Chapter

TRAUMA 5

Key Messages

- Since 1995, trauma and other injuries have been the leading cause of admissions to government hospitals in Sri Lanka. Road traffic injuries and home accidents represent a major fraction. The economic burden of trauma has been in the upswing; for 2005, the estimated hospitalisation and other costs of accidents amounted to 14.166 billion rupees.
- Recognising that the onset and deterioration of most accidents can be prevented, the government and its partners have taken vital steps towards safety promotion, improving people's access to emergency medical services (EMS) and enhancing the quality of hospital care for trauma victims. Their shared vision is the provision of timely, appropriate, quality and cost-effective medical care to trauma victims by a coordinated, sustainable trauma system with improved preparedness.
- The introduction of a trauma surveillance system in the Colombo South Teaching Hospital, General Hospital Kalutara, Base Hospital Horana and Base Hospital Panadura demonstrated the operational challenges in generating and using information for trauma prevention, better patient management and policy formulation.
- During the next two years, the objective is to strengthen all the components of the trauma system such that safe community programmes will be initiated, the reach of the existing EMS system and the coverage of the trauma surveillance will be expanded, a system for improving the quality of acute and long-term care will be established and a national policy on trauma will be adopted. Central to the achievement of these objective and outputs is a fully functional Trauma Directorate that will ensure the sustainability of the MoH initiatives on trauma and will be a concrete manifestation of the government's commitment to reducing the growing trauma burden.

5.1 CHALLENGES

5.1.1 GLOBAL TREND

The global mortality data on injuries are made up of several causes **(Figure 5- 1)**. Road traffic injuries cause 22.8% (1/5) of the deaths due to injuries. Various unintentional causes take the second place in causing deaths (18.1%) Suicide comes in third, being responsible for 16.9% of deaths due to injuries. Drowning, fires, falls, poisoning, war related injuries, violence and other intentional injuries make up the rest of the mortality data.

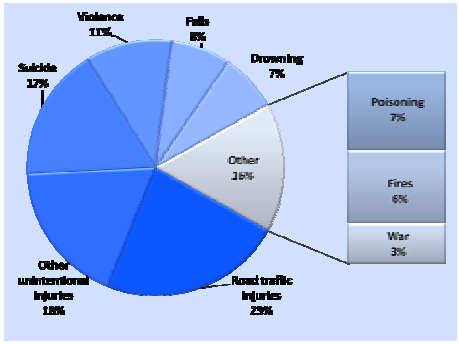

FIGURE 5- 1: GLOBAL MORTALITY INJURY BY CAUSE, 2002[1]

On average, more than one thousand young people over the age of 25 are killed everyday on the roads worldwide. A greater part of the burden of road traffic injuries are in low and middle income countries. In 1990, road traffic injuries ranked ninth among the leading global burden of diseases. By 2020, they are projected to move to the third place.

5.1.2 SRI LANKA: TRAUMA BURDEN

A. OVERALL TREND

In Sri Lanka, trauma and other injuries have remained the leading cause of hospitalisation since 1995. In 2003, 16.7% of total admissions and 11% of deaths in government health institutions were due to injuries.

Health Burden of Injuries:
- No. 1 cause of hospitalisation since 1995
- 1 of 6 admissions in government hospitals (in 2003)
- 1 of 9 deaths in government hospitals (in 2003)

The trauma burden is felt across all districts. It was ranked as the number one reason for admissions in 18 of the 23 districts[2]. In the 5 other districts, it was always among the top 5.

B. ROAD TRAFFIC INJURIES

Road Traffic Injuries (RTI) represent a major fraction of the injuries followed by home accidents. Below is a summary of trends in RTI in 2004[3]:

[1] WHO, 2004
[2] Annual Health Bulletin, 2002
[3] Peiris

- Common type of vehicles – half were due to buses and the rest were to dual purpose vehicles, lorries, containers, three-wheelers, motor car/jeeps;
- Common causes – half were due to factors attributable to the driver such as overtaking, speeding, turning without signals;
- Common time – 7 of 10 accidents occurred between noon and midnight; while 40% of all the accidents transpired between 6 pm and midnight, half of the fatal accidents transpired during this period;
- Common victims **(Figure 5- 2)** – one-third are pedestrians; both pedestrians and passengers were half (55%) of the total number of victims; about half were between the ages of 21 and 55.

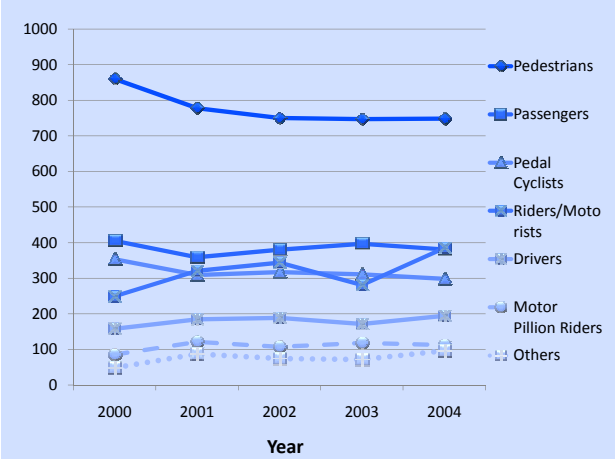

FIGURE 5- 2: DEATHS BY CATEGORY OF ROAD USER, 2000-2004[1]

In Sri Lanka, driving under the influence of alcohol is one of the main factors that account for road traffic injuries **(Figure 5- 3)**. From 1996 to 2000, the number of RTI associated with drunk driving doubled while the number of total accidents increased only by 12%.

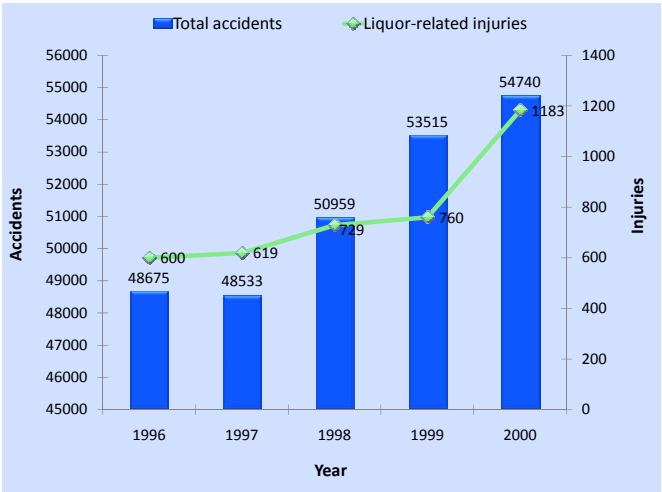

FIGURE 5- 3: LIQUOR – RELATED ROAD TRAFFIC INJURIES, 1996-2000[2]

[1] Peiris
[2] Peiris

c. TRENDS AMONG CHILDREN

Among children under the age of 13 years, home accidents accounted for 56% of injuries. Animal bites and scratches came in second being 21%. Road traffic accidents were the third cause of injuries (8%). Children between the ages of 1 and 4 were mostly at risk of accidental burns[1]. The commonest causes for accidental burns were kerosene lamps, scalding by water and intentional acts.

