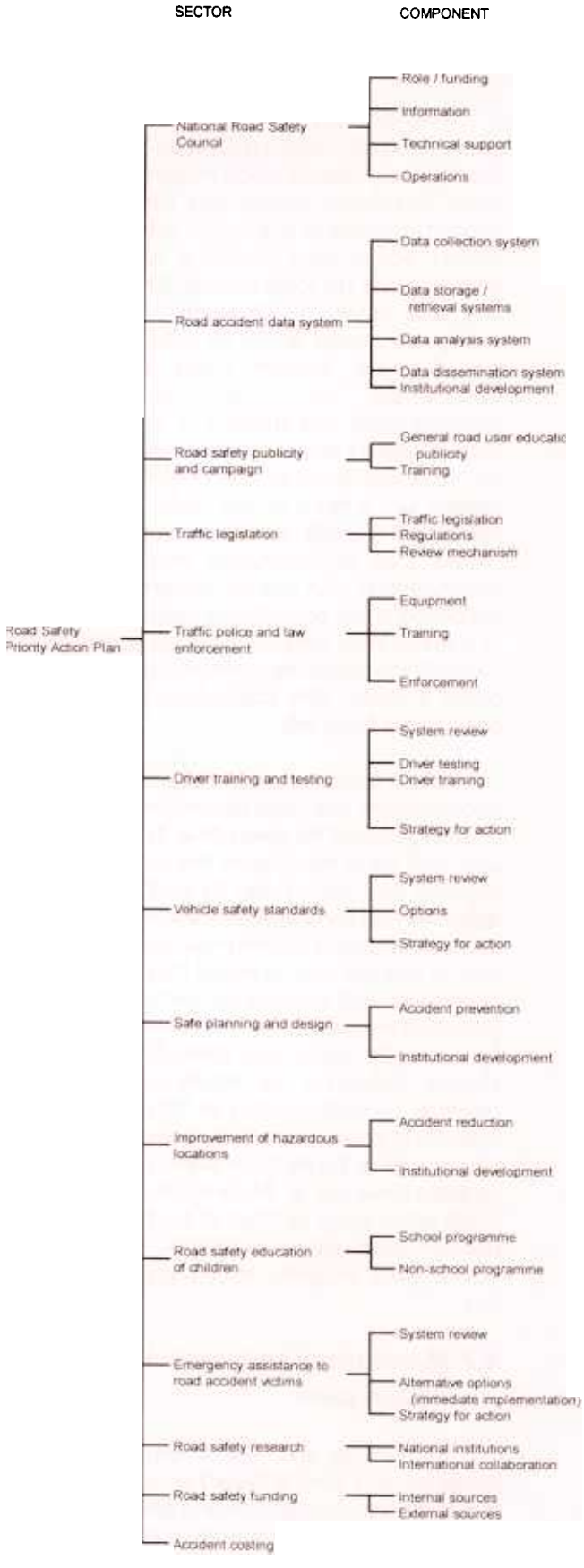


Figure 2: Overview of the road safety action plan

d) **Manpower training and study tours:** Apart from opportunities to participate in training in the demonstration projects, a small multidisciplinary group of four or five senior officers selected from the government agencies with the most responsibility for road safety should make an overseas study tour to selected countries which have demonstrated success in solving road safety problems. By visiting such countries, discussing safety issues and practices with experts and studying the facilities and activities being undertaken, these officers will gain a better understanding of what can be accomplished in their own country.

Wherever possible, such study tours should be timed to permit attendance at international road safety conferences so that the safety specialists can meet and network with safety professionals and experts from other ESCAP member countries. This will also maximize cost effectiveness, by enabling attendance at such seminars or conferences at minimal cost.

4.5 Time- scale for completion

Implementation of priority action plans can be undertaken over a period of one to three years, depending on the size of the action plan, the size of the country and the nature of the problems to be addressed. Generally, the objective should be to make preparations for the development of five-year programmes, at the same time as implementing the most urgent improvements needed to strengthen the key institutions and agencies. A maximum of about three years could be allowed for the action plan.

4.6 Resources required and sources of funding

The resources required to carry out the action plan will, of course, depend very much upon the nature of the action plan, the scope of the work required and the size of the country concerned. Input by international road safety specialist over a period of 35 to 50 man-months is typically required when implementing such action plans. In addition to the technical inputs, financial inputs are also needed to cover the actual costs of the various interventions implemented as part of the action plan. Some parts might be financed through aid-funded loans. Other parts will have to be financed by the government, particularly the costs of local staff and specialists who will work with the outside consultants.

Two different types of activity need to be financed under Stage II activities. The first is the technical assistance which might be required in order to provide advice and assistance. The second is related to implementation costs of the priority action plan, including funding of the training costs for local specialists. These costs are most commonly financed through a road safety component within an aid-funded project and typically include funds for technical assistance, equipment, infrastructure improvements and training of key personnel, both in-country and overseas. Including funding for implementation of the priority action plan (ideally US $ three to five million) in the road safety component is highly desirable, as it means that demonstration projects and the priority action plan can be implemented during the period of the consultancy project. This helps in training local personnel and in building local capability to tackle the problems, rather than just doing a study, with implementation after the consultants have left.

Governments interested in implementing a priority action plan and developing road safety activities should be aware that the World Bank and ADB have recognized the importance and urgency of road safety. In addition, bilateral agencies providing assistance to a country often assist countries in tackling road safety issues as well. A request can be made from the recipient country for road safety assistance for existing or proposed projects. However, setting aside funds for a priority action plan takes time. Requests should, therefore, be made as quickly as possible so that ongoing or future aid-funded projects support road safety activities. In some cases, where funds from previous or existing projects have not all been spent, aid agencies could allow some of them to be reallocated for use on road safety activities, provided the government presents strong justifications for this.

4.7 Monitoring and evaluation of the action plan

Monitoring and evaluation of individual schemes and sites is based on monitoring the accidents occurring before and after intervening, while monitoring the overall action plan must focus on whether the plan's objectives have been achieved. It is necessary to ensure that

the activities of the consultants and specialist advisers have been effective, and that the impact of such activity is strengthening the capability of the country to address the problem. The use of monitoring frameworks based on the Disaggregated Effectiveness Evaluation (DEE) concept as shown in figure 3 is recommended for the implementation of action plans (figure 4). DEE identifies in a framework form exactly what activities are to be carried out as part of the implementation of the action plan and seeks to identify indicators which can be used to see if the desired impacts have been achieved. It can also be used during implementation to identify whether the project is progressing as desired in terms of development and institutional impact.

4.8 Case study of action plan implementation

An example of a road safety action plan and its implementation in Fiji could illustrate the sequence of events and processes involved. A summary of the processes is given below and more details are presented in annexes A and B.

Initial technical assistance was financed by the ADB and enabled a road safety review to be undertaken and the general areas for improvement to be identified by an expert consultant. Following the recommendations of the road safety review, a road safety component of about US$ three million was included within a US$ 80 million Road Rehabilitation Project which was being developed at that stage with funding by the ADB, the World Bank and EXIM Bank. When the Road Rehabilitation Project started a few years late, it included about US$ three million provisionally earmarked for road safety activity, without details being specified.

The ADB provided further technical assistance in the form of a road safety advisor. He provided periodic traffic safety advice to the government in developing a strategy and overseeing implementation of a road safety action plan using US$ three million set aside for road safety.

The road safety strategy aimed at institutional strengthening of the key agencies and implementation of a Priority Action Plan to implement the most urgent improvements needed in key sectors. It required about 42 man-months of specialist technical assistance.

The action plan developed by the road safety advisor included the following aspects:

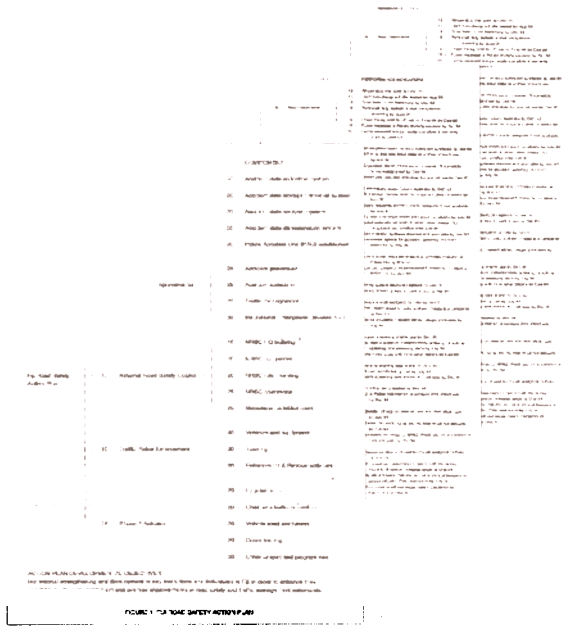


Figure 3: Monitoring frameworks

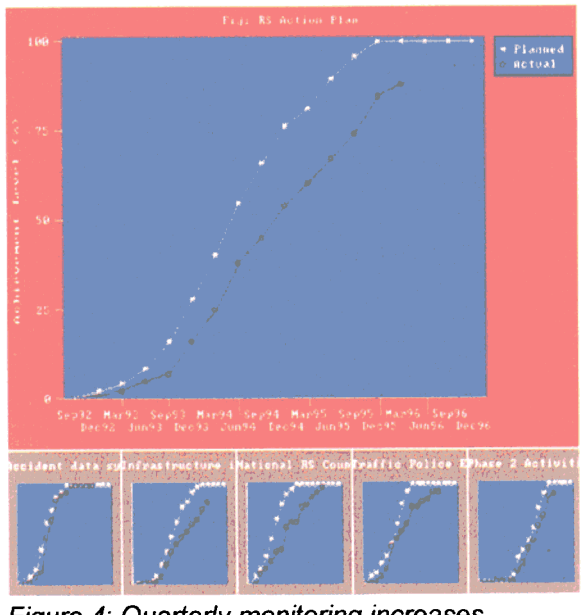


Figure 4: Quarterly monitoring increases likelihood of successful implementation

i) A revised road accident data system. This included modification and installation of a Microcomputer Accident Analysis Package (MAAP), provision of technical assistance to train police personnel and install the system (three-man-months) and funds to purchase a computer, printer and office equipment.

ii) *The national road safety council.* Funds were provided to purchase equipment to use for publicity, including mobile exhibition vehicles, overhead projectors, a video recorder, tannoy systems, safety materials and the establishment of a national road safety council headquarters.

iii) *A traffic and road safety unit (TARSU).* This included provision of technical advice (24 man-months) to train and establish a traffic and road safety unit within the public works department, including vehicles, various equipment such as traffic counters and the cost of some overseas training. It also included funding for implementation of accident blackspot programmes, area-wide schemes, route action plans, mass action plans along the national network and urban traffic management schemes in provincial towns.

iv) *Children's traffic education.* Working through the national road safety council, technical advice (three man-months) was provided on the development of children's education materials and teachers' guides for use in schools. Funding was also provided for guides and other materials.

v) *Traffic law enforcement.* Technical assistance (three man-months) was provided to establish a traffic law enforcement course at the police training academy. Vehicles to establish a pilot highway patrol; equipment such as radar, speed detection devices, alcohol testing metres and evidential testers; and equipment for rescuing victims of accidents were provided as part of the project, along with technical assistance for training police personnel, both in the country and overseas.

vi) *Emergency medical services.* Funds were allocated for technical assistance (three man-months) to develop a pilot emergency ambulance system to cover the capital of Suva.

vii) *Driver training and testing.* Technical advice (three man-months) was provided on updating and improving the existing driving test, training driving examiners, training driving instructors in defensive driving techniques, establishing a defensive driving course and instructors course and developing a traffic code for new drivers.

viii) *Vehicle inspections.* Funds were allocated to provide technical assistance (three man-months) to review the existing vehicle inspection system, train vehicle inspectors and purchase basic equipment.

The example of the road safety action plan in Fiji illustrates that a whole range of improvements and interventions can be financed within aid-funded projects. In this case, the project was largely related to highway rehabilitation, but it was possible to finance technical assistance and activities in traffic policing, education and a number of other non-engineering sectors. Aid agencies are willing to assist developing countries with road safety issues and to include road safety components within existing or proposed loans.

Funds are available from aid agencies provided government officials make it known to agencies' staff that road safety is a serious problem and that assistance is required in this area.

4.9 Development of five-year programmes

Apart from implementing the priority action plan and activities strengthening institutions, it is necessary to develop medium-term (five-year) road safety programmes to follow the action plan. The first five-year programme should consolidate and improve road safety activities and should cover all sectors affecting safety, while identifying priorities and costs. It should package the proposed improvements in such a way as to facilitate funding from development banks and other aid agencies as well as identify activities and interventions which can be financed through such agencies and those to be funded by the government or organizations in the country concerned.

Programmes and activities developed in the identified sectors using the DEE framework, including possible funding sources, are

discussed below. Because of similarities in their implementation, road safety publicity and road safety education of children are combined as road safety education and publicity. Road accident costing is not included in the discussion and the funding of road safety activities is discussed with each sector. In addition to the incorporation of the related DEE frameworks in this section, they are also duplicated as annex C for easy reference.

4.9.1 Coordination and management of road safety

If it has not already been undertaken in earlier stages, it is necessary to use legislation to establish a clear definition of responsibility. This requires the designation of a senior politician (for example, a Minister, or even the Prime Minister's office) to be directly responsible for road safety policy. It requires the nomination of a senior level civil servant (director level) to initiate and coordinate actions by organizing a committee and ensuring that action is taken by each agency with responsibilities for safety activity.

It is recommended that a national road safety council be responsible for coordination and management. It should include senior decision-makers from member organizations and act as a coordinating and steering committee for implementation of road safety initiatives and actions. A DEE framework for a national road safety council is presented in figure 5 for reference, but should be modified according to local requirements. Considerations that need to be made concerning the council include the role and function of the council and information about, technical support for and the operations of the council. The minimum outputs and performance indicators for each consideration should be clear.

Resources are needed to establish a secretariat (either under the director level or with its own full time Executive Director), to provide a full-time multidisciplinary team to carry out and follow up initiatives and act as an executive arm of the national road safety council. Adequate technical and financial resources need to be allocated. In most countries, it will also be necessary to ensure that regional and local organizations coordinate their efforts with the national road safety council. This is often best done by establishing regional (and, if necessary, district or municipal) road safety councils with their own full-time secretariats to carry out activities at the local level.

Road safety councils or other coordinating mechanisms must have a regular and guaranteed source of income. This can be provided by governments directly or provided through a levy on motor insurance (as in Fiji); by taking a percentage of annual profits from insurance companies, tyre manufacturers and petrol companies (as in the Republic of Korea); or as a small levy on vehicle or driver licences or fuel sales.

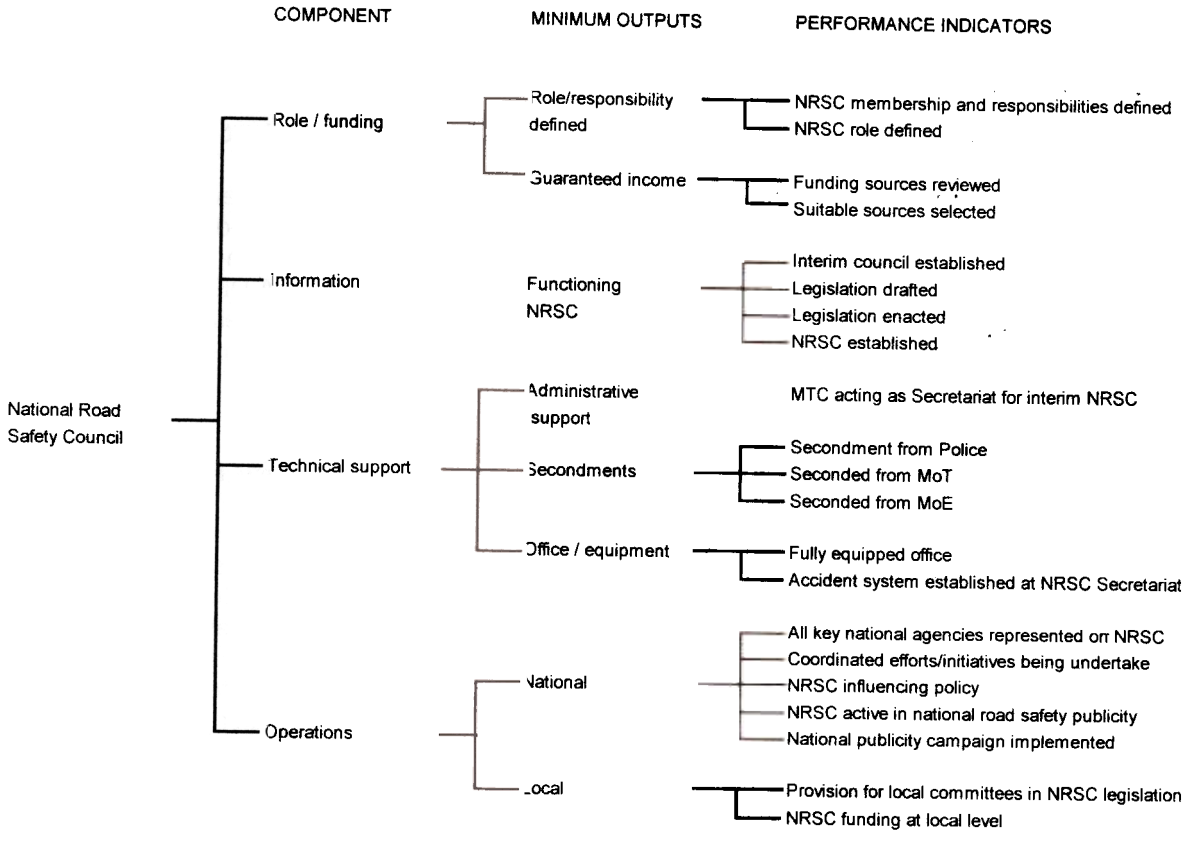
4.9.2 Road accident data systems

Collection, storage, retrieval, analysis and dissemination of data all need to be dealt with by road accident data system, and institutional development is required. A DEE framework for these components and their corresponding minimum outputs and performance indicators is presented in figure 6.

