

# 3

**How to design  
and implement  
a helmet programme**

# How to design and implement a helmet programme

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**T**HE PREVIOUS MODULE described how to assess the helmet situation in a country. This module describes how to use this information to design and implement a programme to increase helmet use. It includes technical information, but also the practical information needed to manage such a project to ensure that implementation is smooth.

There are eight sections in this module. It is important, however, to note that the module is not intended to be prescriptive in terms of the order in which these sections are followed. That is, although in general it is advisable to have a working group set up and a plan of action developed as first steps, the sequence in which subsequent steps are taken (i.e. sections 3.3 – 3.8) by those involved in a helmet programme will depend on the circumstances, the resources available, and the broader context.

The sections cover:

- **3.1 How to establish a working group:** This is an essential step to ensure overall coordination of the programme with input from all the main groups and individuals involved.
- **3.2 How to prepare a plan of action:** Based on the assessment that was conducted in Module 2, this section explains how to set objectives, define targets, and decide on the activities to meet these targets, as well as estimating a budget for this plan, and defining a mechanism for monitoring and evaluation. The section also addresses the need to ensure the programme will be sustainable.
- **3.3 How to develop and implement a helmet law:** This section describes how to introduce or modify existing laws. This process will help with related activities, such as strengthening public consensus on the need for a helmet law and devising practical ways of enforcing such a law.
- **3.4 How to design and implement a helmet standard:** A helmet programme also needs to ensure that the helmets used will be of a sufficiently high quality. This section addresses the various considerations in developing or improving motorcycle helmet standards.
- **3.5 How to improve compliance with the law:** Enforcing legislation is essential in ensuring that laws are effective, and standards are adhered to. This section describes both mandatory and voluntary measures that can be introduced to improve compliance, outlining the various groups and individuals who may need to be involved in these measures, and the possible obstacles that may arise.
- **3.6 How to involve the public:** This section describes how to conduct a good communications campaign, which is essential to the success of a helmet use programme. It covers how to develop campaign objectives and a clearly defined target audience, how to work with the media to disseminate messages on helmet use, and how to evaluate the campaign.
- **3.7 Educating young people:** Education is an important element within a package of interventions to increase helmet use. Educational approaches that concentrate only on teaching facts are unlikely to be successful. Along with formal education in schools, peer education can also be effective.

- **3.8 Ensuring an appropriate medical response:** In planning a helmet programme it is also important to consider the ability to respond to crashes that involve motorcyclists. This means taking into consideration the capacity to provide an appropriate first aid response, and addressing the pre-hospital care and trauma care systems that are in place. Planners should also consider the rehabilitative services that exist to provide for motorcycle crash victims.

## 3.1 Establishing a working group

A working group should be set up to oversee and steer the action programme, to include legislation, standards, enforcement and promotion. This working group should be guided by a lead government agency in charge of overseeing road safety that will have the ultimate responsibility for the design of the programme, and the authority to act on recommendations. This group therefore must also ensure that the lead agency has the resources to carry out the programme, although this task could be built into the objectives of the programme itself.

### 3.1.1 Who to involve?

The overall assessment of the country situation (Module 2) included steps on how to conduct a stakeholder analysis. This should indicate who are the best people to approach – from within government bodies and other organizations – to participate in the helmet safety programme. In particular, it should identify the main political figures to be involved and the best way to mobilize financial support and community backing, as well as those with the relevant technical expertise.

The working group should draw on the expertise and experiences of a range of individuals, including:

- members of the lead agency;
- representatives from relevant government agencies, such as those of transportation, health, police, education, and law enforcement;
- public health and injury prevention specialists;
- health care professionals (Box 3.1);
- independent researchers;
- nongovernmental organizations, including those representing victims of road crashes;
- members of motorcycle and cycling associations;
- helmet and motorcycle manufacturers;
- engineers and other specialists;
- large employers and managers of large motorcycle fleets.

Figure 3.1 illustrates a list of potential partners in developing a helmet action plan. Each of these partners has an interest in the outcome of the helmet programme and each can help develop, implement and evaluate an action plan. Many of these partners will already be involved in road safety work and are therefore likely to be aware of at least some of the issues around helmets and helmet wearing.

Ideally, the working group should also include those who might be critical of a helmet programme. Their position needs to be understood as well, so that a programme is devised that addresses possible objections and is acceptable to the widest possible segment of society.

To work well, a multisectoral working group should have well-defined working procedures and a clear work plan – extending to the eventual implementation. It is important to have good communication within the group. To this end, there should be someone within the working group responsible for disseminating information among the various members.