Hirushi's mother rushed upstairs when she heard a loud bang. Her heart went cold at the site that beheld her. Hirushi was in on the floor in a crumpled heap, unconscious, electrocuted and burnt...

5.1.3 ECONOMIC BURDEN OF TRAUMA

The economic burden of trauma and other injuries has been in the upswing as shown by two independent studies **(Figure 5- 4)**. For the year 2005, the total cost was estimated to be 14.166 billion rupees.

A study carried out in 1992 at the Colombo South Teaching Hospital[3] revealed that the average cost per day of hospitalization was Rs. 290 per patient. Of the total treatment cost, 30.11% was on drugs and dressings while 25.85% accounted for the accident service staff salaries. The highest cost was incurred for treating pedestrian victims. A Study[4] in 2001, which was conducted at the General Hospital Kandy and the Teaching Hospital Peradeniya, showed that the average cost per day for hospitalizing a patient was Rs. 3,415.55. These figures illustrate the startling increase in the cost of injuries at an individual level.

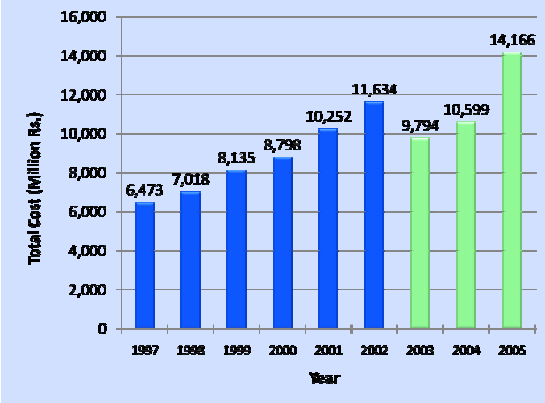

FIGURE 5- 4: TOTAL COST OF ACCIDENTS, 1998-2002; 2003-2005[2]

33-year old Indika was deep in thought at the back of a lorry, when suddenly it swayed and he was thrown off, hitting his foot badly as he landed on the ground. Long weeks of unemployment and absolute misery would follow his unfortunate accident…

"How can I take care of my pregnant wife and my children?"

-Indika, 33 year old labourer,
the sole bread winner

[1] Ariyaratne, 1995
[2] Ratnayake & Jayasinghe, 2002 and Kumarage & Jayarathne, 2007
[3] De Lanerolle, 1992
[4] Dharmaratne, 2001

5.2 INITIATIVES: SOME EXAMPLES

Below are but a few of the local initiatives that have been undertaken in areas of safety promotion, pre-hospital care and quality hospital care.

5.2.1 SAFETY PROMOTION

FIGURE 5- 5: SAFE BOTTLE LAMPS

Every 4 days, the Sri Lankan government spends US$10,000 to treat burn victims. One third of the patients with burns suffer because of unsafe kerosene bottle lamps. In 1992, Dr. Vijaya Godakumbura of "Safe Bottle Lamp Foundation" invented a lamp that was safe and user-friendly **(Figure 5- 5)**. It was approved by WHO, the International Society for Burn Injuries, Ministry of Social Welfare, Sri Lanka Medical Association and the National Committee for the Prevention of Injuries. Besides marketing safe lamps, the NGO also educated communities on first aid and extinguishing flames when clothes catch fire.

5.2.2 PRE-HOSPITAL CARE

The Pre-Hospital Care System in Sri Lanka is diverse with many successful programs including local government operated systems, private services, hospital based services, and NGO operated services. One of the primary objects of the Pre-Hospital Care Sub-committee has been to coordinate the various approaches into a single, standardized, national approach to Emergency Medical Services. An example of the successful local government model is the Colombo Fire Brigade. The Colombo Municipal Council (CMC) and its partners established an emergency medical system in 2005. The CMC Fire Brigade recruited 30 personnel who have been trained as Emergency Medical Technicians (EMT) according to the international standards for pre-hospital care. Many of the EMTs have demonstrated international proficiency by passing the optional Australasian Registry of Emergency Medical Technicians board examination. Currently, with four ambulances operational 24 hours a day, this professional service is available free of charge for the residents of Colombo City.

Other examples of Pre-Hospital Care in Sri Lanka include a hospital based system in Galle, a hospital supported system in Kandy, NGO/community based systems in Hikkaduwa and Moratuwa, a Red Cross supported system, and private systems operated by Medi-Calls, and St. John's Ambulance.

In 2006-2007 over 250 people were trained according to international standards as Emergency Medical Technicians. Two-thousand patients have been successfully transported by ambulances with professional EMS staff, and no reports of harmful care, inappropriate treatment, or secondary injuries were reported.

5.2.3 QUALITY HOSPITAL CARE

Some hospitals established an Emergency Treatment Unit (ETU), Emergency Room or Emergency Department to provide resuscitation and emergency services for conditions that need rapid assessment and management. A few hospitals have set up Primary Care Units (PCU), which are specialised sections where patients are admitted for a short period of time (like 6 hours or less) for diagnosis and management. A PCU is intended to improve patient access to primary care, reduce the workload of the ward staff, increase their time with the patients thereby fostering a better patient-staff relationship, and reduce admissions and hospital expenditure. The Base Hospital Horana documented a 12-16% reduction in admissions to the wards between 2004 and 2006 because of patients being managed at and directly discharged from the PCU.

To ensure quality services for trauma victims, the Accident and Orthopaedic Service (AOS) at the NHSL developed protocols for abdominal and chest injuries as well as guidelines on the use of antibiotics and management of patients with indwelling catheters. The AOS Training Unit, established in 1991, conducts programmes at institutional and community settings on cardio-pulmonary resuscitation, primary trauma care, neuro-trauma care and intensive care.