The implementation of the action plan should establish a nationwide accident data collection and analysis system. The programme implementation stage includes activities to extend the quality and consistency of data collected throughout the country and to increase the amount of analysis and research using the data. Initially, the system may be set up only at the national police headquarters in the capital city of the country, but later it may become necessary to extend the system so that it is available on microcomputers in regional and district police headquarters, depending on the size of the country. Copies of the database should also be available at the national road safety council headquarters and within the traffic safety unit of any highway authority, so that accident blackspot remedial measures and road safety publicity countermeasures can be devised. A comprehensive annual accident report giving statistics and indicators on all aspects of road safety in the country and comparisons with other countries should be published and widely circulated to all responsible agencies. The database should also be made available to researchers in universities or research institutes, so that further analysis and research can be done on road safety issues, particularly with respect to monitoring the effectiveness of countermeasures being implemented.

OBJECTIVE:

Establishment of improved national and provincial coordination mechanisms with representation from all relevant parties and with adequate technical and financial support to coordinate traffic safety activities and publicity aimed at the reduction of traffic accidents and casualties

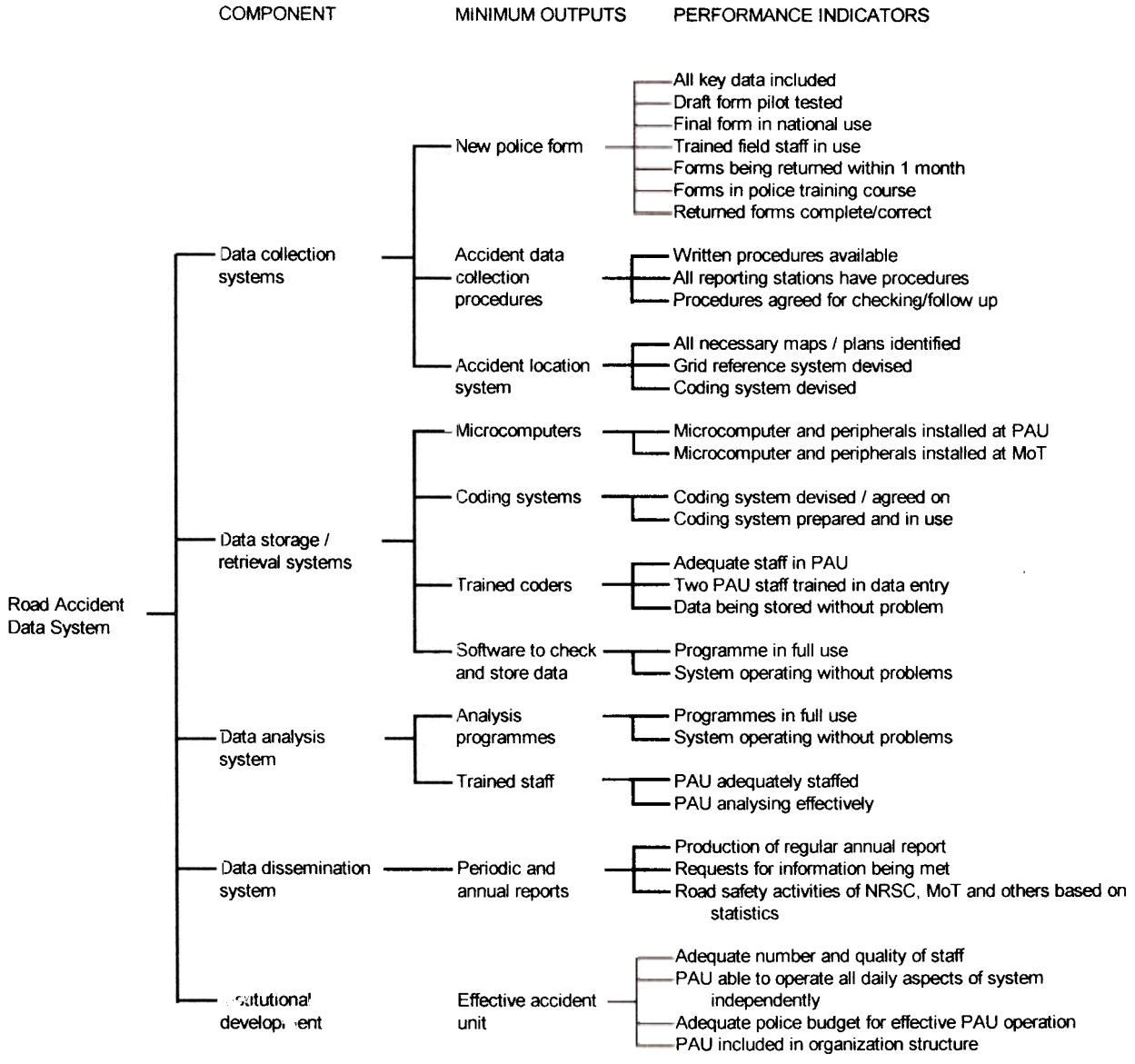


Notes: NRSC = National Road Safety Council
MoT = Ministry of Transport
MoE = Ministry of Education

Figure 5: National road safety council

OBJECTIVE:

An effective road accident data system which permits tne scale, nature and characteristics of the problem to be properly defined and remedial measures devised by relevant agencies



Notes: PAU = Police accident unit
MoT = Ministry of Transport
NRSC = National road safety council

Figure 6: Road accident data system

Expanding the system nationwide requires the purchase of microcomputers for a number of new locations plus the systematic training of police personnel in completing and checking the new forms and operating the accident data system. Costs of computers can often be financed via road safety components in development bank loans. The costs of staffing and training of personnel generally have to be financed directly by the national police department. Appropriate funds should be set aside for this purpose in annual police budgets and as part of the overall five-year programme of the government.

Accident unit staff in Fiji entering data from police accident forms

4.9.3 Traffic legislation

Traffic legislation programmes need to include updating the Traffic Act, regulations and review mechanisms. Minimum outputs and performance indicators for these components are shown in the DEE framework in figure 7.

Legislation, controls and penalties must be consistent, mutually supportive and seen as related to road safety. Introduction of new regulations must be supported by campaigns to raise public awareness of the problem. Apart from obvious safety legislation like requiring the wearing of seat belts and crash helmets and the introduction of alcohol limits for drivers, the overall traffic legislation needs to be examined to make sure that it is updated and suitable for current traffic conditions and problems.

One important area for immediate action is speed limits. In urban areas, maximum speed limits of 50 kilometres per hour with effective enforcement have proven to be a successful road safety measure in many countries around the world. To improve road safety in residential areas, lower limits of about 30 kilometres per hour are desirable and provide increased protection to pedestrians, children and cyclists. Engineering measures can often be combined with speed limits and strong enforcement to discourage traffic from such areas and bring speeds down to levels appropriate to such areas. Efforts need to focus on making the regulations easier to enforce by the police to ensure that they discourage unsafe or undesirable road behaviour.

Although the main cost involved in traffic legislation is the time spent by legislators which must be financed by the government, some technical assistance may be needed from international specialists in road safety legislation to review similar legislation of other countries, and to assist in the development of a revised or updated national traffic act. The development banks may be able to assist in financing such technical assistance.

4.9.4 Traffic police and law enforcement

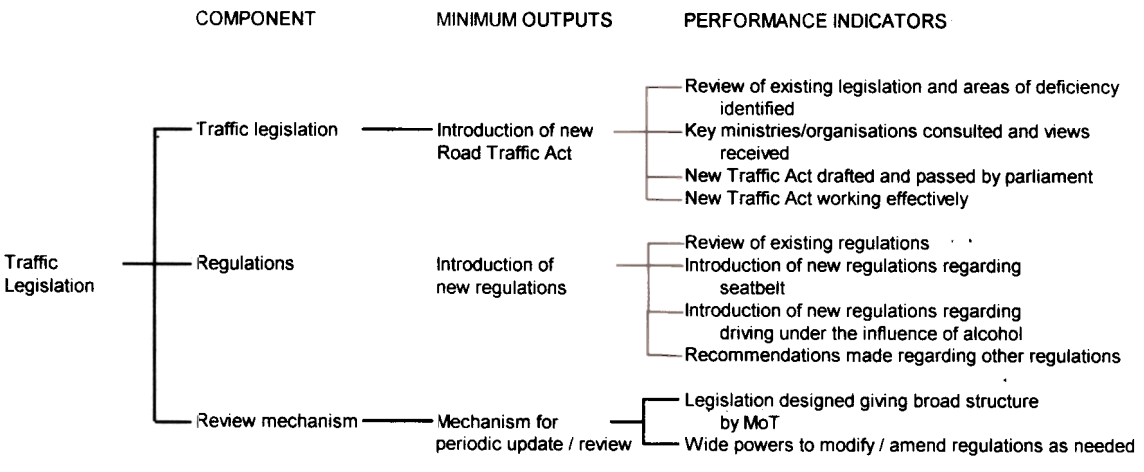
The development of a specialist national traffic police force is important in the fight to improve road safety, since the systems of controls and penalties can substantially affect driver behaviour if there is effective and efficient traffic law enforcement by the police. Equipment, training and enforcement are the major components required for implementation. The minimum outputs with corresponding performance indicators for each of these components are shown in figure 8.

Efforts in law enforcement must focus on coordinating police activities with other agencies such as the judicial system which provides sanctions or penalties and with the emergency services which provide assistance to accident victims.

Police must be appropriately trained in areas such as traffic control techniques, accident studies, first aid and human relations. They must provide services in a way that the population will consider useful for society. The major requirements in this area are the provision of modern enforcement equipment (such as radar and alcohol testing devices) to strengthen the enforcement capability of traffic police and the establishment of efficiency indicators for traffic police in particular target areas (such as speed limits, alcohol breath tests, and seat belt usage) in relation to the number of vehicles, traffic volume and number of drivers.

OBJECTIVE:

Improved traffic legislation to remove ambiguity and promote road safety and facilitate effective enforcement by traffic police other enforcement agencies.



Note: MoT = Ministry of Transport

Figure 7: Traffic legislation

OBJECTIVE:

More effective traffic police enforcement through increased use of enforcement equipment and tactics to deter unsafe driving behaviour on major roads.

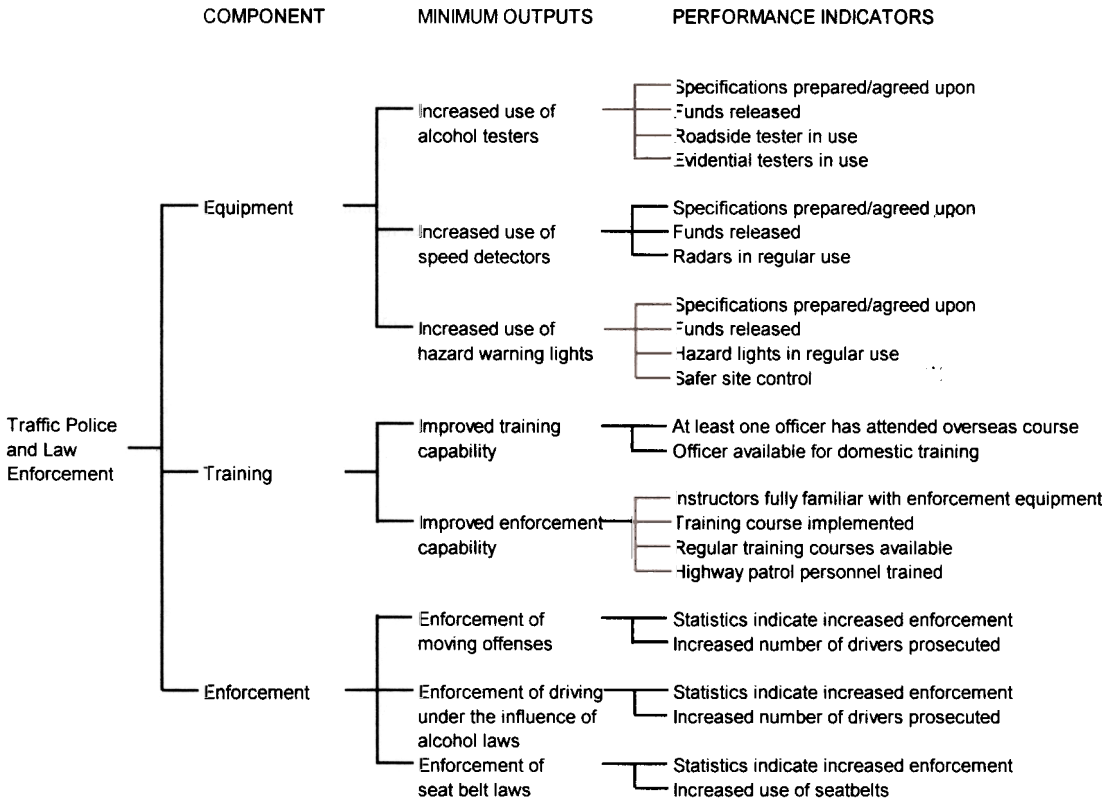


Figure 8: Traffic police and law enforcement

Traffic police should receive about 10 per cent of the total police budget in order to ensure effective traffic enforcement. In addition to government funding, it is possible that equipment, such as radar and alcohol testing devices, could be financed by loans from the development banks. Technical assistance from police advisers can also be financed either by development banks or through secondment of serving officers from other countries through bilateral aid.

Police spot checks of driving under the influence of alcohol

4.9.5 Driver training and testing

The focus of this programme should be to establish a nationwide system of consistent testing of candidates and adequate controls to minimize corrupt practices and unsafe drivers.

System reviews, driver testing and driver training are the major components of the driver training and testing programme. Figure 9 shows a DEE framework with minimum outputs and their corresponding performance indicators. An effective driver training and testing system the following elements:

i) An effective system of driver training which includes control and regulation of approved driving schools and instructors. This enables the government to ensure that instructors' qualifications, vehicles, training materials and course content meet standards which will result in well-trained, safety-conscious drivers. The driving test should be carried out by specialist driving examiners. The pass/fail rate of individual examiners and driving-test candidates submitted by different driving schools should be closely monitored to identify discrepancies and variations which may be indicative of problems and/or corrupt practices.

ii) An effective system of testing potential drivers in normal traffic conditions.

iii) Programmes of driver education and publicity to encourage safer driver behaviour.

Funding of driver training and testing normally has to be done by the government. Its role is to provide the regulatory framework and controls for the driver training industry and driving tests. This is often best accomplished by establishing an agency to oversee driver standards. Technical assistance can be financed through bilateral agencies and development banks.

Driver training and testing systems may need to be improved

4.9.6 Road safety education and publicity

Road safety education is necessary for two groups of people: the general public and children. The first step in educating the general public is to raise public awareness through publicity of regulations and law enforcement, safety standards, safety products and road features as well as the consequences of losses caused by road accidents and to create lasting changes in the behaviour and attitudes of road users. The mass media (television, radio, newspapers and other methods of publicity) and local authorities and associations should organize effective publicity with specific targets, including road safety videos, announcement on television, posters and other materials. It is necessary to vary publicity campaign programmes periodically to retain interest and

OBJECTIVE:

Critical review of present driver training and driver testing systems and development of recommendations for implementation of improved driver training and testing systems with appropriate controls to minimize license abuses

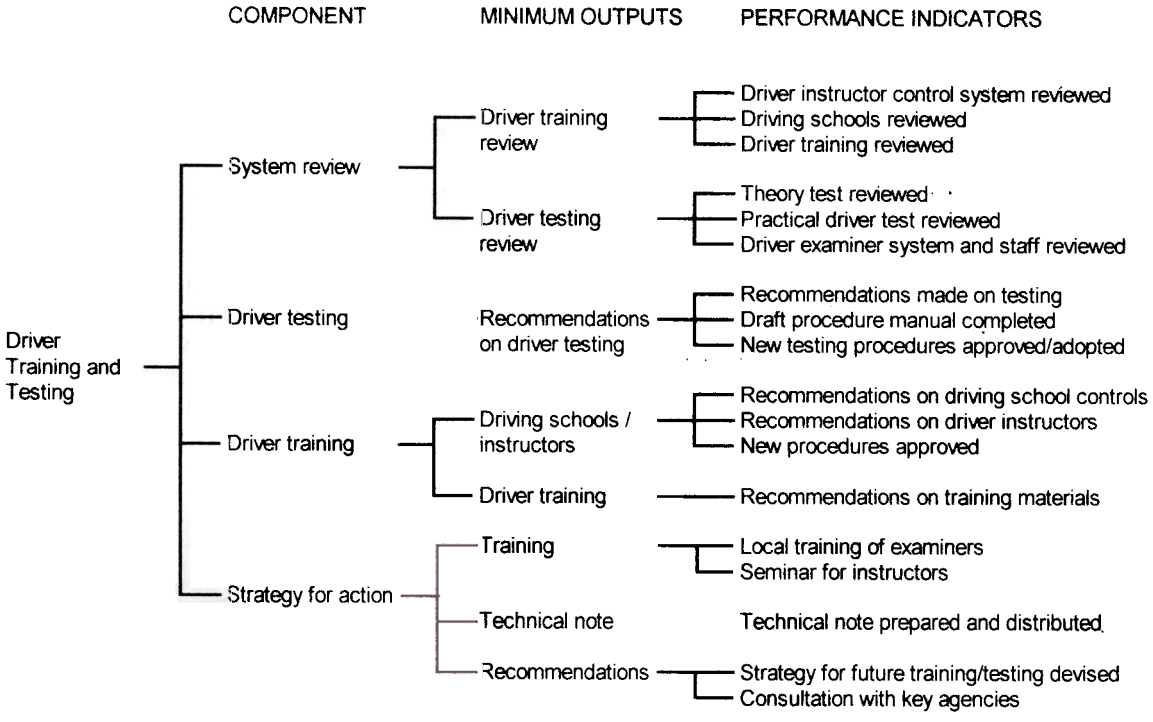


Figure 9: Driver training and testing

freshness. The major components, corresponding minimum outputs and performance indicators for road safety publicity are shown in figure 10.