**Figure 3.1** Participants in a helmet programme



**BOX 3.1: Surgeons and their role in motorcycle helmet laws**

Surgeons who care for the injured have a responsibility to:

- be knowledgeable about the burden of mortality and morbidity associated with crashes involving unhelmeted motorcycle riders;
- help to dispel, on medical grounds, the arguments against universal helmet laws;
- campaign for the adoption of comprehensive and enforceable helmet laws;
- educate policy-makers about the effectiveness of providing financial incentives in places where helmet laws are adopted – something of added importance in low-income countries with transportation needs;
- gather data on and publicize the reduction in morbidity, mortality and medical costs following the adoption of helmet laws in a particular area.

The American College of Surgeons supports efforts to enact and sustain universal helmet laws for motorcycle riders. Its statement on this issue can be found at: [www.facs.org/fellows\\_info/statements/st-35.html](http://www.facs.org/fellows_info/statements/st-35.html)

Source: 1

**3.1.2 Assigning roles to working group members**

Certain functions will be common to all well-organized helmet programmes. These include the initiation of the programme – its conceptualization and launch, the operation itself, its coordination and the function of advocacy. Those who are specifically assigned to these functions are described here because of their special roles. Sometimes, one person or agency may fulfil more than one function.

**The initiator**

The person or agency initiating the activity does not need to be engaged in the way that others who are involved are. However, they must fit into the operation to ensure that the programme moves forward in a coordinated manner. Their enthusiasm should be harnessed to the benefit of the programme.

**Operators**

These are the people with the technical responsibility for carrying out various aspects of the programme. Frequently, they will be officials of the lead and subsidiary agencies involved – such as the department of transport, the ministry or department of legal affairs, and the police. They must be allowed to participate fully. For this reason, their regular work duties may have to be expanded to take in additional tasks created by the helmet use programme. Training and other resources may also be required here.

Operators need to be open to input from others involved in the programme. They should not be discouraging or dismissive of non-technical people, as can be the case with technical experts.

### **The coordinator**

This person has overall responsibility for the execution of the programme and their role is critical to its success. The coordinator, whether paid or not, should have clearly defined responsibilities. These include overseeing the activities of the working groups, monitoring progress, and ensuring that all those involved, including the initiator and operators, are kept well informed. The coordinator should have full authority to carry out these functions, as well as the resources and the support needed to implement these tasks. For this reason, the role is best filled by someone whose work already includes some of these responsibilities. Such a person may be the chief technical officer within the transport department, the person in charge of the traffic police, or a high-ranking official in the health ministry.

### **The advocate(s)**

The advocate champions the cause of helmet use. This is usually one or several influential people with good communications skills, who is well known and respected. The advocate and coordinator can have several qualities and tasks in common, and in some instances, they are the same person. Prominent people who have themselves been affected – generally adversely – by a lack of helmet use, usually make good advocates.

## 3.2 How to prepare a plan of action

Before a comprehensive helmet use programme can be implemented, a plan must be set up that lays out a clear strategy for how the objectives of the programme will be met. This plan must be backed up by data, as described in Module 2. The plan will identify the problem, state the objectives, select the dominant method for reaching objectives, describe in details the activities, and specify the timing. Based on the plan, a formal project proposal will be written. This proposal will detail the whole project cycle, what activities will be carried out at each stage, as well as including a detailed request that estimates the funding needed. The working group needs to manage this process.



A plan of action can be developed at a regional or national level. The photo shows the Asian Development Bank's regional road safety strategy.

Figure 3.2 shows the steps involved in developing an action plan (step 3) and how these fit in with other processes described in this manual. These steps may be undertaken consecutively or in parallel, depending on the circumstances. In practice, several activities may run well at the same time, for instance, the act of carrying out a situation assessment (described in Module 2) very often simultaneously does the job of raising awareness and arousing political interest, which may be one of the objectives described in the action plan. A more in-depth discussion on developing an action plan for a national policy is found in *Developing policies to prevent injuries and violence: guidelines for policy-makers and planners (2)*.

### 3.2.1 Setting the programme's objectives

Any helmet programme should contain specific, measurable, achievable and realistic objectives. The objectives are developed by examining the data collected in the situational assessment. This information must be analysed by the working group, to identify the problems to be addressed in the programme.