With the aim of training all medical officers and nurses who are handling trauma victims, the College of Anaesthesiologists and College of Surgeons have been conducting the Primary Trauma Care course, a programme designed for a maximum of 20 participants, at the NHSL or in institutions around the island. About 120 doctors have participated in a two-day course entitled “Advanced Trauma Resuscitation and Initial Management for Surgeons”. A course for nurses on trauma care and mass casualty management has been organised at the NHSL since 1992.

5.3 INTERVENTIONS: INITIAL & PILOT

During the past two years, the MoH has further taken measures to initiate and pilot-test a number of interventions with the end view of reining in the growing trauma burden.

5.3.1 SYSTEMS APPROACH

The MoH adopted the systems approach in developing the trauma system. The approach presupposes a continuum in the onset and progression of trauma starting with the person's exposure to a hazard, followed by the event, occurrence of the trauma and finally the possible resultant disability and/or death **(Table 5- 1)**. The person or victim is the host, the factor causing the trauma is the vector and the mechanical force or energy is the agent. Interventions could be designed towards specific strategic periods (i.e. before, during and after the event) and targets (i.e. host, vector, physical and socio-economic environment).

TABLE 5- 1: HADDON'S MATRIX TO ANALYZE MOTOR VEHICLE COLLISIONS[1]

	Human (host)	Vector	Physical environment	Socio-economic environment
Pre-event	Substance misuse, poor driving habits	Faulty brakes, bald tyres	Slippery road due to rain	Social acceptance of high levels of alcohol use by males
Event	Not wearing seat belt	No airbag	Tree too close to the road	Ineffective enforcement of offences against driving under the influence of alcohol
Post-event	Elderly man, pre-existing medical condition		Slow emergency response, poor rehabilitation programme	Little help for reintegrating rehabilitation patients into society

FIGURE 5- 6: LOGO OF THE TRAUMA SECRETARIAT

A comprehensive trauma care system is set up by integrating prevention, pre-hospital care, hospital care and rehabilitation into one system that includes surveillance and policy development **(Figure 5- 6)**. Such a system, if functioning well, will provide optimal care to injured patients and promote safety.

[1]Holder, 2004

5.3.2 INSTITUTION BUILDING

A. TRAUMA SECRETARIAT

The MoH established the Trauma Secretariat in September 2006 and officially launched it in January 2007. It is mandated to oversee all aspects of trauma system development. It adopted the **vision** proposed during the Policy Dialogue:

- Provision of timely, appropriate, quality and cost-effective medical care to trauma victims by a coordinated and sustainable trauma system with improved preparedness.

Its objective is to strengthen all the components of a trauma system. Its official website is http//www.traumaseclanka.gov.lk and its advocacy theme as reflected in the sticker is "Let's Partner for Our Safety" **(Figure 5- 7)**.

FIGURE 5- 7: TRAUMA SECRETARIAT LAUNCHING STICKER

B. TRAUMA SYSTEM DEVELOPMENT COMMITTEE

The MoH organised the Trauma System Development Committee (TSDC) in June 2006. The TSDC Chairperson is the Deputy Director General (Medical Services I). The members of the TSDC and its subcommittees include the following: Deputy Director and Chief Surgeon of the Accident and Orthopaedic Services, NHSL; heads of pilot hospitals and relevant MoH directorates; representatives from professional bodies, trade unions, civil society and external development partners. The TSDC has subcommittees working on various components of a comprehensive trauma system: System Components, Surveillance, Pre-hospital Care, Clinical Protocols & Guidelines, and Training. Additional subcommittees will be set up such as the one for safety promotion and rehabilitation.

5.3.3 SAFETY PROMOTION

The MoH joined hands with the international community in commemorating the United Nations Road Safety Week in April 2007 **(Figure 5- 8)**. Through a seminar, it impressed upon the media and their audience that road traffic injuries can be prevented and that road safety is no accident. There were presentations on "Night Road Users", "Rider Safety: Use of Helmets, "Role of Private Bus Owners Association on Road Safety", "Role of the National Transport Commission on Road Safety" and "Road Safety Enforcement". An exhibition at the NHSL,

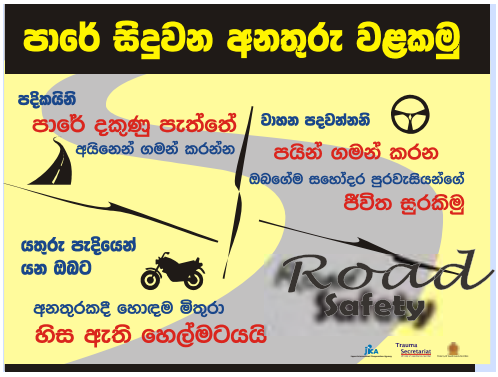

FIGURE 5- 8: ROAD SAFETY POSTER

with the theme “Help Reduce Accidents”, was organised targeting the hospital staff, patients, visitors and schoolchildren. It had stalls put up by the NHSL, CMC Fire Brigade, Department of Police, Friends of Accident Service, Health Education Bureau, WHO, JICA and other key stakeholders.

There were facility- and community-based local activities that were organised under the leadership of the Colombo South Teaching Hospital, General Hospital Kalutara and Base Hospital Horana such as conferences or seminars, poster exhibitions, competitions (i.e. quiz, art, essay and poem), school education programmes and other public awareness programmes (i.e. vehicle parades, street dramas).

5.3.4 PRE-HOSPITAL CARE: EMERGENCY MEDICAL SERVICE

Through the TSDC Pre-hospital Care Subcommittee and its members, the MoH is supporting the existing agencies providing pre-hospital emergency care, and is developing a strong foundation for the future: a coordinated, national pre-hospital care system that is integrated within the Trauma System. Because pre-hospital emergency care is provided in response to disasters, and also utilizes local governmental resources, the committee is also coordinating with the Ministry of Local Governments and the Ministry of Disaster Management to prevent duplication of services and encourage collaboration.

FIGURE 5- 9: PROPOSED MIX OF EMS FOR SRI LANKA

One goal of the committee is to adopt and introduce standardized objectives, examinations, and certifications for the various levels of pre-hospital care training based on international standards, best practices, and the World Health Organization guidelines. It has drafted a proposal for “Emergency Ambulance Certification Guidelines” to ensure ambulances responding to emergencies are properly equipped, stocked, and staff with trained and certified personnel. Additionally, the draft regulations address legal issues related to pre-hospital care including legal responsibility and liability concerns, scope of practice, and personnel requirements.