Road safety education of children should begin at the pre-school level and continue throughout the compulsory schooling years. Initially, the emphasis should be on primary school education. Teaching of traffic education at school is best done by teachers supported as necessary through occasional visits by the police and other safety professionals. The role of such professionals should be to support the teachers in the classroom by providing appropriate guidelines and training materials.

Local curriculum developers should be involved in developing teacher guides and training materials. In the early years, ideas and concepts can be taken from overseas, but these need to be modified to reflect the local experience, needs and cultural situation.

Private sector and commercial sponsorship of road safety publicity should be explored. Petrol, automobile and insurance companies might sponsor campaign plans and programmes.

Regarding road safety education for children, the main costs involved relate to technical assistance in developing appropriate curriculum materials (the bulk of which has to be done in-country by local specialists and therefore has to be funded by the government) and the cost of printing and publishing road safety teacher guides and safety materials for use by children. There are also costs involved for in-service training of existing teachers and introduction of training modules within teacher training colleges. International funding agencies can often assist in the funding technical assistance and some production costs for the initial materials such as the teacher's guide. Some financing through bilateral funding may also be possible.

4.9.7 Road safety infrastructure Improvements

Accident prevention and reduction and institutional development are the major components of road safety infrastructure improvements. The minimum outputs and performance indicators fora DEE framework are shown in figure 11.

Earlier stages would have strengthened the capability of highway authorities to identify and improve frequent accident locations/ blackspots and other road safety infrastructure. Often a traffic and road safety unit would be established and appropriate procedures for safety audit, blackspot improvement, access control and development control established. The focus in the first five-year programme should be to reduce the number of accidents occurring at known accident blackspots and to improve the overall safety of the road network. A number of countries which have adopted safety targets have found that approximately half of casualty reductions were achieved in the medium and longer terms through infrastructure improvements. Some of these infrastructure improvements will be costly investments like new roads and expressways, but much can be achieved from targeted low cost improvements at accident blackspots.

Investment in comprehensive accident analysis and low-cost road safety improvement programmes can be quite cost effective. The emphasis at this stage is on carrying out such programmes consistently and continuously, while at the same time improving the overall safety of the road network by introducing general infrastructure improvements such as road signs and markings and other safety features such as guard rails. Solutions should focus not only on blackspot improvements but should also aim to treat whole routes consistently and to identify general types of sites for similar treatment/mass action plans.

The focus at this stage should be on training additional accident investigators and safety auditors and establishing small safety units within the road and highways agencies throughout the country, investment of funds in low-cost programmes and the development and introduction of safety-checking procedures, particularly where rehabilitated roads pass through small communities.

Infrastructure improvement is suitable for external funding from development banks such as the World Bank and ADB which have financed major road safety infrastructure improvement projects and programmes in many countries. Their support is usually part of larger scale projects on road rehabilitation or improvement.

OBJECTIVE:

Increased capability of local staff in the design, implementation and evaluation of targeted, data-led publicity campaigns and improved children's traffic education through the schools and community involvement.

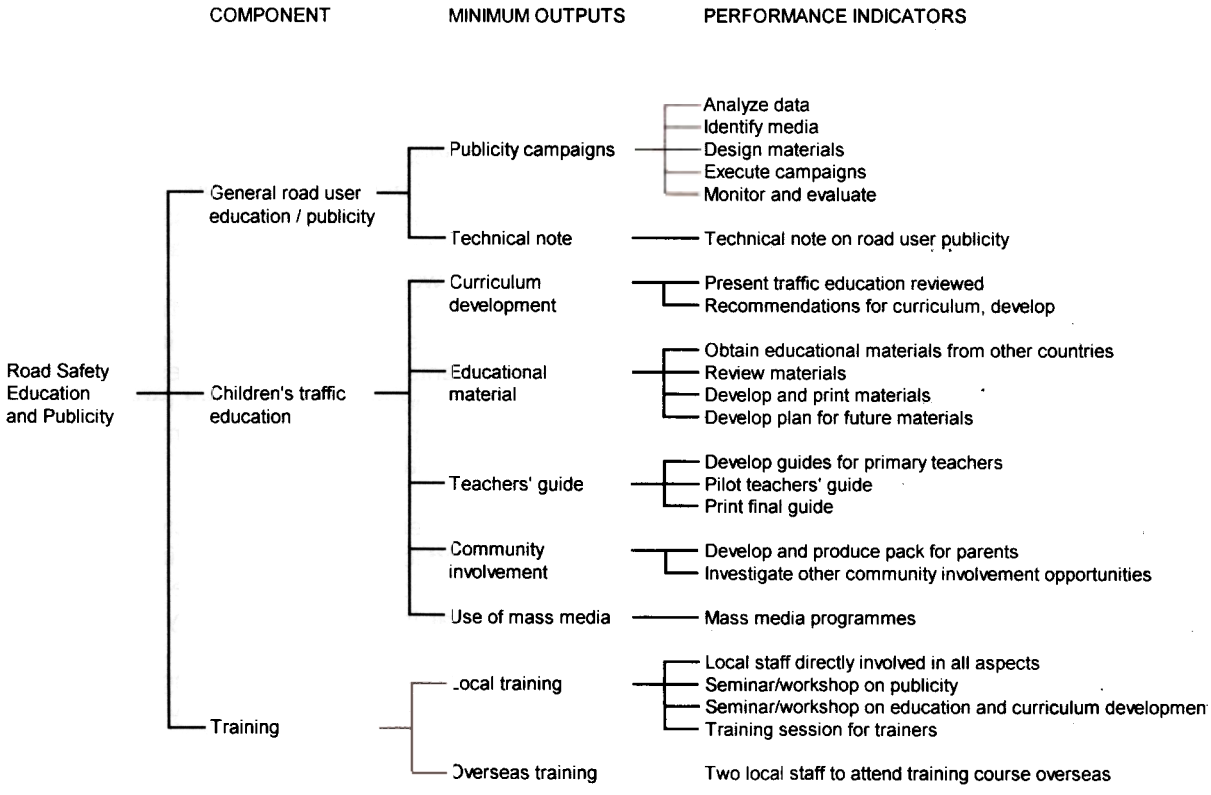
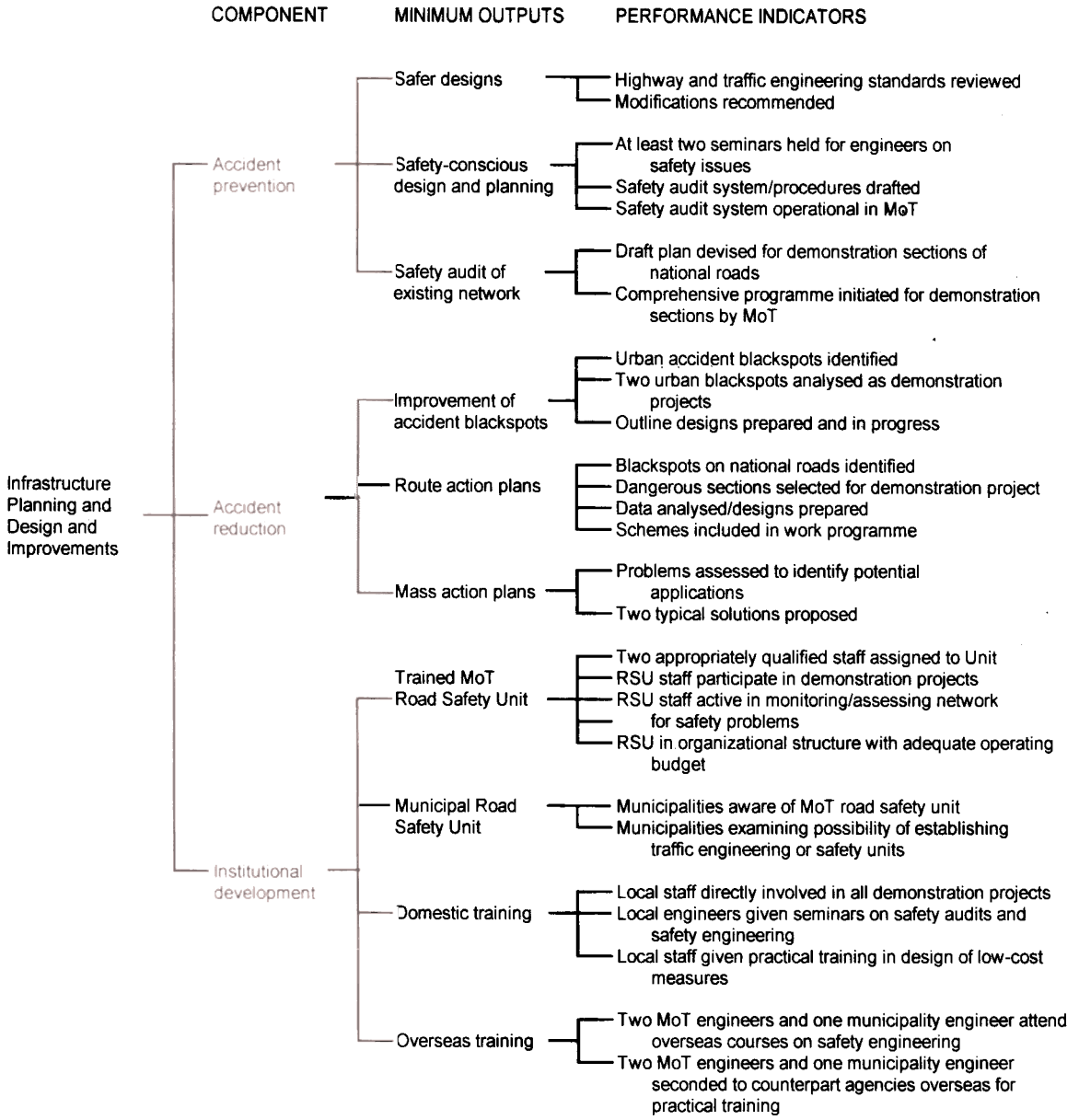


Figure 10: Road safety education and publicity

OBJECTIVE:

Safety-conscious planning and design of future roads and rehabilitation schemes and establishment of methods, procedures and institutional capability to identify, analyse and improve hazardous locations through low-cost engineering improvements



Notes: MoT = Ministry of Transport
RSU = Road Safety Unit

Figure 11: Infrastructure planning and design and improvements

Road safety improvements in urban areas

The greatest number of traffic fatalities and injuries occur in towns and cities of the developing world, and up to 70 per cent of urban traffic deaths are pedestrians. It is therefore necessary to find well-balanced solutions between traffic and living functions in urban areas. The guiding principle must be to establish a hierarchal classification of the road network, so that each road fills only one allocated function.

Accident reduction and institutional development are the major activities to be implemented in this programme, in combination with road safety infrastructure improvements and presented as infrastructure planning and design, and improvements in figure 11. Examples of activities required at this stage include classification of the general road network to create a hierarchy of routes in the towns, introduction of roundabouts to slow traffic and give priority to traffic at intersections and the introduction of speed reduction techniques and devices to reduce speeds in residential areas to 30 kilometres per hour. This requires the establishment of traffic engineering and safety units in the municipal roads departments and the implementation of road safety infrastructure improvements in urban areas.

Infrastructure improvement costs for road safety purposes can be incorporated into various urban traffic and transport projects funded by the World Bank or ADB. This can include funding for technical assistance and specialists to assist in establishing traffic units.

Vehicle safety standards

There is little doubt that vehicle defects are a common factor contributing to road accidents in the ESCAP member countries. Improvements in this area could bring significant benefits for safety standards for vehicle safety are inadequate in many Asian and Pacific countries. System reviews, consideration of options and strategies for action are required. See figure 12. The focus of activity during this stage should be the establishment or improvement of vehicle testing procedures to provide periodic road-worthiness inspections. Initially, the objective should be to ensure that basic safety-related items such as brakes, lights, tyres and steering wheels are checked. Special equipment should be introduced to measure and strengthen the effectiveness of such systems.

Road safety standard inspections do not necessarily have to be undertaken directly by the government. In many countries, it is now common practice to delegate or franchise vehicle testing to the private sector for inspections of standards and specifications established by the relevant government ministry, usually the Ministry of Transport. The concessionaires can be limited in number, but are required to satisfy criteria relating to the equipment, staff and size of premises according to government specifications. A concessionaire system is advantageous to the government because it does not need to invest in equipment-testing stations and staff. The concessionaire provides this investment in return for a concession to operate vehicle inspections for an agreed period of time. Part of the fee collected, for example 10 per cent, could be passed on to the relevant controlling ministry to allow the government to establish an effective control system to monitor and supervise the concessionaires and carry out a programme of random roadside inspections to provide enforcement. In some countries, the government continues to provide the testing facilities for public service and heavy goods vehicles, as it has a responsibility when it licenses or authorizes such vehicles to be used by the public.

There is no need for much funding to establish vehicle safety standards so most of the costs will need to be borne by the government. Some technical assistance may be needed, which can be financed by development banks or bilateral agencies, but actual investment should, wherever possible, be through a franchise system, as there are private sector operators interested in providing such services. Wherever possible, it should be feasible to arrange for control mechanisms and systems to be financed directly from a levy on the vehicle inspection fee.

4.9.10 Emergency assistance to road accident victims

Many countries do not have effective assistance for road accident victims, often due to the high cost of providing such facilities. If so, it is necessary for the government to organize and improve the emergency rescue system. One of the most important measures is to set up standards for response times to emergency calls.

OBJECTIVE:

Critical review of possibilities for introducing inspection of vehicle safety standards and development of recommendations for development and implementation of an appropriate vehicle inspection system which will deter use of defective and unsafe vehicles on public roads

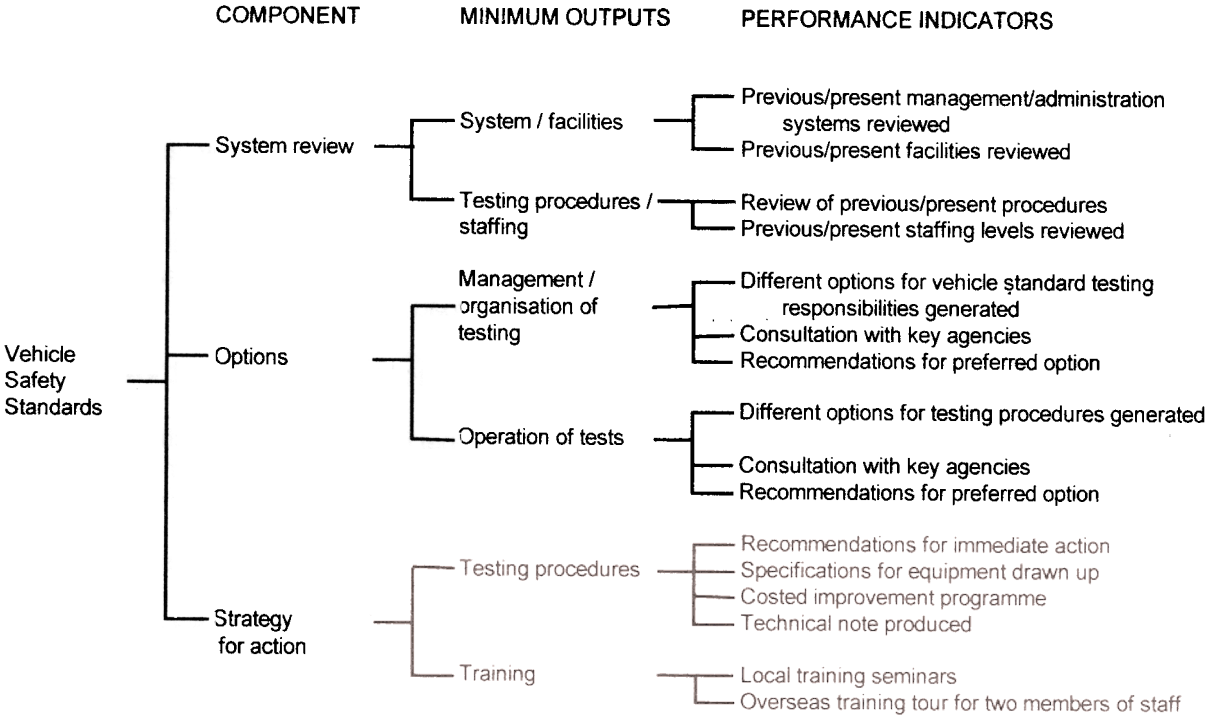


Figure 12: Vehicle safety standards

Although at first it may be possible to use either a network of voluntary services (such as St John's Ambulance or the Red Cross or Crescent) or highway patrols or fire stations to provide initial assistance, in the longer term it will be necessary to develop an effective emergency ambulance system. A DEE framework is presented in figure 13 which shows the necessary components with corresponding minimum outputs and performance indicators of emergency assistance to road accident victims.

There are different approaches to the provision of emergency care, such as by the "scoop and run" method, where emphasis is on getting victims quickly to a hospital or medical facility, or by providing trained, well-equipped ambulance crews at sites to assist victims. Whichever approach is adopted, quality care will require adequate equipment and trained personnel. Significant investments may be needed. For hospitals, this may require improving equipment and procedures in the emergency ward and information on providing basic first aid to motorists. This may mean investment in both vehicles and emergency resuscitation equipment in the vehicles, as well as communication systems. It is also necessary to ensure that the drivers of such vehicles be given training in first aid and in the treatment, handling and transport of injured people.

Funding for emergency assistance is needed for improved facilities in emergency wards, equipment and the establishment of a nationwide-system of ambulance services. In the long term, such costs may be borne by the Ministry of Health or by the insurance sector, since reduced casualties and deaths will result in lower insurance pay-outs. Some funding may be available from international agencies for the capital investment needed in the early stages. In the long term, however, it is the country's Ministry of Health which must allocate sufficient resources for such activity.

4.9.11 Road safety research

Road safety research provides the framework within which policy decisions should be made. It is therefore very important to have adequate research on the nature and characteristics of the problem and the effectiveness of countermeasures which may be implemented. Research is also needed into alternative strategies and policies which may be effective in reducing the numbers and severity of casualties. Research is normally undertaken in universities or institutes and needs to be funded by the central government or the ministries which use the research as part of their work.

Unfortunately, the likelihood of obtaining external assistance with research funding is very limited, although the British DFID has carried out or assisted research activity in the ESCAP member countries. Generally, the international development banks do not finance research, although some funding may be available through the bilateral agencies. The government needs to allocate funds for research in order to ensure that effective research is being undertaken as part of the overall efforts to improve road safety.

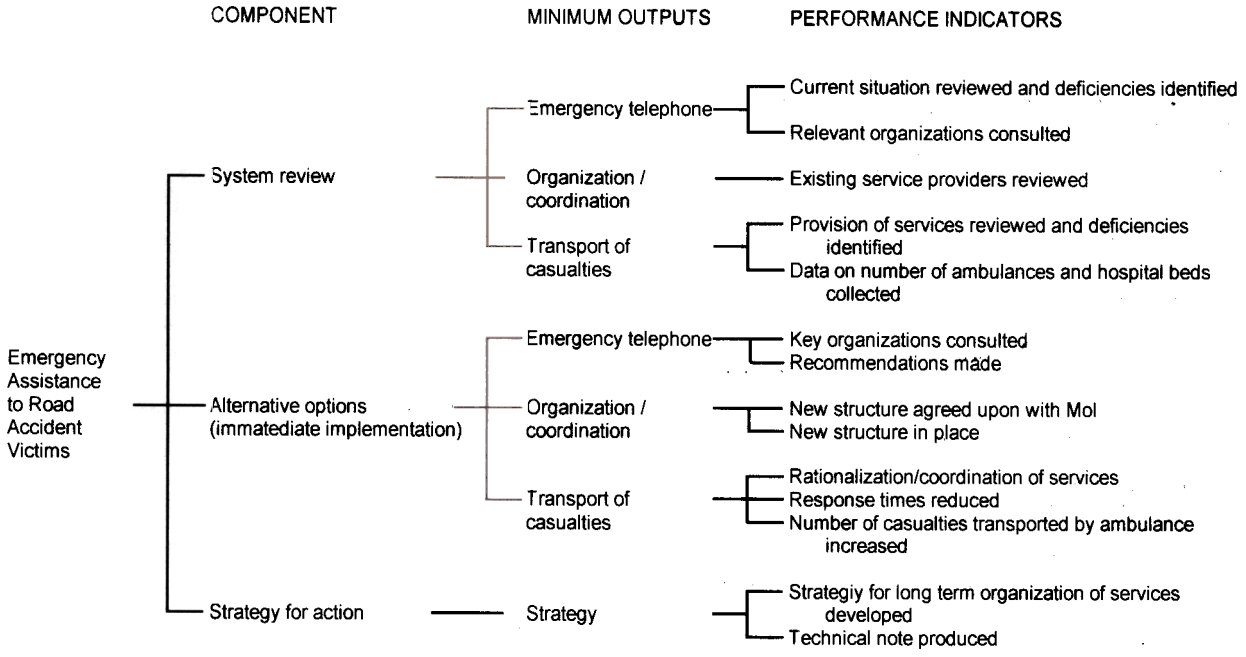
4.10 Impact of Stage II activities

The net impact of Stage II activities should be that local professionals are able to address the road safety problems facing the country by the end of the priority action plan. In particular, there should be data on accidents available to all key agencies, and the scale, nature and characteristics of the problem should be clear. There should be a coordination mechanism (such as a national road safety council) active and effective in carrying out core safety activities. Increased sponsorship should be

Ambulances need to provide effective emergency medical care

OBJECTIVE:

Critical review of the existing emergency assistance available for road accident victims and development of recommendations for phased establishment of a coordinated and effective emergency response capability nationwide.



Note: MoI = Ministry of Interior / Home Affairs

Figure 13: Emergency assistance to road safety victims

obtained from the local insurance industry, major petrol companies and chambers of commerce or other commercial agencies. Government ministries should be investing in road safety as part of their normal budgets in each sector as they have more understanding of the losses sustained by the country from road accidents.

As the example from Fiji illustrates, even a fairly small road safety component (in this case, about US$ three million within a rehabilitation project costing US$ 80 million can have an immense impact upon the capability of local organizations and institutions to tackle the problem. Apart from installing appropriate systems and procedures and developing guidelines and systems for improvement and training of personnel, the various actions under the priority action plan in Fiji will lead to long-term improvements in road safety there. Other countries taking advantage of the availability of funds from development banks and funding agencies can also implement road safety action plans and programmes which will save many thousand people from being killed, injured or crippled in road accidents every year and vast resources being lost to their economies.

Once activities are underway, it is often possible to finance further road safety improvements as part of follow-up aid-funded projects.

Introducing a new road safety council

Chapter 5 IMPLEMENTATION OF FIVE-YEAR NATIONAL ROAD SAFETY PROGRAMMES STAGE III

5.1 In-country conditions conducive to Stage III activities

By Stage III, the government may have received some technical assistance to implement a road safety action plan. An improved accident data system should be in place, with suitably trained local staff operating it. Analysis of blackspot locations and characteristics of road user groups most at risk should be conducted regularly. A national road safety council with subcommittees providing policy guidance and some financial support to road safety committees in municipalities and provinces should be in existence. Road and highway engineers and authorities should be skilled in basic accident blackspot improvement work and undertaking blackspot improvement programmes on national and provincial roads. Efforts should already be underway through the national road safety council subcommittees, to improve driver tests and vehicle inspections and develop children's traffic education programmes and legislation. There should be a core of interested professionals specializing in various aspects of road safety. Road safety research should also be underway in institutions and universities, and the media should be active in putting pressure on the government to take action. Countries that have already implemented a priority action plan will have a number of government agencies and non-governmental organizations involved in improving road safety, thus creating a conducive atmosphere to implement a series of five-year safety programmes.

5.2 The primary focus / purpose of Stage III activities

A particular problem for developing countries entering a high growth stage of motorization is that road accidents and deaths will generally increase in line with the rapid increase in numbers of vehicles and their usage. In such circumstances, it is very difficult to establish politically acceptable targets for road safety. It is also not possible to predict how much road deaths will drop within five years. It is thus better to think in terms of lives saved as a result of particular interventions and countermeasures, even though the actual number of deaths may have increased. This is likely to be more politically acceptable.

The main purpose of Stage III is to consolidate the activities begun during the priority action plan and to implement new activities and interventions which will enable the annual toll of road accident-related deaths and injuries to be reduced. The first five-year plan should be seen largely as an extension of the activities and programmes initiated in the priority action plan. However, actual implementation should be undertaken through national road safety plans which should be prepared annually to guide and focus the activities of various agencies towards achievable targets, but should operate within the context of the overall five-year programmes. Subsequent five-year programmes should build on the previous five-year programmes.

5.3 Typical activities to be undertaken in Stage III under a five-year programme

The types of activities required at this stage are a continuation of the activities begun in earlier stages in all the major 14 sectors discussed above (Section 3.1), with increases in the quantity or quality of each activity. An overview of the major sectors has been presented in figure 2 and the five-year programmes were discussed in Section 4.9.

The selection of activities at this stage depends on the nature of the activities, budgetary allocations, and availability of human resources. Figures 2 and 5 through 13 can be used for preparing a detailed work programme.

5.4 Time- scale for completion

As indicated, five years is a suitable period for the implementation of the first phase of the road safety action programmes. Within the programme, however, an annual plan should be prepared with a focus on particular activities and widely publicized so that all agencies clearly understand what needs to be achieved during the period. The objective of fully safe roads will not be achieved within this period, and the road safety activities will not end in five years. Rather, upon completion of the five-year programme, the goal of having established a system should have been completed. Subsequent programmes can then focus on strengthening the programmes and widening their coverage by involving all concerned segments of the population.

5.5 Resources required and sources of funding

By this stage, the government should appreciate the annual losses to the economy from traffic accidents and be willing to make expenditures on safety as an investment which will, in the long term, reduce economic and social losses.

Costs to establish the necessary procedures and systems to tackle safety problems can vary from several million to several hundred million US dollars. Some countries set aside a fixed proportion of their annual GDP for working towards the reduction of road accidents. For example, until recently, Japan used to invest about half of its estimated annual losses from road accidents (about 0.6 per cent of its annual GDP) in the improvement of road safety.

It is necessary to make significant investment in road safety activities, recognizing that money spent to reduce accidents will be repaid many times over through the savings to the economy.

Funding should be included in the government's annual budgeting and five-year programmes. Only some items in the programme (such as infrastructure improvements or a marking/signing programme on the national network, can be financed by agencies such as international development banks and bilateral aid agencies. While governments should certainly seek opportunities to obtain funding from aid agencies to finance parts of road safety programmes, it has to be recognized and accepted that the primary source of investment in a five-year action programme needs to be the country itself. Unfortunately, road safety is an ongoing problem. Completion of the first five-year programme does not mean that the problem has been solved. It will be necessary to have a second and probably more five-year programmes to reduce the numbers and severity of road accidents.

5.6 Monitoring and evaluation of road safety programmes

As with the priority action plan of Stage II, it is essential that the implementation of road safety programmes be properly monitored to ensure that the activities are effective in achieving the objectives and reducing the long-term numbers and severity of road accidents. Five-year action plans specify quantifiable targets concerning the numbers or rates of casualties to make it possible to assess whether the programme has been effective. In addition, monitoring frameworks based on the DEE approach (see Section 4.9) should be established to periodically assess whether the overall objectives are being achieved in each sector. If targets are not achieved, programmes should be reassessed and corrective measures implemented.

Part III
ANNEXES

FIJI'S ROAD SAFETY ACTION PLAN

ANNEX A

The problem

Fiji, like other developing countries, experienced a deterioration in road safety during the period 1988-91. Increasing number of vehicles began to cause problems, rehabilitated roads supported faster traffic through small communities along the national road network and inadequate enforcement and medical services meant that driver behaviour was poor. Injured victims did not get the early medical attention that was needed. There was inadequate knowledge to tackle the problems facing the country and fragmentation of responsibility. Road accident deaths increased steadily annually and peaked in 1991, the year before the commencement of the Road Safety Action Plan.

The development of a strategy and road safety action plan

The Asian Development Bank (ADB) appointed a road safety advisor to assist the Government of Fiji to develop a strategy and oversee implementation of a road safety action plan. The purpose of the action plan was to develop institutional capability to address road safety problems effectively and to oversee implementation of the most urgent improvements over a forty-two month period. Periodic inputs were provided by other specialists working under the direction of the road safety advisor.

Improvements implemented

The improvements implemented covered all major sectors related to road safety and the individual countermeasures were phased to ensure maximum effect. An action plan was devised to make best use of the US$ three million budget for the Action Plan. The strategy adopted was as follows:

a) **Complete funding of key strategic improvements**– needed in order to carry out other activities (for example an improved accident data system).

b) **"Seed" money to encourage desirable developments**– Funds to initiate or support, for a limited period only, selected developments and activities which would eventually be taken over by other funding.

c) **Institution building for safety**– Funds to encourage and reinforce the development of existing Fijian organizations and institutions that could make a long-term contribution to safety by assisting them in developing appropriate organizational structures, working manuals, courses and training programmes to tackle the road safety problems in an efficient manner.

d) **Manpower development and technical assistance**– Funds for specialist training for key personnel so that in due course wider safety improvements could be implemented in Fiji by adequately trained local professionals, for the interim period when specialist consultancy assistance would be required to assist in planning and implementation of the key strategic improvements and the training of local staff through demonstration projects.

Annex A outlines the activities undertaken as part of the Fiji Road Safety Action Plan, and the disaggregated effectiveness evaluation (DEE) framework used in monitoring implementation of the Action Plan is presented in annex B.

A.4 Fiji Road Safety Action Plan

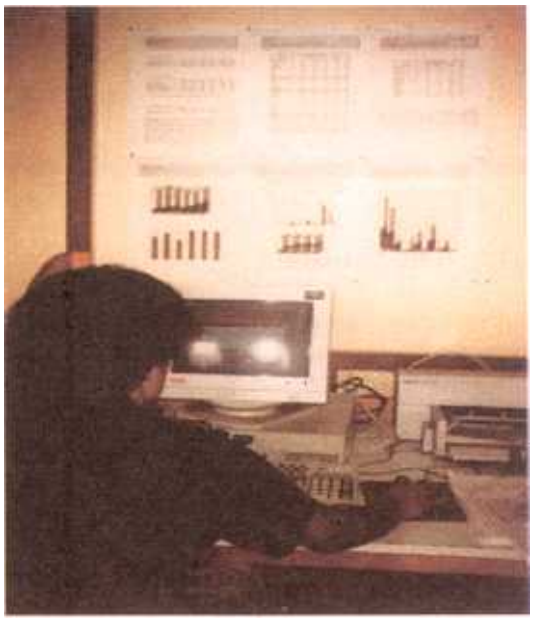
The strategy of the Action Plan was to initiate urgent improvements to tackle problems where there were known and effective solutions available, and to train local professionals in the key institutions, so that they could more effectively implement the wider road safety improvement programme needed in Fiji.

The project was broken down into two phases with the four most urgent projects

(A.4.1- A.4.4) undertaken from the start and the second set of projects brought into play during the second phase of the Action Plan. The sectors addressed and the improvements implemented are presented below.

Accident data system

The existing data system was very poor and allowed only limited analysis could be undertaken, which gave little or no understanding of the characteristics and nature of the road safety problem in Fiji. A new accident data form was developed and introduced nationally after pilot testing. A new microcomputer-based accident data storage, retrieval and analysis system, the Microcomputer Accident Analysis Package (MAAP) from Transport Research Laboratory (TRL), was established at police headquarters, and a Police Accident Unit (PAU) was trained to operate all aspects of the system. The Police Accident Unit is now operating independently and providing annual statistic reports to all key agencies so that appropriate countermeasures can be devised in each sector.



Police Accident Unit

A.4.2 National Road Safety Council (NRSC)

Legislation was developed and passed to establish an NRSC with statutory powers to oversee road safety improvement. A building was provided for the NRSC headquarters and four vehicles were provided for publicity exhibitions. Videos, overhead projectors, and other training equipment were provided to assist in carrying out education and publicity activities and road safety materials were produced to raise public awareness. Funding mechanisms were included in the legislation so that a levy of 10 per cent was applied to all third party insurance policies, to be handed over to the Council. Some staff were seconded from other member agencies of the NRSC, and other staff, such as the Executive Director and technical staff were hired directly by the NRSC. The Council is now fully active and carrying out publicity and education activities all over Fiji through a network of local and municipal councils.

NRSC executive sub-committee

Infrastructure improvements

A small Traffic and Road Safety Unit was established in the Public Works Department and the staff was trained in carrying out accident prevention and reduction activities. The accident prevention activities included the introduction of safety audits, improved access and development controls and training in road

Road marking to improve safety

safety issues. The accident reduction activities included identification and elimination of the worst accident black spots, the implementation of route action plans and mass action plans and the development of traffic management schemes for the main towns and urban areas in Fiji. Guidelines and procedure manuals were prepared for the Unit, which is now able to carry out effective accident prevention and reduction activities and provide advice to other divisions and municipalities.