With the success of the various pilot project models, the subcommittee and its implementation partners plan to expand the system to multiple locations across the country. (Proposed expansion map included.) As the system is expanded and "1-1-0" (the national emergency access number) is operational in communities, community education will commence. By motivating the private sector (insurance companies, bus companies, businesses, etc.), large scale community awareness educational campaigns will be implemented informing the public 'what to do in an emergency' and 'How to request an ambulance'.

The MoH will continue to collaborate with its partners, such as the Colombo Municipal Council, Fire Brigades, Medical Teams International, Sarvodaya, Red Cross, professional organizations and trade unions, external development partners and the private sector agencies in advocating for policies related to pre-hospital care, in particular, and to trauma care in general.

FIGURE 5- 10: EMERGENCY MEDICAL SERVICES IN SRI LANKA

5.3.5 QUALITY HOSPITAL CARE

The TSDC has drafted a matrix on "Sri Lanka Trauma Centre Designation Criteria" that is intended to be used as a guide for categorising units within hospitals that provide care for trauma victims. The MoH categorisation of

hospitals does not correspond to its trauma centre/unit categorisation. Once finalised and approved, then the matrix can also be the standard for the allocation of personnel, development of infrastructure and provision of equipments and drugs.

The MoH has published clinical guidelines on 4 topics that are being pilot-tested in two provinces: “Trauma Resuscitation”, “Management of the Patient with a Burn Injury”, “Management of the Patient with a Head Injury” and “Management of Lacerated and Incised Wounds”. On its part, the TSDC has written up comprehensive clinical guidelines and protocols that are consistent with the recent publications.

Through the Trauma Secretariat, the MoH conducted a survey on existing ETUs and PCUs. It looked at the opinions of doctors and nurses regarding the benefits and disadvantages of having such units. Using the self-administered questionnaire based on WHO guidelines, the study assessed the doctors/nurses competence in performing basic procedures as well as the availability of essential drugs, equipment and investigation facilities.

Three training sessions on the Primary Trauma Care Course were conducted at the Colombo South Teaching Hospital. Doctors (56) and nurses (28) from the GH Kalutara and BH Horana were also in attendance.

5.3.6 TRAUMA SURVEILLANCE

The MoH initiated a surveillance system that can generate evidence for facilitating trauma prevention and better management of trauma patients. It was designed with inputs from several stakeholders who participated in a consultative meeting and technical guidance from the WHO regional advisor for injuries, disability and rehabilitation.

Several tools were pre-tested, pilot-tested and revised. The Trauma Surveillance Record (TSR) was first introduced to the four pilot hospitals, Colombo South Teaching Hospital, Base Hospital Horana, Base Hospital Panadura and General Hospital Kalutara in November 2006. A manual on the TSR was developed to provide background information on the project and to answer frequently asked questions pertaining to the data collection tool. Software was designed to enter the TSR data. Necessary training was given to the hospital staff regarding the technical aspects of the software. The software was designed so it can generate reports according to the institutional needs and monthly reports for the MoH.

Internal circulars were issued by the leadership of the General Hospital Kalutara and Base Hospital Horana. Another circular from the MoH was sent to all pilot hospitals to make the staff aware about the involvement of the ministry on upgrading the trauma surveillance system in Sri Lanka. Forums were held to evaluate and revise the surveillance instrument and procedures, and also to train the participants on the revised Trauma Surveillance Record. A review of the pilot project was done using a special WHO evaluation methodology and focus group discussions.

5.4 THE ROADMAP

After reviewing the achievements and activities during the past year, the Trauma Secretariat and TSDC formulated an action plan that is intended to further strengthen all the components of the trauma system. The roadmap is a product of participatory planning; it reflects the aspirations and intentions of key stakeholders from the ministry, professional organisations, trade unions, non-governmental organisations and other development partners.

5.4.1 PROFILE OF THE ACTION PLAN

- **Project Title**: Improving Trauma Care in Sri Lanka
- **Project Duration:** 2 years (from 2008)
- **Focal Point:** Head - Trauma Secretariat of the MoH
- **Implementing Agencies**: Trauma Secretariat, Trauma System Development Committee and other participating health institutions
- **Target Areas and Beneficiaries**: Patients, staff and residents of service areas of selected health institutions will directly benefit from activities related to safety promotion, establishment of emergency medical services and improvement of the quality of hospital care; stakeholders who are outside the selected health institutions will also gain from the national guidelines, protocols and other policy instruments

5.4.2 JUSTIFICATION

Trauma and other injuries have been the leading cause of hospitalisation since 1995 in Sri Lanka. In 2003, 1 of 6 admissions and 1 of 9 deaths in government hospitals were due to injuries. Road traffic injuries account for a major fraction of all injuries while home accidents are responsible for a majority involving the children. The total cost of accidents in 2002 was estimated to be 14 billion rupees.

The MoH has prioritised trauma and other injuries. It has fostered the establishment of Emergency Treatment Units and Primary Care Units. The Health Secretary chairs and the NCD Director serves as the secretary of the National Committee for the Prevention of Injury. A Policy for the Prevention of Injuries has been drafted and an injury information system pilot-tested at the NHSL. In 2007, the MoH set up the Trauma Secretariat to provide the leadership and oversee the development of a trauma system. It set up the Trauma System Development Committee (TSDC), a multi-sectoral advisory body. To date, some of the major achievements of the TS and TSDC are in the following areas:

- Safety Promotion – during the UN Road Safety Week, communication materials were developed; campaigns were organised at the National Hospital Sri Lanka and pilot hospitals to

heighten awareness of the staff, patients and residents of the service areas;

- Pre-hospital Care - curriculum and structured training programmes for different levels of EMS personnel have been developed; the rules and regulations for EMS ambulance drafted; and the EMS in the cities of Colombo, Galle and Hikkaduwa were supported;
- Hospital Care – drafts on Trauma Centre Designation Criteria and trauma guidelines have been prepared while three training sessions on the Primary Trauma Care course have been conducted in pilot hospitals; and
- Surveillance – a trauma surveillance system has been initiated in three pilot hospitals.

Other stakeholders have also played significant roles during the past years. For example, the Parliament passed a law on the use of helmets and seatbelts. The Safe Bottle Lamp Foundation has contributed to the reduction of bottle lamp burns and deaths by marketing safe lamps as well as educating people on first aid and ways of extinguishing flames. The Colombo Municipal Council has collaborated with the Colleges of Anaesthesiologists and Surgeons, St. John's Ambulance and the private sector in establishing the first pre-hospital care system in the country in 2005. The College of Surgeons, the College of Anaesthesiologists and the Accident and Orthopaedic Service of the NHSL have been in the forefront of building the capacities of doctors and paramedical staff in the care of trauma victims. Moreover, the Police Department has maintained a database on road traffic accidents; the PGIM has conducted a number of research works.

5.4.3 OBJECTIVES, OUTPUTS AND ACTIVITIES

A. OBJECTIVES

> *"If not for the passersby, who acted quickly, I won't be here after the near fatal train accident. Now my dream is a well organized system that would benefit everyone similarly."*
>
> - Jayalal Rohana (Actor)

To minimise the number of people suffering and dying from trauma and its complications, timely, appropriate, quality and cost-effective services have to be provided by a coordinated and sustainable trauma system. This is the vision the Trauma Secretariat and the TSDC have adopted; this is what they advocate to all the stakeholders. Recognising that the foundation has been laid down already during the past years, this roadmap is aimed at further strengthening all the components of a trauma system. By the end of the second year, the expected outputs are as follows:

- Trauma Secretariat/Directorate and Trauma System Development Committee will be fully operational;

- Policy on trauma system development will be formulated, adopted and disseminated;
- Safe community programmes will be initiated by a local coalition of stakeholders;
- Emergency medical care systems will be made more accessible to the population in selected urban, rural and estate communities;
- A system for the improvement of the quality of trauma care will be established particularly in selected hospitals;
- An action plan for enhancing the rehabilitation programme for trauma victims will be formulated through a participatory process; and
- A national trauma surveillance system will be developed in selected trauma centres.

B. OUTPUT 1: TRAUMA SECRETARIAT/DIRECTORATE AND TRAUMA SYSTEM DEVELOPMENT COMMITTEE FULLY OPERATIONAL

The TSDC and the participants of the Policy Dialogue held in June 2006 recommended the establishment of a Trauma Directorate under the direct supervision of the Deputy Director General (Medical Services I). As the focal point, the new directorate will coordinate the comprehensive development of the trauma system. Specifically, its roles and responsibilities will include:

- Policy development, planning and resource mobilisation;
- Quality assurance including the areas of trauma centre designation system, guidelines and protocols, development of performance indicators, audit mechanisms, quality improvement plan; and
- Training, surveillance and research.

Upgrading the Trauma Secretariat to a Trauma Directorate (TD) is essential because of the following:

- The increasingly heavy burden of trauma necessitates a fast-track approach to the development of the trauma system which, in turn, requires a **fulltime commitment** that could only be provided by a Director and not by a designated Secretariat Head, who has other responsibilities;
- A Directorate would be in a **better position to formulate and advocate national policies** that are needed to guide implementing institutions in the development of a trauma system;
- The **regular budget** appropriated to a Directorate would be a concrete manifestation of the government's commitment to reducing the growing trauma burden as well as would **ensure the sustainability** of the initiatives and programmes of the Ministry; and
- A Directorate would **have a permanent mandate in building and maintaining partnerships** that are essential in optimising the use of resources from various stakeholders towards addressing the 4 elements of a trauma system – prevention, pre-hospital care, in-hospital care and rehabilitation.

To formalise the setting up of the Trauma Directorate, various administrative documents need to be submitted to the Cabinet, Ministry of Finance and Ministry of Public Administration.
Meanwhile, there is a need for the MoH to issue a circular that will clearly specify the mandate and authority of the Trauma Secretariat, the TSDC and its subcommittees. It needs to assign support staff - at least one post-graduate trainee in Community Medicine and a graduate from a government programme. On its part, the Trauma Secretariat will conduct advocacy meetings while the TSDC and its subcommittees will continue with their activities. A study will be conducted to assess the feasibility of setting up and maintaining a trauma resource centre that will house a library and training facilities.

C. OUTPUT 2: POLICY ON TRAUMA SYSTEM DEVELOPMENT FORMULATED, ADOPTED AND DISSEMINATED

Technical working groups will be organised to discuss policy issues. Then, a policy dialogue will gather key stakeholders to discuss a draft policy document. Before the end of the first year, a policy paper on trauma would have been finalised by the MoH and submitted for approval.

D. OUTPUT 3: SAFE COMMUNITY PROGRAMMES INITIATED BY LOCAL COALITIONS OF STAKEHOLDERS

A Safety Promotion Subcommittee will be organised under the TSDC. It will identify the key stakeholders in the local communities, describe their ongoing activities and understand their perspectives on forging partnerships. Afterwards, it will be responsible for forging a coalition of local stakeholders to create local partnerships. Using available data sources, it will facilitate the identification of the common traumas and their causes in selected communities.
The local coalition will then formulate and implement its work plan based on an analysis of the trauma of significance to the community and its risk factors. The Safety Promotion Subcommittee will provide technical input regarding cost-effective strategies for priority problem areas. It will also assist the local coalition in reviewing the safe community programme. The results of the review will be presented to the Annual Health Forum, Health Development Committee or other appropriate venues.

E. OUTPUT 4: EMERGENCY MEDICAL CARE SYSTEM MADE MORE ACCESSIBLE TO THE POPULATION IN SELECTED URBAN, RURAL AND ESTATE COMMUNITIES

During the past months, the Trauma Secretariat and TSDC have established a strong foundation for reducing the morbidity and mortality of the injured victim through the development and promotion of a standardised pre-hospital care. In the next two years, the aim is to provide at least 40% of Sri Lanka's total population a 24-

hour access to a stocked and registered emergency ambulance with trained personnel within an average of 10 minutes from emergency call. Towards this end, the priority activities are:

- Authorising the Pre-hospital Care Subcommittee to manage, direct, certify and provide oversight for pre-hospital emergency medical care, personal certification and training, and ambulance service;
- Developing and enforcing guidelines and other self-sustaining mechanisms for ambulance operations, training, education and quality assurance according to international best practice standards; and
- Establishing an emergency medical care system in other areas.

The Pre-Hospital Care Subcommittee has initially identified 30 cities, towns, and villages as possible target areas for expansion of the EMS system.

F. OUTPUT 5: A SYSTEM FOR THE IMPROVEMENT OF THE QUALITY OF TRAUMA CARE ESTABLISHED PARTICULARLY IN SELECTED HOSPITALS

To establish a quality improvement programme, there is a need to finalise and approve both the Trauma Centre Designation Criteria (TCDC) matrix and the Clinical Protocols and Guidelines for the Management of Trauma Victims. Once adopted, these documents will have to be disseminated together with the other recently published clinical treatment guidelines of the MoH.