Traffic law enforcement

Assistance was provided to establish a Highway Patrol along the major road network and to establish a traffic police course at the Police Training College. Police personnel were also instructed in the use of radar, speed detectors and alcohol testing devices and a number of practical exercises were undertaken to train them in carrying out operations checking for driving under the influence of alcohol, vehicle road worthiness checking and speed limit infractions. Traffic police were also provided with specialist rescue equipment and trained in its use. There is now a reasonably effective traffic police enforcement and rescue capability on Fiji's major roads.

Traffic legislation

As part of the Fiji Road Safety Action Plan, the existing traffic act was revised and a draft act prepared. This act is now awaiting formal approval by Parliament. This, among other things, addresses the issue of overloading and how to deter it using mobile weighbridges.

A.4.6. Traffic education of children

A number of important educational projects were initiated by a child education specialist. These projects included a road safety theatre production which visited schools, university research into road skills training programmes for children, the printing and distribution of guidelines for teachers to provide knowledge about teaching safety to young children, development and printing of a road code and leaflets for parents so that they could be involved in teaching children and development and printing of special school materials. The advisor also trained a road safety education officer and, working with him and the local curriculum development units, developed appropriate teaching materials for children for use in schools. These were pilot tested in eight primary schools. The result of all these activities is that there is now active and effective road safety materials development and teaching in Fijian schools, with long-term benefits for the safety of young children in the country.

Drivers in Suva

A.4.7 Driver training and testing

The main improvements implemented in driver training and testing included the following:

- introduction of new oral questionnaires;
- introduction of standardized licencing test scores and test routes;
- development of comprehensive manuals for all aspects of driver licensing, including licensing of driving schools and instructors;
- monitoring, periodic reporting and analysis of all driver examination results;
- development of a revised road code consistent with revised traffic legislation;
- improving professional standard in the driving schools industry; and

Safety of school children

development of a standard curriculum for driving schools.

During the project, all existing driver examiners were given training in the new procedures. In addition, the specialist advisor worked closely with the local specialists in developing a defensive driving course suitable for Fiji. A defensive driving course for instructors was also developed, and Fijian instructors were trained. The course has been institutionalized and is now available from the Fiji National Training Council. There are now about 20 defensive driver instructors available enabling the Council to draw to conduct courses in the future.

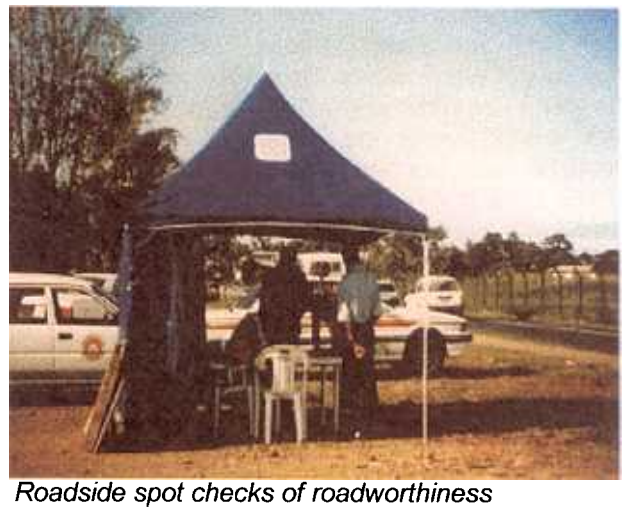
A.4.8. Vehicle inspection and road worthiness

In comparison to the other sectors, not as much progress has been made in this sector, largely because of a question of the mechanical competence of the existing staff engaged in vehicle inspections. Nevertheless, new inspection procedures have been developed which provide a structured approach to the inspection of any vehicle and the establishment and documentation of criteria. All examiners have been trained in these procedures, and comprehensive reference and policy manuals have been developed. Acknowledging the generally poor condition of the infrastructure, the Fijian Government has now embarked on a capital investment programme to upgrade its facilities. Advice has also been given on the possibility of introducing testing by private operators regulated by the Department of Road Transport. Guidance has been provided on the necessary policy, technical standards and administrative procedures. In order to reduce the number of unroadworthy vehicles using the road network, vehicles and equipment were purchased for the Department of Road Transport to use for enforcement of vehicle roadworthiness. The vehicle inspectors, working with the police, were also trained in carrying out regular road-side spot checks and inspections of vehicles.

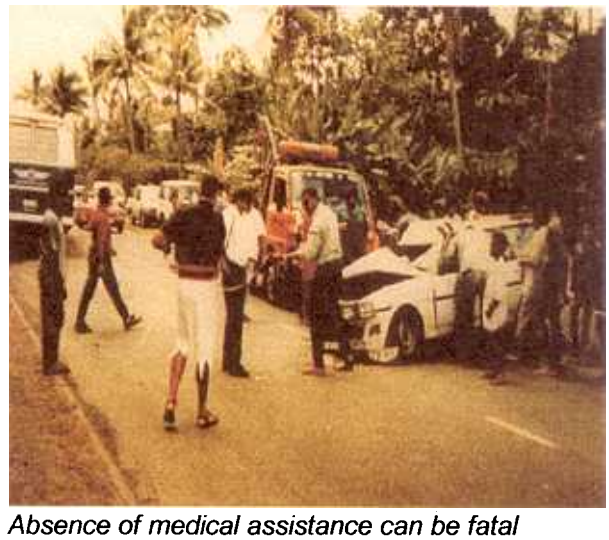
A.4.9. Emergency medical services

The absence of emergency medical services to help road accident victims was a cause for concern, so the project included some specialist advice on reviewing the existing provision of emergency medical services by voluntary agencies, the fire service and the hospitals, and the development of pilot programmes to try to improve the situation. A pilot scheme has been devised, partially drawing upon voluntary

Overloaded cane truck



Roadside spot checks of roadworthiness



Absence of medical assistance can be fatal

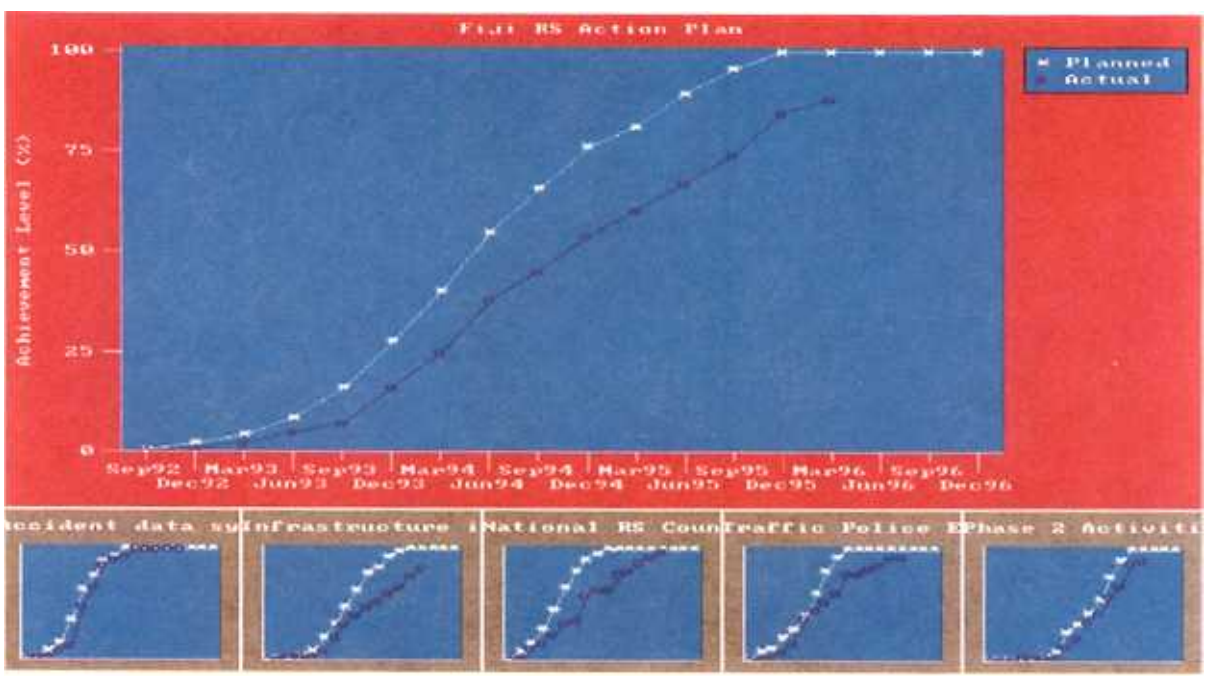
medical system for the Suva area. If this is successful, it will be extended to other major towns and eventually all along the national road network.

A.5 Monitoring and evaluation

There are often serious problems in monitoring the effectiveness of the aid-funded projects, especially in non quantifiable areas such as whether an impact has occurred on the institutions or whether developmental objectives have been attained. This project was monitored using the DEE technique, which is particularly appropriate for monitoring the effectiveness of aid-funded projects and for assessing the achievement of objectives. The project was monitored quarterly by the government, and the results were reported to the aid agencies and safety advisor. The entire action plan was originally expected to be implemented by December 1995, but because of temporary budgeting problems within the Public Works Department, some of the work had to be rescheduled, particularly the infrastructure improvements, blackspot improvements and some of the route action plans, which all had to be postponed until the following fiscal year. As a consequence, the progress achieved with respect to the originally stated developmental objectives in each sector by March 1996 were as follows:

1 Accident data system – 100 per cent
2 Infrastructure (implementation ongoing) – 80 per cent
3 Road Safety Council – 100 per cent
4 Traffic police enforcement – 90 per cent
5 Traffic legislation – 83 per cent
6 Traffic education – 84 per cent
7 Vehicle roadworthiness testing – 100 per cent
8 Driver testing and training – 76 per cent
9 Emergency medical services (implementation ongoing) – 60 per cent

It must be noted that the above percentages are measurements of achievement of the developmental objectives and institutional impact of the project. In most aid-funded projects, achievement of even 50 per cent of the stated objectives would be considered quite successful. Achievement of 80 to 90 per cent of the stated objectives after three to four years is therefore a significant achievement. This project has been extremely successful in building up the capability of local institutions to tackle road safety problems and has resulted in much road safety activity being undertaken in Fiji. Although the primary focus of this Action Plan was institution building, it has already improved road safety and created safer roads. Road accident deaths have fallen by about 20 per cent in comparison to 1991 (the year before the Action Plan commenced). Further decreases in the number of deaths are expected as the benefits of the Action Plan begin to be realised by the Fiji Government.



Example of DEE, showing the achievement of developmental objectives and institutional impact of the Fiji Road Safety Action Plan

SAMPLE MONITORING FRAMEWORKS FROM A FORTY-TWO MONTH ROAD SAFETY ACTION PLAN IN FIJI

ANNEX B

This disaggregated effectiveness evaluation (DEE) framework was used for monitoring the implementation of a forty-two month Road Safety Action Plan in Fiji funded by a US$ three million road safety component within a US$80 million road rehabilitation project, with the objectives of strengthening key agencies and implementing a number of important and urgent road safety improvements.

The DEE framework provides a systematic and consistent vertical and horizontal integration of activities. Activities in a project are disaggregated into a number of subtasks or elements. Each element is then broken down further, until it can be readily specified by the achievement of a number of simple quantitative and/or qualitative performance indicators.

The Fiji Road Safety Action Plan is disaggregated into six DEE frameworks, including a Fiji Road Safety Action Plan and five projects (see figures B-1 through B-6). Each project is disaggregated into several components and each component has at least one minimum output. To monitor achievements each output is further broken down into one and or more performance indicators. The disaggregated projects, components, minimum outputs and performance indicators are assigned a total score of 100 points. Based on the score measured, moving from the lowest to the highest level in the framework, the status of progress can be calculated for each higher level aggregation and finally at the project or Action Plan level.

OBJECTIVES:
Institutional strengthening and development of key institutions and staff in Fiji in order to enhance the capability to develop, implement and oversee improvements in road safety and traffic management nationwide.

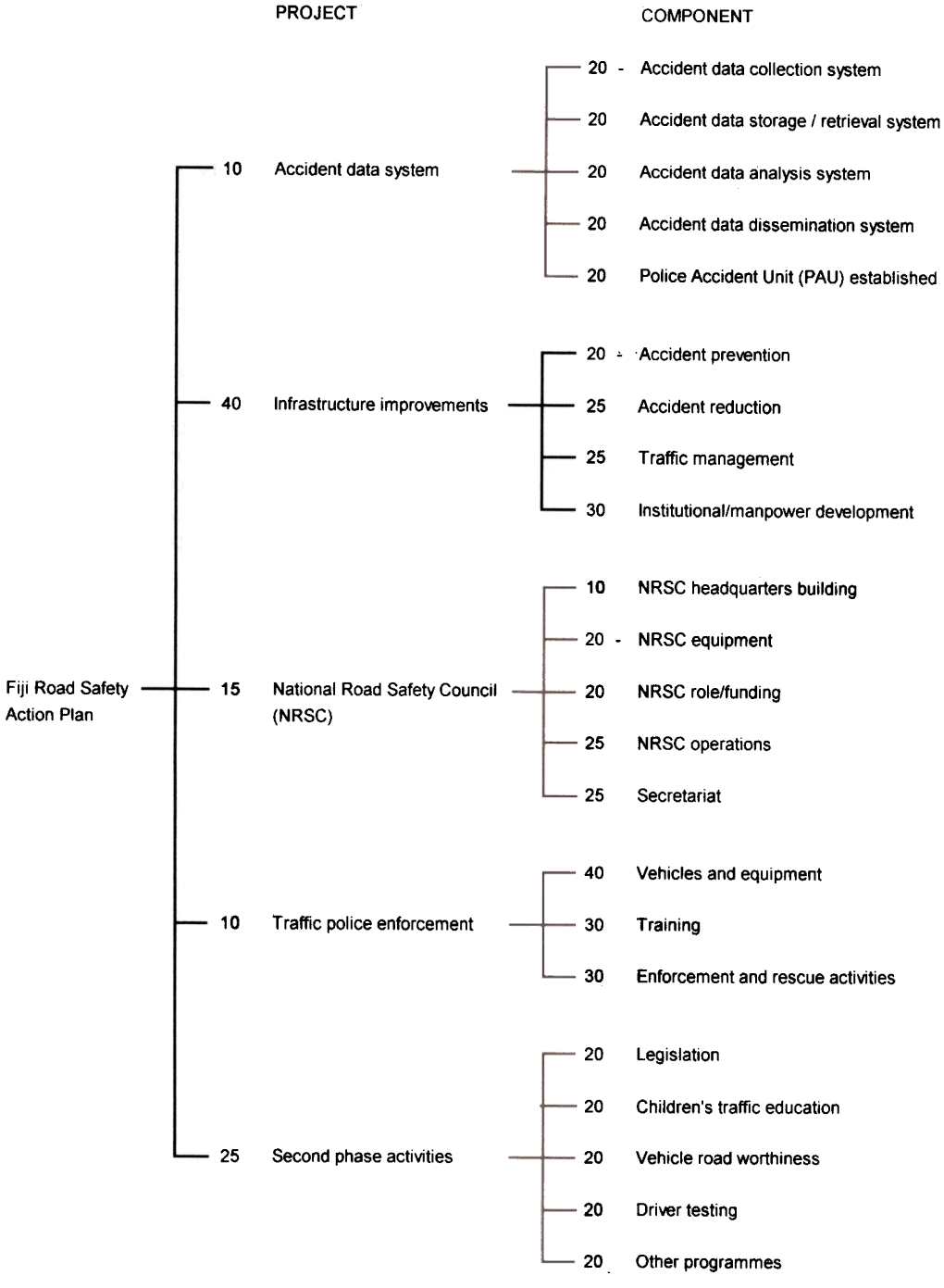


Figure B.1: Fiji Road Safety Action Plan

OBJECTIVE:
An effective accident data system operated by Fijian police personnel which permits the scale, nature and characteristics of the accident problem to be properly defined so that appropriate remedial measures can be developed by relevant agencies to reduce the numbers of injuries and deaths on Fiji's roads

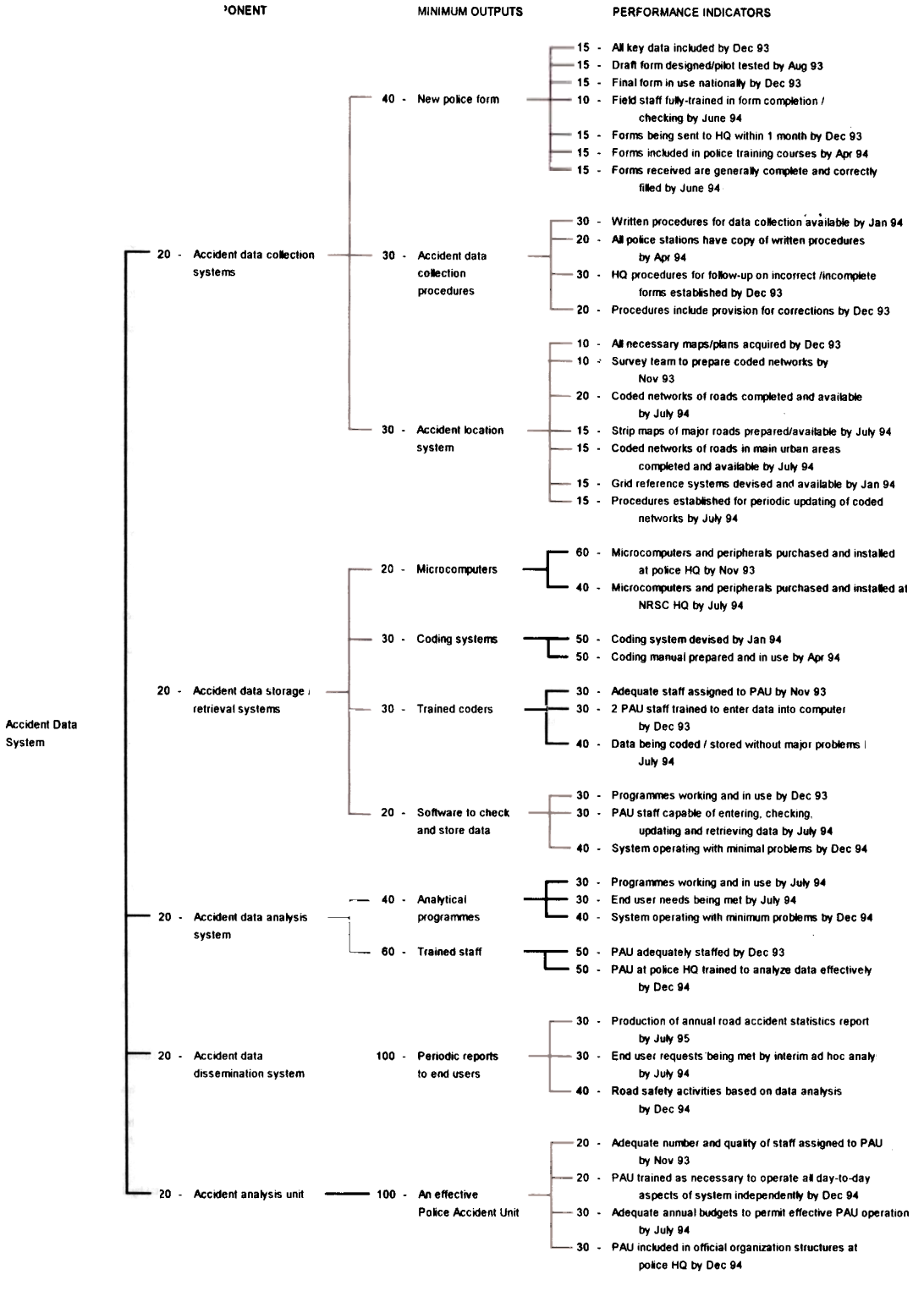


Figure B.2: Project 1 - accident data system

OBJECTIVE:
The development of effective coordinating mechanisms at national and local level to encourage a multidisciplinary approach to road safety which will lead to the development and successful implementation of a comprehensive national road safety pan and strategy.

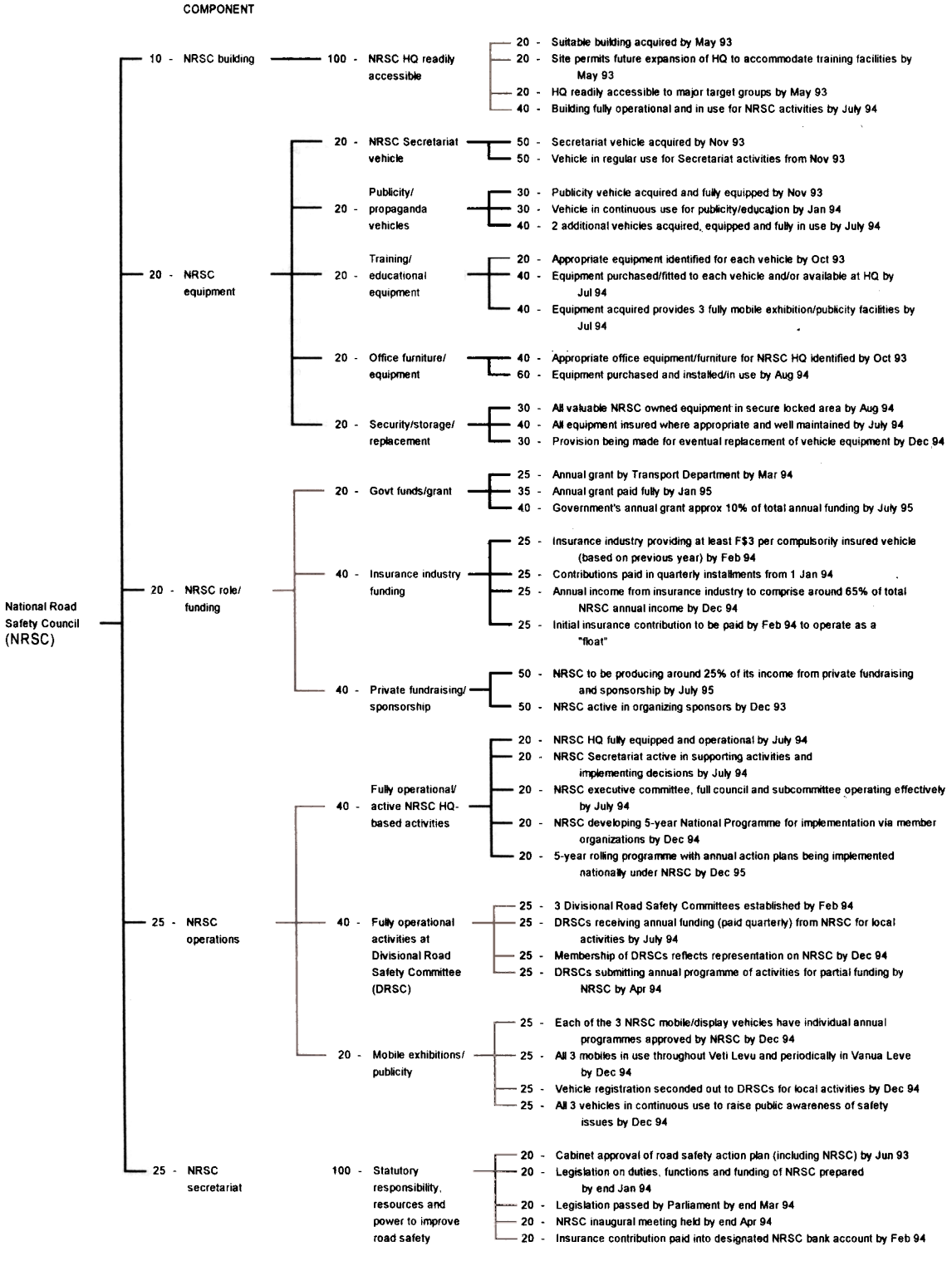


Figure B.3: Project 2 - National Road Safety Council

OBJECTIVE:
Implementation of a systematic programme of accident prevention and reduction to improve hazardous locations on urban and rural roads, to improve traffic circulation in towns, to introduce safety-conscious road planning and design in Fiji and to enhance the knowledge, capacity and capability of a small team to carry out and continue such work independently by the project's end.

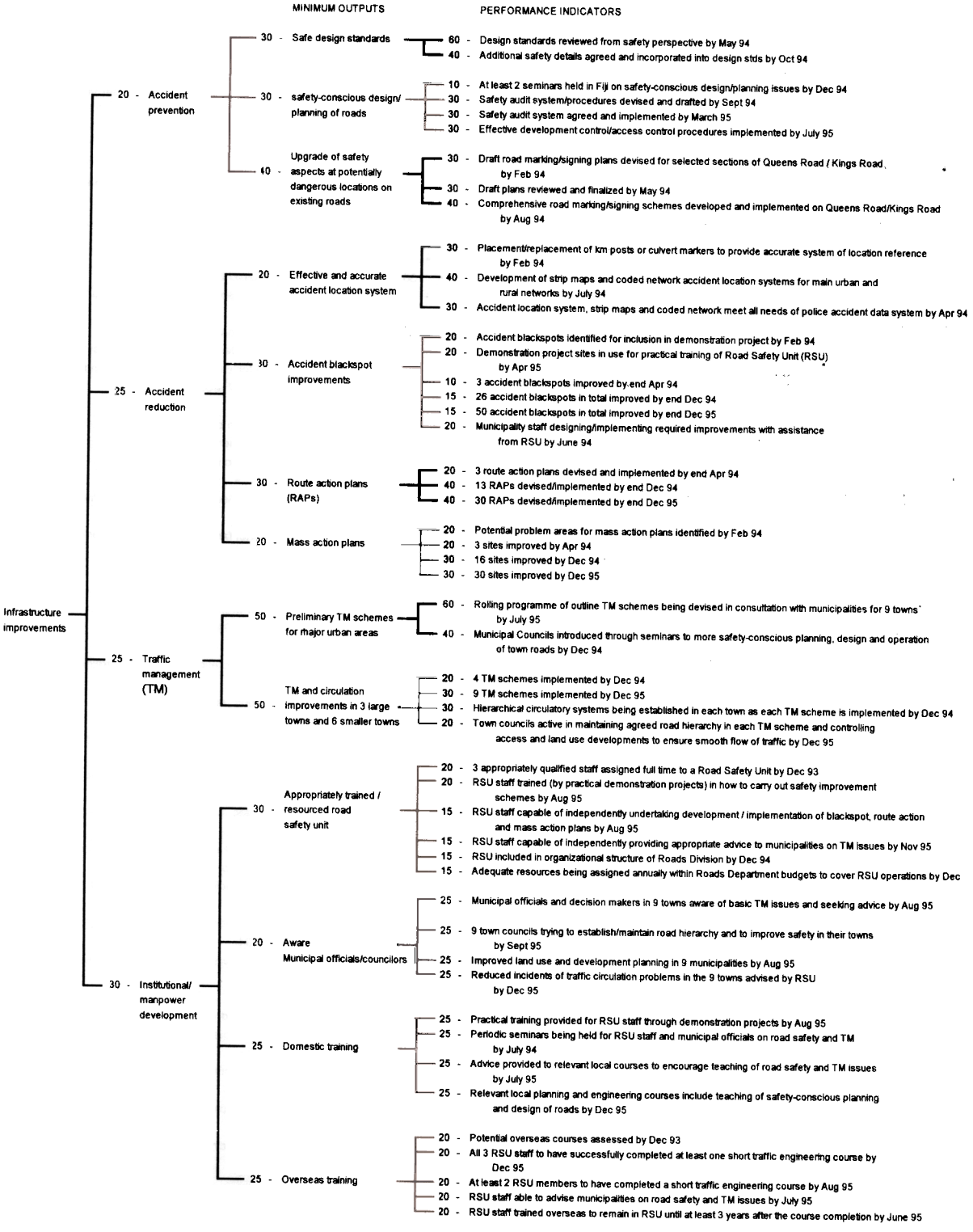


Figure B.4: Project 3 - infrastructure improvements

OBJECTIVE:
Training of highway patrol personnel and the establishment of effective highway patrol activities along the major roads in order to provide quicker assistance to road accident victims and deter dangerous driving behaviour.

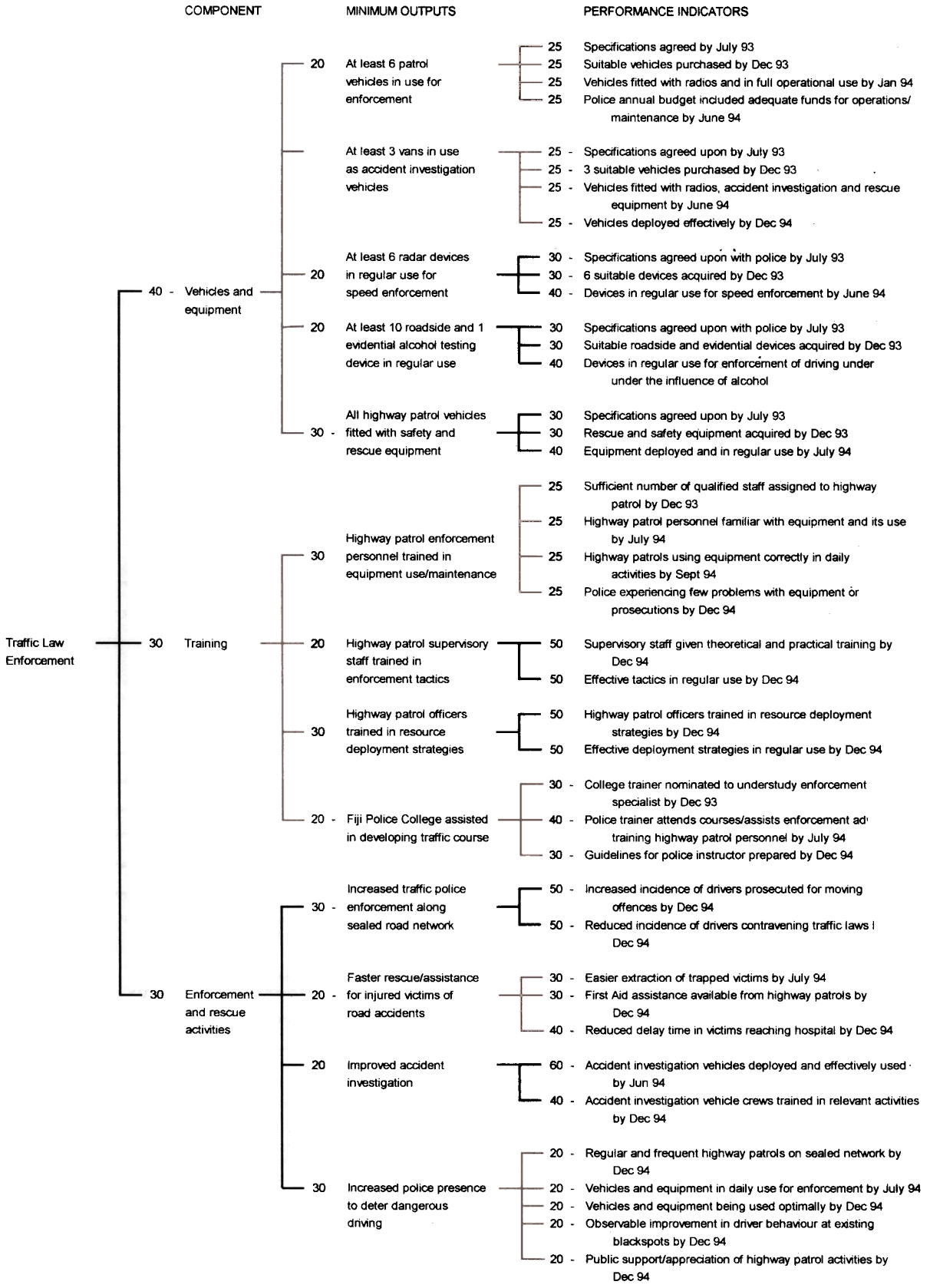


Figure B.5: Project 4 - traffic law enforcement

OBJECTIVE:
Implementation of the most urgent improvements in legislation, children's traffic education, vehicle safety standard inspection, driver testing and other areas as required in order to improve the road safety in Fiji.

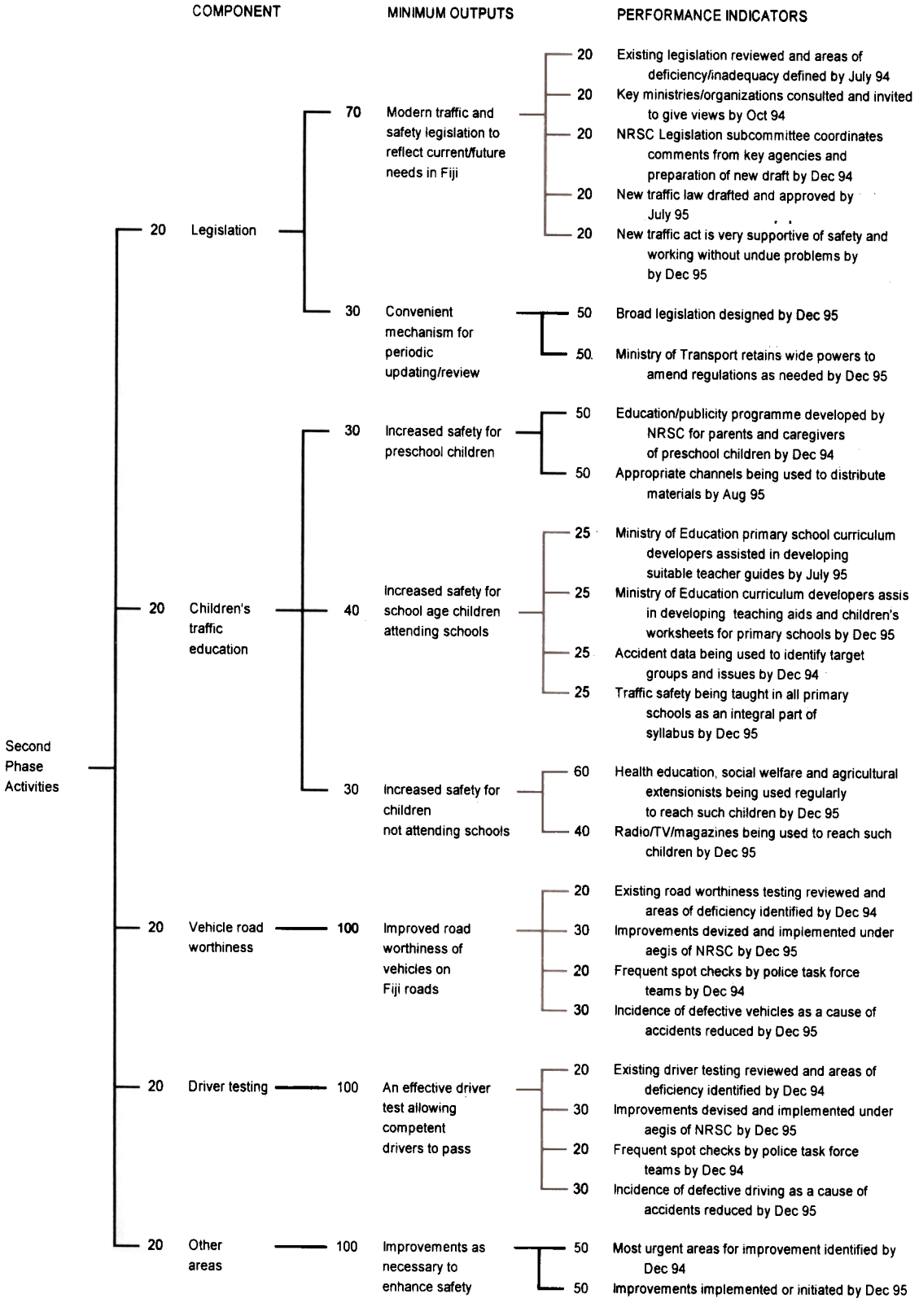


Figure B.6: Projects 5 to 8 - second phase activities

SAMPLE MONITORING FRAMEWORKS FOR A ROAD SAFETY PRIORITY ACTION PLAN

ANNEX C

This annex presents sample monitoring frameworks based on a disaggregated effectiveness evaluation (DEE) objective achievement framework. Activities are disaggregated into minimum outputs to be achieved, with one or more performance indicators. DEE provides a systematic and consistent vertical and horizontal integration of activities. This helps for close monitoring during implementation. This also offers an opportunity for identifying areas which are behind schedule or not achieving objectives, which allows corrective interventions during the course of implementation.