The education and training curricula of doctors and other relevant paramedics will then be amended so that these cadres will have the competencies stipulated in the clinical protocols and guidelines. Capacity building programmes that adhere to the revised curricula will then be conducted. The conduct of training programmes, provision of equipment and development of infrastructure will be prioritised during the next two years.

G. OUTPUT 6: AN ACTION PLAN FOR ENHANCING THE REHABILITATION OF TRAUMA VICTIMS FORMULATED THROUGH A PARTICIPATORY PROCESS

A subcommittee will be set up and a local network will be established to oversee the rehabilitation of trauma victims. After developing a work plan, the subcommittee will oversee the implementation of a pilot programme. Based on the results of the review, a strategic plan will be formulated.

H. OUTPUT 7: A NATIONAL TRAUMA SURVEILLANCE SYSTEM DEVELOPED IN SELECTED TRAUMA CENTRES

The Trauma Surveillance System (TSS) will continue in the Colombo South Teaching Hospital, General Hospital Kalutara and Base Hospital

Horana. It will be expanded to 5 other major trauma centres (National Hospital Sri Lanka, Teaching Hospital Kandy, Teaching Hospital Karapitiya, Teaching Hospital Anuradhapura and General Hospital Amapara) during the first year then to 2 other centres (Teaching Hospital Jaffna and Lady Ridgeway Hospital for Children) in the final year. All the hospitals that start the programme will be provided with the necessary training, hardware and software. On their part, they will allocate personnel and work stations. Weekly reports will be generated by the institutions for their own use while monthly reports will be submitted to the Trauma Secretariat. Furthermore, the information system for the Judicial Medical Officers will be automated and linked to the TSS. Should it be feasible, then the information from the pre-hospital care will also be incorporated into the TSS.

5.5 POLICY CONSIDERATIONS

5.5.1 POLICY FRAMEWORK FOR INJURY PREVENTION

National Policy Framework for Injury Prevention

- Vision
  An injury-free Sri Lanka
- Mission
  To integrate injury prevention into everyday life across home, school, workplace and public places, and people actively managing injury risks and living free of injury

Although there is no overarching policy yet that embraces all the elements of a trauma system, there exists a policy framework for the prevention of unintentional injuries. The framework was drafted in 2003 with inputs from government officials, experts and stakeholders engaged in injury prevention. Its strategies are: a) strengthen coordinated action for injury prevention; b) raise awareness among general public on prevention of injuries; c) maintain legislative and regulatory mechanisms supporting injury prevention; d) design and develop safe environments; e) strengthen knowledge and information on injury prevention; and f) develop and implement injury prevention interventions.

5.5.2 POLICY DIALOGUE

A "Policy Dialogue" was organised in June 2006 to initiate discussions on key issues relevant to the development of a trauma system in Sri Lanka and to define the options for each of the issue. Follow up sessions will be conducted with a national trauma policy adopted as the end in view.

5.5.3 LEGISLATION AND REGULATIONS

There is a need to establish a legal basis for the pre-hospital care system. An Act of Parliament may need to be enacted to provide legal protection to a new group of healthcare providers – the Emergency Medical Technicians (EMT). It should include legal immunity to those who provide proper emergency aid to victims. Regulations are also necessary to set the standards of care, training and certification of EMTs by the MoH. With regards to ambulances, a draft regulation has already been developed with specific provisions on the number and type of personnel, appropriate supplies, and how ambulances should respond to an emergency.

Chapter

6

OPERATIONALISING THE ACTION PLAN

- In order to put pilot experiences into operation, several prerequisites need be dealt with- a method to scale up the project, a process of monitoring and evaluation, a suitable funding mechanism and a favourable policy environment.
- In the process of scaling up, provision of the necessary human resources with the necessary training and the physical resources should be provided by the national or provincial health authorities. Mechanisms for regular generation and sharing of information should be sought. Partnerships should be built among all stakeholders.
- Monitoring and evaluation (M&E) of the process is essential for the policy makers, managers and resource providers in assessing the progress, identifying the shortcomings, developing skills and redirecting when necessary. It could take place at national, provincial and district levels. The Management Development and Planning Unit (MDPU) is expected to play a key role in monitoring and evaluation at the national level. Process and outcome indicators should be identified for M&E in each of the projects/ interventions.
- Adequate funding from reliable sources is essential to move forward in any pilot/ scale-up intervention. Health Sector Development Project and Finance Commission may act as funding agencies for the provinces and districts.
- National Policy on Hospital Quality and Safety and National Policy for NCD Prevention and Control with their frameworks of interventions are some of the policy documents available at present in the relevant fields. However there are no such policy documents regarding Trauma System and Hospital Finance Management, and these need be addressed in the near future.

Action Plans are developed to bring pilot experience into a wider scale. A series of discussions, consultations, advocacy meetings, and workshops took place at the District, Provincial and Central levels. Provincial and District action plans embody regional initiatives in taking up challenges in the health sector of Sri Lanka. Their operational experience of the planned actions, outputs, outcomes, and lessons should not be an isolated experiment, but should be shared, modified and refined, and applied in the other geographical locations and on the different demographic populations. This process will not happen automatically. There must be commitment from the people, decision makers, programme managers and implementers. There should also be a mechanism to move the process.

6.1 SCALING-UP

6.1.1 OVERALL PROCESS

All institutions under the Line Ministry should be incorporated in the scaling-up, which should be initiated following an assessment of the present situation. The long term objective is to incorporate the pilot tested interventions into the general health system, provincial as well as central.

The process should begin with an advocacy campaign to solicit the support of the Policy makers at required levels. Subsequently the top managers at National, Provincial and District levels should be sensitized on the initiatives at a suitable forum (e.g. Health Development Committee). Further enhancements can be achieved by demonstrating the successes through presentations by those who implemented the pilot studies. These activities will ensure successful implementation as well as sustainability of the new interventions.

The partners including the community should be made aware of the initiatives through available means: health network of public health personnel and mass media, which will enhance public support and partnership development in these initiatives.

The Management, Development and Planning Unit (MDPU) of the Ministry of Healthcare & Nutrition (MoH) should function as the facilitator in scaling-up activities. The MDPU can do this easily as links with the Provinces and the Districts are already established through respective Planning Units.

6.1.2 ASSISTING THE PROCESS: KEY ELEMENTS

A. HUMAN RESOURCES

In the process of scaling-up, the implementers will need external technical assistance in related areas. The institutional capacity should be enhanced to meet the demands of the interventions. Where human resources are in shortage it should be addressed, in consultation with provincial and National counterparts. More important in implementation are the training and skills development needs for all categories of personnel involved. These should include management training, especially in the context of service organizations: leadership, team work, time management, conflict resolution etc, in addition to technical skills development.

B. PHYSICAL RESOURCES

The Provincial health authority should provide the necessary equipment, stationary, furniture and other consumables to the institutions. The head of the institution should provide the space and facilities for recording, storage and communication of information and other institution bound needs.

Mechanisms to maintain equipment, buffer stocks of stationery and other consumables and the actions to be taken in case of system break down should be adopted at each institutional level.

C. INFORMATION SHARING

Regular generation and sharing of information is essential for the success of the interventions. Mechanisms and routines adopted at pilot stations for this purpose should be strengthened, and the results should be shared with all stakeholders including patients. This will enhance further development of interventions.

A mechanism for the exchange of ideas and experiences between institutions should be in place at different stations which will enhance the involvement of the staff. The Annual Health Summit (AHS) at the Provincial level will be a forum to share experiences among the districts. The National AHS should provide opportunities to the Provinces to do the same at national level. Such activities will also help the decision makers at different levels for appropriate allocation of funds which will ultimately lead to quality and equitable delivery of services at all levels. On the other hand these interventions will minimize shortages, pilferage and inconsistencies in service provision. A method for retrieval of records and reports needs to be arranged at institutional level.

D. PARTNERSHIP

When and where possible, partnerships should be developed with all stakeholders at all interventions. Such partnerships will support implementation, sustainability and further development of the methods adopted. It also creates a sense of ownership and recognition among the partners of the interventions as well as helps establish accountability and transparency.

6.1.3 SPECIFIC PROCESS

A. HEALTH FINANCING AND COSTING FOR HOSPITAL MANAGEMENT

In addition to the interventions on Cost Accounting for Hospital Management, the Ministry of Healthcare & Nutrition is planning to carry out the National Health Accounts on its own. The Sri Lanka National Health Accounting System (SLNHA) was developed to establish an expenditure monitoring system for the country and also to meet international standards for reporting health expenditure data and information. Its framework is based on the "System of Health Accounts" published by the Organisation of Economic Development Cooperation (OECD).

The National Health Accounts is one means of gaining information that could support necessary policy reforms in the future, and managerial cost accounting would improve the database allowing for more accurate budgetary information demands.

B. HOSPITAL QUALITY AND SAFETY

In the area of Hospital Quality & Safety, the Quality Secretariat will have to face the challenge of scaling-up. It will be difficult for the Quality Secretariat to scale up with the existing staff. The Provincial Planning Units can be utilized for this purpose. All the Provincial Planning Units are well developed and the personnel are trained. The action plan proposes to extend the mandate of the Provincial Planning Units to include Hospital Quality & Safety as well. The Provincial Planning Units in-turn can assist the District Planning Units.

C. NCD PREVENTION AND MANAGEMENT

The initial implementation in Kurunegala focused on operationalizing only one element of the global strategy which was on prevention. Surveillance, another global strategy element, was pilot-tested in Polonnaruwa. The next challenge lies in adopting a comprehensive approach such that all the 3 elements of the global strategy (i.e. surveillance, prevention, patient management or control) are carried out. To move from a small-scale intervention

to a district-wide and from two districts to include the other 23 districts in Sri Lanka will be the agenda for the coming years. Indeed, this will have to be done in a stepwise manner. In addition, the district initiatives will eventually have to be consistent with the national policy. Once the draft NCD policy has been formalized and adopted, then a national action plan will be formulated that will provide guidance for the preventive and curative sectors in the provinces and districts.

6.2 MONITORING & EVALUATION

The objectives of Monitoring & Evaluation (M & E) are to assess the progress of interventions, learn the shortcomings, identify the resource inputs, training and development of skills, and recommend redirection if necessary. M & E should occur at three levels, namely the Provincial, District and National levels. At each level M & E should be utilized to address the issues identified and also seek assistance from the Line Ministry or other relevant organizations to rectify the issues.

M & E at all levels should be carried out with the aim of rectifying problems. To do so, the resource providers should be committed towards the sustenance of the interventions. The Policy makers and Managers should provide guidance and assistance based on the M & E outcomes to the implementers when and where their involvement is warranted.

The tools and methods developed for the Pilot Interventions should be studied and adapted at the provincial and district levels. A workable M & E plan should be developed at the institutional, district and provincial levels. The Provincial & District action plans have the necessary mechanisms for M & E. The process and outcome indicators that are stated in the proposal and action plans (see Annexure) may be used for the M & E activities at the central level. M & E reports should be developed and shared with appropriate levels in the Provincial system as well as with the Line Ministry.

6.2.1 M & E UNIT AT THE CENTRAL LEVEL

At the National level, the MDPU should undertake the M & E. Yet there is no established M & E Unit in the MDPU at the moment. In the near future the MDPU will recruit personnel, and identify a suitable station to locate the unit. The Sri Lanka Health Sector Development Project funded by the IDA/WB has an M & E Specialist who does work only related to the Project. His services can be utilized by the MDPU as an interim measure to initiate M & E activities at the National level.

The MDPU should function as the focal point for coordination and facilitation of M & E activities at all levels. It should provide technical assistance to Provinces and Districts, and facilitate related activities. The Provinces and Districts should be provided with opportunities for expression of ideas at forums at National level. Furthermore, the MDPU should coordinate and facilitate extension of interventions to the Line Ministry institutions and the M & E of such activities should be done by the Unit.

Another function of the MDPU in this regard would be liaison with the Ministry of Finance & Planning and Ministry of Plan Implementation which have wide implications in matters related to National Development.

The MDPU should also advice the policy makers on Policy Directions based on the results of M & E. The MDPU will pay special attention to M & E of the interventions at all levels with the aim of achieving the goals of the Health Master Plan and the Millennium Development Goals. To make the M & E activities to assess the health sector progress as a whole, the initial step is to strengthen the capacity of the MDPU by providing necessary resources.

6.2.2 RESULT-BASED MONITORING

The Ministry of Plan Implementation has identified four ministries along with the Ministry of Healthcare & Nutrition (others being Agriculture, Education & Highways) to pilot a Results Based Monitoring System. The indicators have already been developed. However, the MDPU is not in a position at the moment to build the capacity of the Provinces and the Districts to perform Results Based Monitoring due to resource constraints, specifically that of personnel.

6.3 MECHANISM FOR FUNDING

The continuation of pilot projects and scaling-up of interventions need adequate funding from reliable sources.