These sample DEE frameworks provide an overview of the aspects to be implemented under a road safety action plan.

An important point to note is that each action plan needs to be monitored, and, if a monitoring framework is used separate frameworks have to be devised which are specific to the particular activities and conditions in a country concerned. Although the general approach is similar, the details of what is to be achieved, time-scales and activities will vary from action plan to action plan.

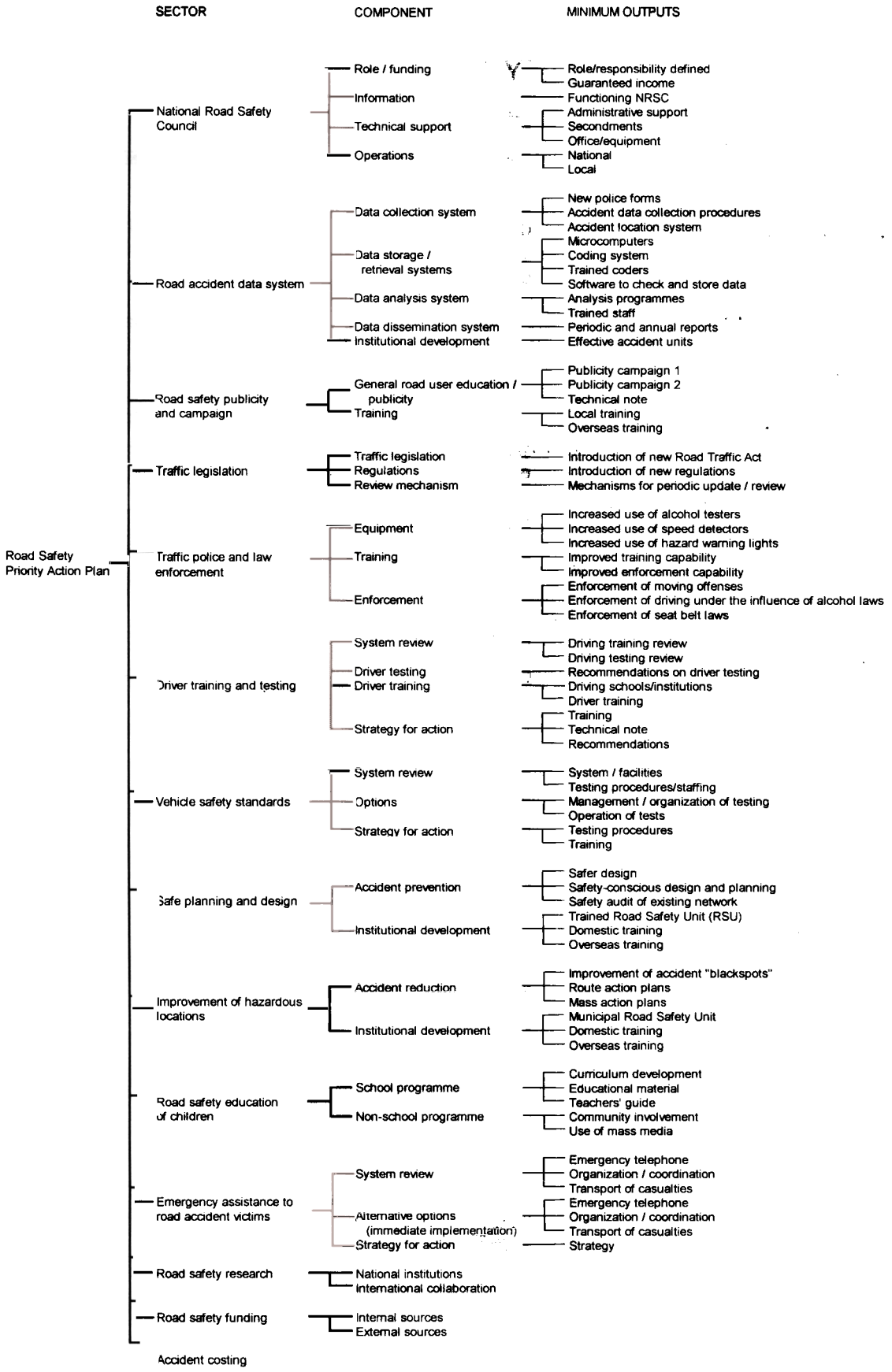
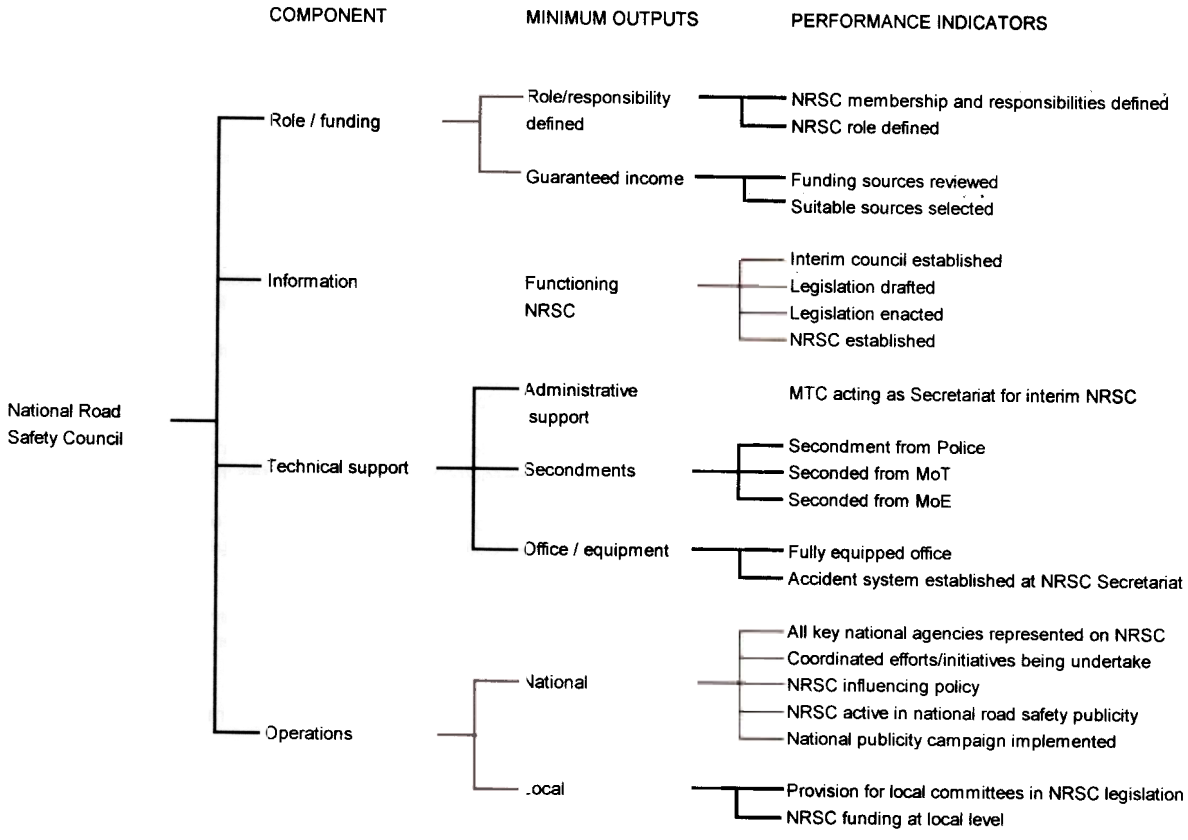


Figure C-1: Overview of the road safety action plan

OBJECTIVE:

Establishment of improved national and provincial coordination mechanisms with representation from all relevant parties and with adequate technical and financial support to coordinate traffic safety activities and publicity aimed at the reduction of traffic accidents and casualties

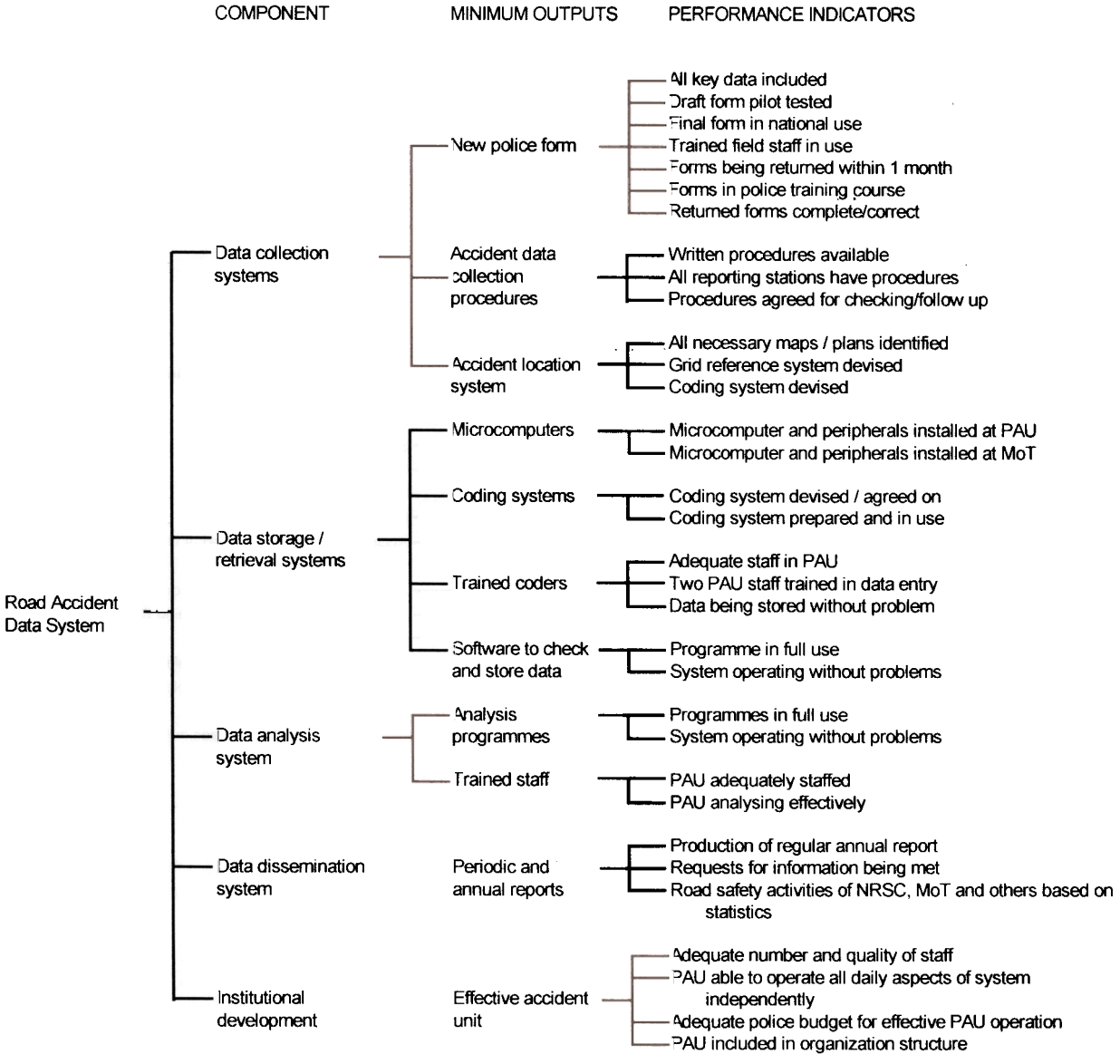


Notes: NRSC = National Road Safety Council
MoT = Ministry of Transport
MoE = Ministry of Education

Figure C-2: National road safety council

OBJECTIVE:

An effective road accident data system which permits the scale, nature and characteristics of the problem to be properly defined and remedial measures devised by relevant agencies

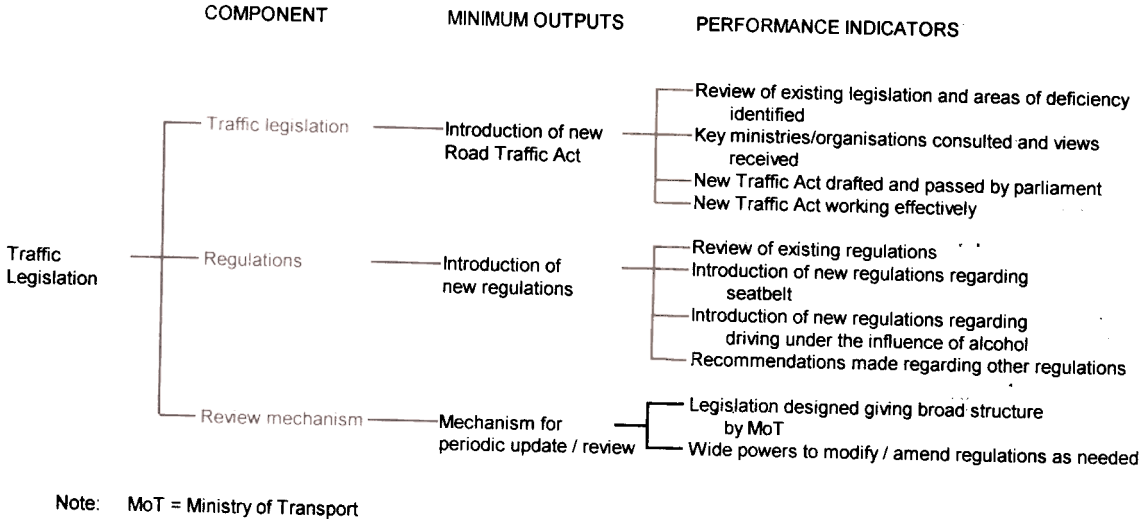


Notes: PAU = Police accident unit
MoT = Ministry of Transport
NRSC = National road safety council

Figure C-3: Road accident data system

OBJECTIVE:

Improved traffic legislation to remove ambiguity and promote road safety and facilitate effective enforcement by traffic police other enforcement agencies.



Note: MoT = Ministry of Transport

Figure C-4: Traffic legislation

OBJECTIVE:

More effective traffic police enforcement through increased use of enforcement equipment and tactics to deter unsafe driving behaviour on major roads.