6.3.1 PROJECT FUNDS

For the continuation of pilot projects, the Sri Lanka Health Sector Development Project (HSDP) can provide assistance as there are components under the key issue areas such as Prevention & Control of Non-communicable Diseases and Hospital Quality and Safety Improvement. Furthermore, 50% of the project funds are provided to Districts through the Finance Commission yearly based on their action plans. The amount provided increases with better performance. The provinces are allocated 5 % of funds from the HSDP from each District in the province. The Provinces and the Districts should include these activities in their annual plans and receive funds for the year 2008. To meet the immediate needs, proposals can be sent to the Finance Commission indicating re-programming of the 2007 activity plans to obtain concurrence.

6.3.2 CONSOLIDATED FUND

During the proposed project period from 2010 to 2012, the Provinces and Districts will have to seek funding through the Consolidated Fund. The MDPU shall facilitate such activities at the Ministry level. The institutions under the Line Ministry can develop proposals to that effect and forward to the Department of National Planning through the MDPU.

For the purpose of obtaining funds to Provinces and the Districts, proposals need to be developed to forward to the Department of National Planning of the Ministry of Finance & Planning through the Finance Commission. Following appraisal of the proposals by the relevant sector of the Department of National Planning, in consultation of the Line Ministry of Healthcare & Nutrition, the Consolidated Fund will provide the funds. If the amounts needed cannot be provided from the Consolidated Fund, the proposal will be forwarded by them to External Resources Department for international donor assistance.

Either way, in the long run, the sustenance of the interventions depends upon the appropriateness of the interventions which enable assistance from the Consolidated Fund. The prerequisite for this is the generalization of the interventions into the existing health systems.

The MDPU will provide guidance to Institutions under the Line Ministry, Provinces and Districts in all activities of interventions. They should seek

alternative mechanisms to assist all levels to sustain the interventions. The Unit should conduct quantitative as well as qualitative research to assess the impacts of the interventions. The results and the lessons learnt should be documented for future reference.

6.4 POLICY ENVIRONMENT

6.4.1 COSTING FOR HOSPITAL MANAGEMENT

The government has recently determined that the traditional incremental budgeting should be replaced by performance-based budgeting. The Ministries and Departments in all sectors are now in the process of adopting the new budgetary process. The objective of this performance-based budgeting is the efficient utilisation of allocated budgetary funds, by shifting the existing system to a more results-oriented one that demands a justifiable linkage between inputs and the output generated.

Performance-based budgeting provides a justification for existing and new projects, and ensures the rational and systematic estimation of costs involved in operationalising projects. Such processes necessitate detailed cost data as well as the expected benefits of implementing projects. Managerial cost accounting will be important in supporting such a budgetary process in the future since it will improve the cost databases significantly both at the hospital and provincial level, allowing for more accurate budgetary demands to be made.

There is also a new development in the health accounts that reflects one of the new initiatives by the MoH to quantify health related expenditure and services. In 2002, Sri Lanka released its first official estimates for the period 1990-1999. The National Health Accounts (NHA) provides the basis for cross-national health expenditure analysis, including analysis of trends in national health spending within the country. Given the tight budget in the country at present that limits the ability to expand the health sector's budgetary allocation significantly, efficient utilisation of funds and new sources of funding are both of interest to policy makers. The NHA is seen as one of the means of gaining information that could support necessary policy reforms in the future

6.4.2 HOSPITAL QUALITY AND SAFETY

The first draft policy on quality and safety in public sector hospitals was prepared in October 2005 by a Consultative Committee appointed by the Ministry. This draft however was lacking in coverage of some priority areas such as institutional strengthening and creation of an enabling environment. In prior, Sri Lanka did not have policy documents devoted to quality of health care services until the Presidential Task Force developed two reports in 1992 and 1997. The reports provided a conceptual framework for the strategic formation of health care service delivery in Sri Lanka, and the quality of services falls into this framework. Though there have been no approved policy documents, several interventions on quality were undertaken in the past, which became a

basis of the current policy goals. These include a National Quality Assurance Programme for the Health Sector in late 1980s, establishment of a Quality Secretariat, and the implementation of 5S-Kaizen in hospitals.

A review of previously drafted policies resulted in gaining a thorough understanding of the dimensions of quality, as well as gaps in the draft policy. Based on this new understanding, a set of policy goals were proposed. They included, customer/patient satisfaction; development of managerial systems for the health sector; establishment of evidence based clinical practices; setting in place mechanisms for risk identification, analysis and control; empowerment of health staff with knowledge and technical competence through continuous education; institutional strengthening; promoting healthy and environmentally friendly hospitals with full participation of the community, and enabling an internal environment that ensures quality by elevating the hospitals to reach the level of learning organizations.

These policy strategies have addressed the key quality issues facing Sri Lanka. A framework of implementation has to be developed next. The success of the strategies depends on the commitment of all employees as well as strong leadership. Policies such as setting up of a viable organisational structure with a steering committee at the national level and similar committees at provincial/district levels will help in sustaining the program.

6.4.3 CHRONIC NCD

Sri Lanka has a number of policy documents that refer to NCDs and related risk factors. Recently, the government has drafted a comprehensive “National Policy for NCD Prevention and Control” and another document on health promotion. The formulation of both documents, which were based on existing national and international declarations, involved a series of consultations with the key stakeholders. In addition, the government may need to take measures that will facilitate the health system shift to becoming more responsive to the health transition and to the changing socio-economic political milieu. The MoH will take a central role in developing or coordinating the formulation of technical documents such as training manuals on NCDs and special topics (e.g. advocacy, community mobilisation). The enactment of the policy drafts into Parliament Acts, Cabinet Decisions or MoH Circulars will indeed facilitate the district implementation of their action plans. The successful implementation of the action plans will require concerted efforts at different levels of government.

6.4.4 TRAUMA

At the moment, there is no overarching policy that embraces all the elements of a trauma system that can effectively deal with onset and progression of injuries. However, there exists a policy framework for the prevention of unintentional injuries. This was drafted in 2003 with inputs from government officials, experts and stakeholders engaged in injury prevention. While this framework covers many crucial areas of trauma management, more legislations and regulations are necessary to ensure the smooth functioning of the system. Among the trauma system elements, the pre-hospital care is one that needs a legal basis urgently. For one, it is crucial to give appropriate legal protection to Emergency Medical Technicians. This can be achieved through an Act of Parliament. Some of the basic provisions have already been drafted. However, more needs to be done to ensure that the draft is eventually enacted into a law.

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