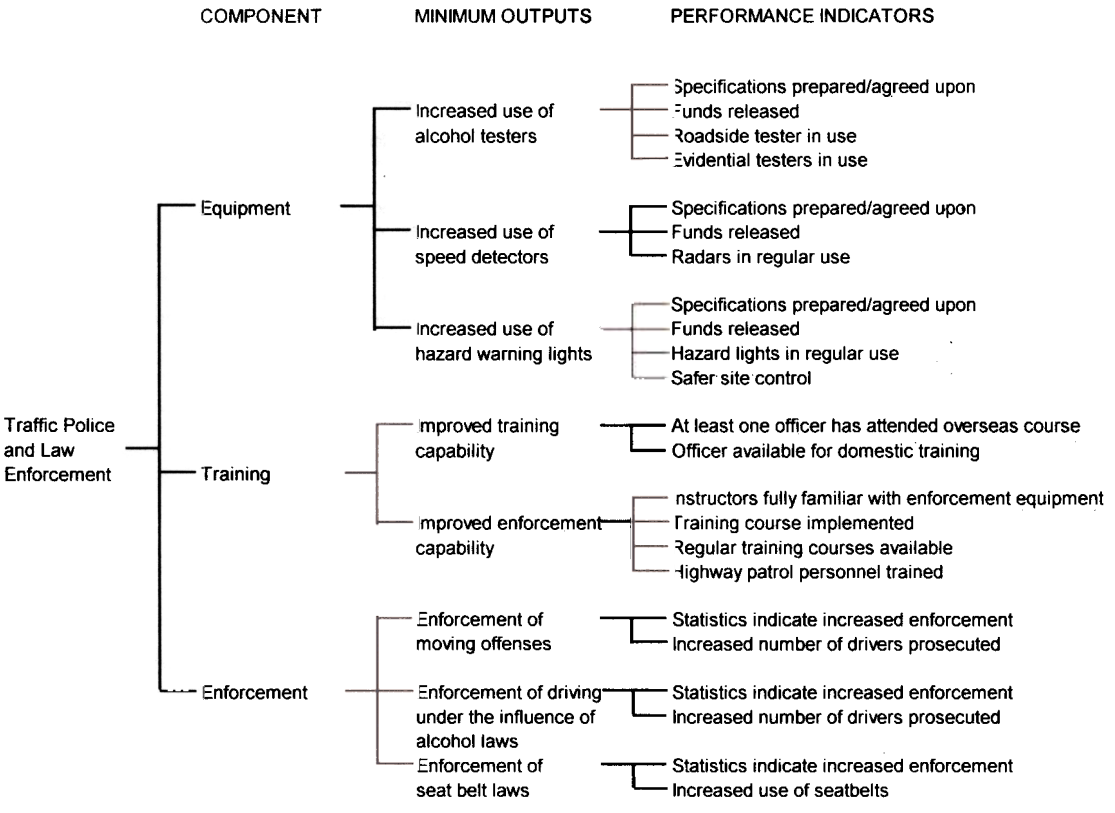


Figure C-5: Traffic police and law enforcement

OBJECTIVE:

Critical review of present driver training and driver testing systems and development of recommendations for implementation of improved driver training and testing systems with appropriate controls to minimize license abuses

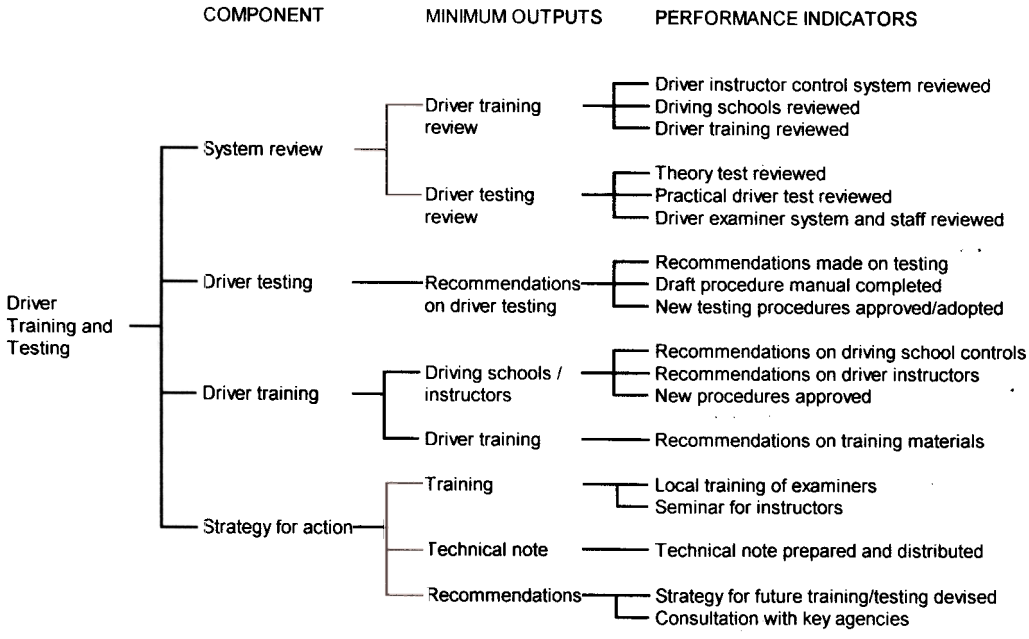


Figure C-6: Driver training and testing

OBJECTIVE:

Increased capability of local staff in the design, implementation and evaluation of targeted, data-led publicity campaigns and improved children's traffic education through the schools and community involvement.

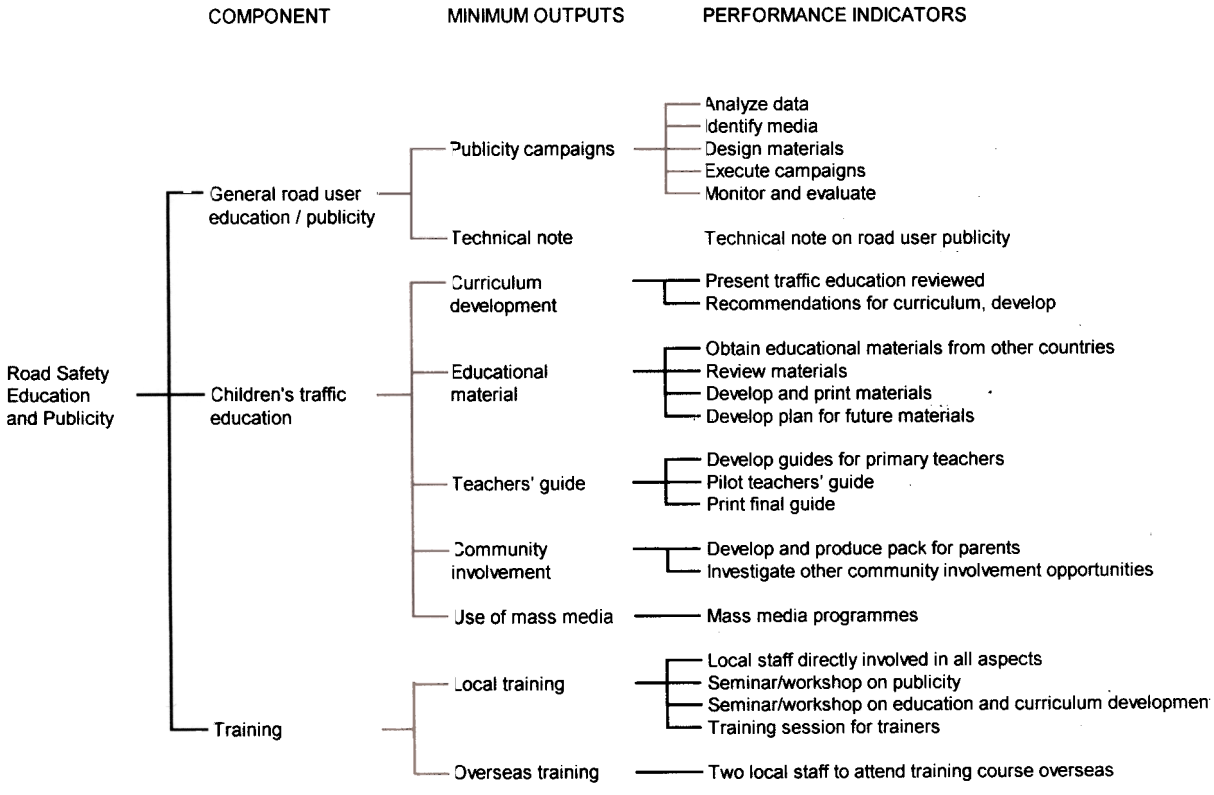
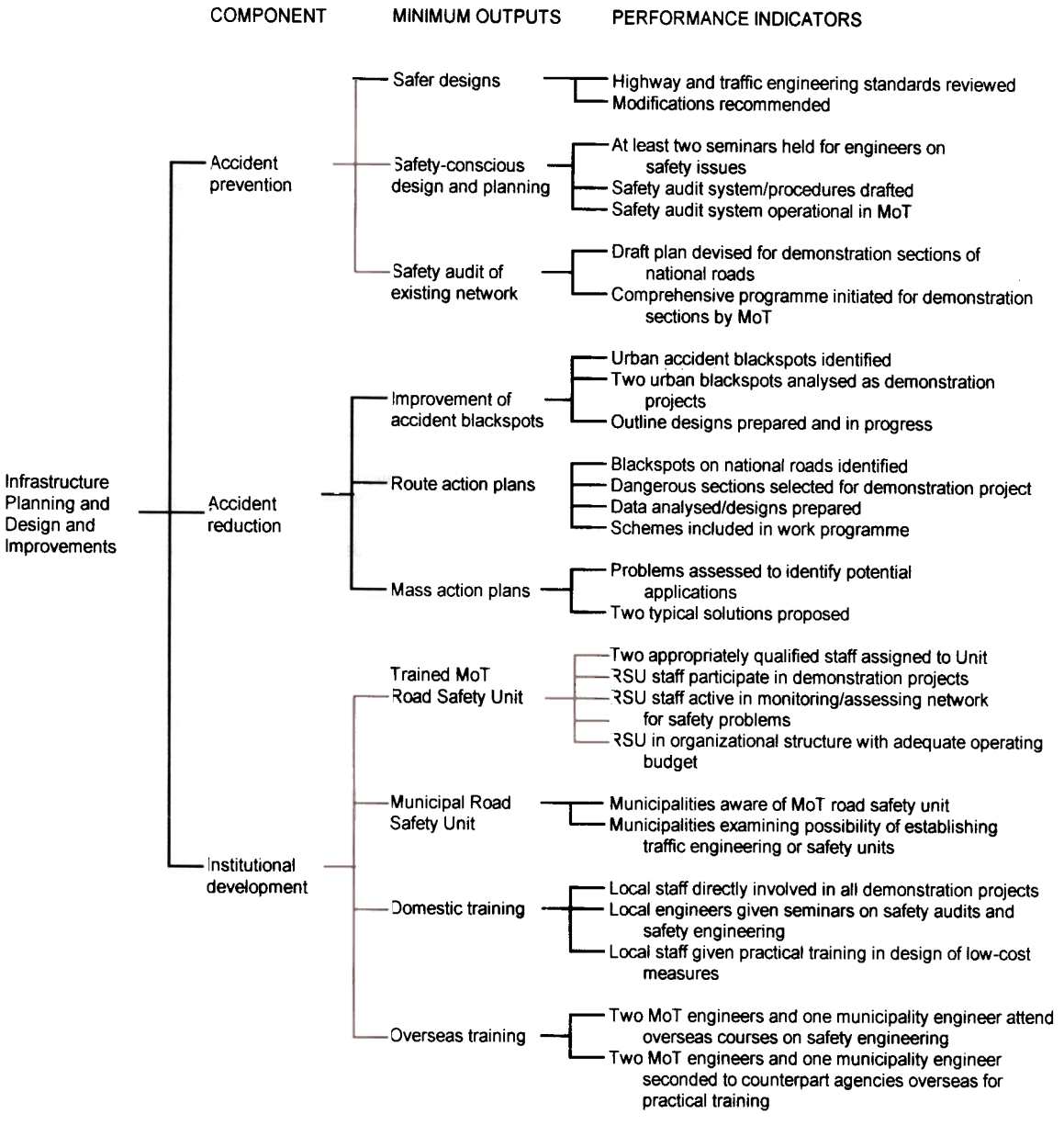


Figure C-7: Road safety education and publicity

OBJECTIVE:

Safety-conscious planning and design of future roads and rehabilitation schemes and establishment of methods, procedures and institutional capability to identify, analyse and improve hazardous locations through low-cost engineering improvements



Notes: MoT = Ministry of Transport
RSU = Road Safety Unit

Figure C8: Infrastructure planning and design and improvements

OBJECTIVE:

Critical review of possibilities for introducing inspection of vehicle safety standards and development of recommendations for development and implementation of an appropriate vehicle inspection system which will deter use of defective and unsafe vehicles on public roads

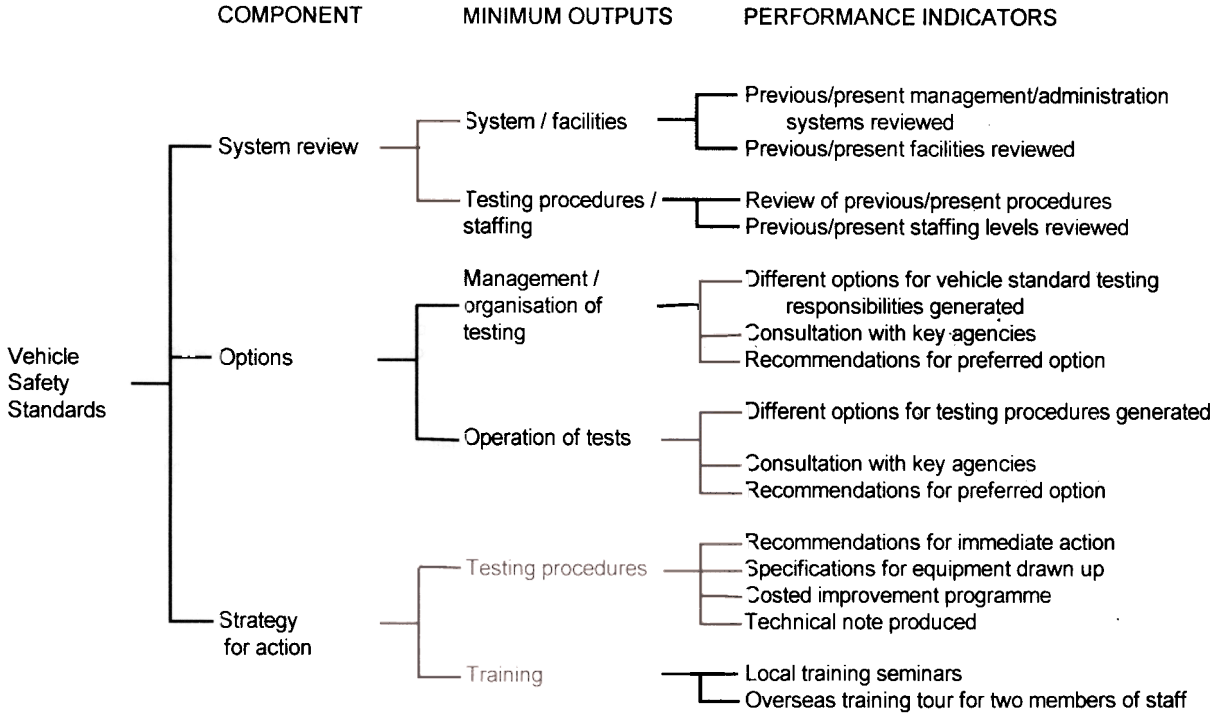
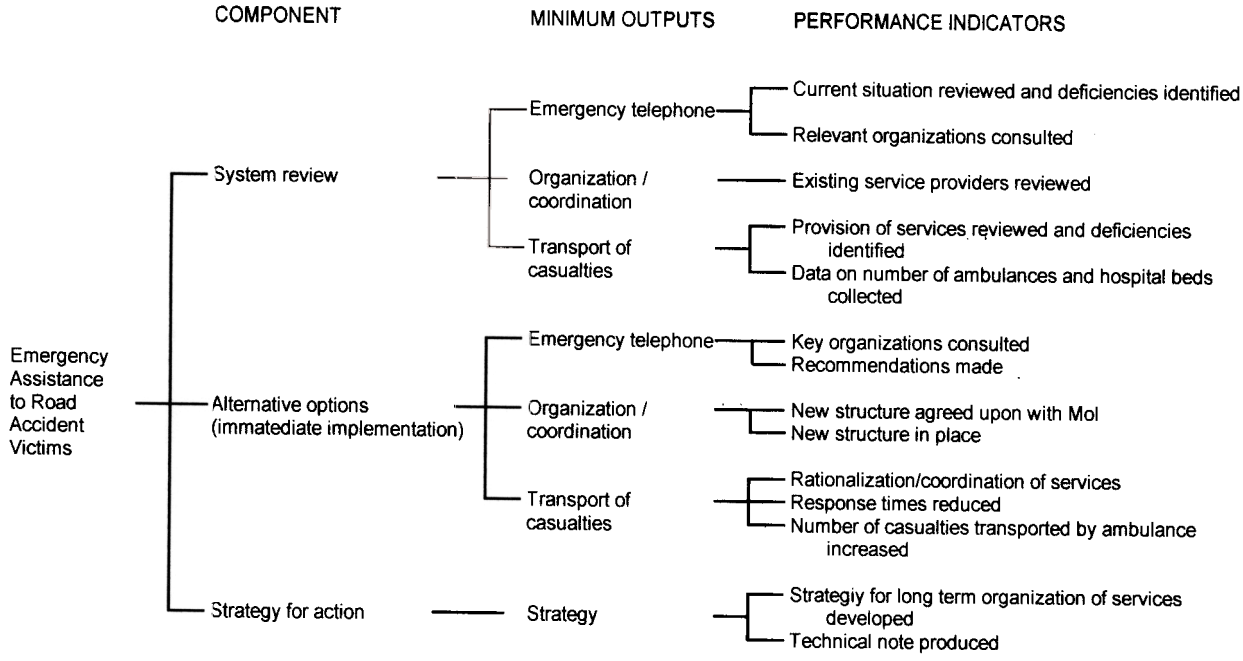


Figure C9: Vehicle safety standards

OBJECTIVE:

Critical review of the existing emergency assistance available for road accident victims and development of recommendations for phased establishment of a coordinated and effective emergency response capability nationwide.



Note: MoI = Ministry of Interior / Home Affairs

Figure C-10: Emergency assistance to road safety victims

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