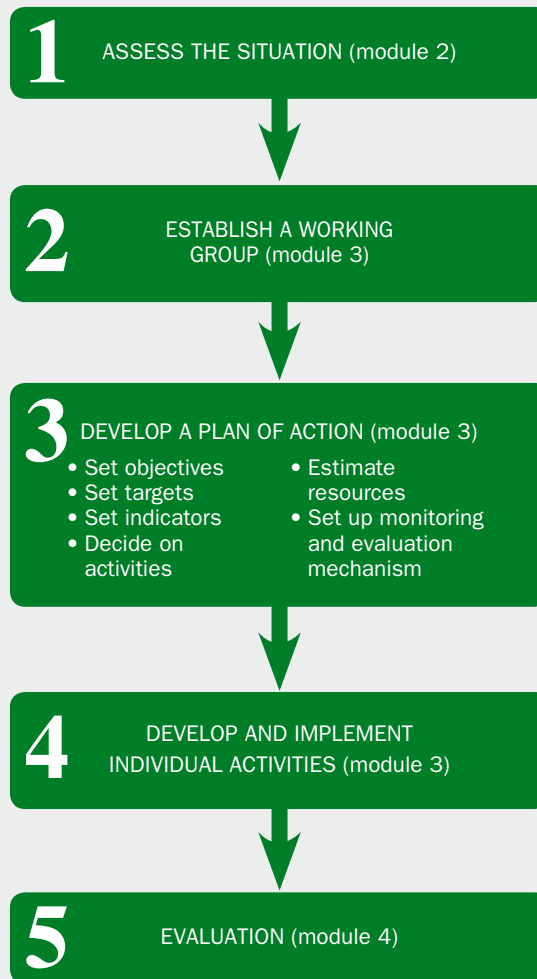
In considering appropriate solutions to the problems, the working group should follow a "systems approach". That is, one which considers understanding the system as a whole and identifying where there is potential for intervention (3). Solutions are thus likely to include factors that address the user, such as education, as well as enforcement of laws and regulations, design and standards for helmet, that are combined over a period of time.

The objectives will, in general terms, be one or more of the following:

- to increase awareness of road traffic safety, and helmet use in particular;
- to increase the rate of motorcycle helmet use;

- to improve the quality of helmets worn;
- to decrease the rate of head injuries, and deaths resulting from motorcycle crashes.

**Figure 3.2** Steps in the programme: from assessment to evaluation



Adapted from reference 2.

**NOTE****Using situational assessment to develop programme objectives**

In the northern region of Thailand, a situation analysis conducted in the late 1990s revealed an increase in head injuries and deaths resulting from motorcycle crashes. Motorcycles were found to contribute to around 40% of all traffic. Less than 10% of motorcyclists were observed to wear helmets. Those who didn't wear helmets were found particularly to be first-time owners of motorcycles, or members of ethnic minority groups. Analysis showed that they lacked awareness of the risks of riding without a helmet. In addition, there were few helmets available in the region, as potential retailers of helmets didn't see a market for them.

The solutions following from this analysis were:

- as regards *legislation*: to make helmet wearing compulsory;
- as regards *enforcement*: to enforce helmet laws in the north of Thailand;
- as regards *education*:
  - to inform people about the risks of head injury for motorcyclists;
  - to inform them of the effectiveness of helmets in preventing head injury;
  - to encourage helmet use;
  - to inform people about enforcement of the law, and the penalties for non-compliance.

**3.2.2 Setting targets**

Once identified, such general objectives should then be made more specific. The objective to increase the rate of helmet use, for instance, might be stated as “increasing the rate of helmet use by a specified amount, over a given time period”. It is generally preferable to set measurable, time-limited objectives; these can be expressed in terms of a *target*, for example, percentage reduction (or improvement) to be achieved by a certain date. Having targets generally results in more realistic road safety programmes, a better use of public funds and other resources, and greater credibility of those operating the programmes (4, 5).

Developing targets will require the use of the crash and injury baseline data in order to establish *measurable objectives*. For example, an activity might aim to achieve a 30% increase in helmet use, or a 50% reduction in head injuries over a specified time period. The experience of other initiatives in road safety suggests that targets should be both ambitious and carried out over a long time period (6). A longer timeframe also allows for programmes to be introduced step by step. The example from Hyderabad, India shown in Box 3.2 for instance, describes how a programme to reduce head injuries was accomplished in three stages. Each stage built on the work of the previous stage.

In some low-income and middle-income countries, however, relevant data may not be available, in which case it will be necessary to formulate a descriptive objective.

Table 3.1 provides an example of the possible stages in a hypothetical helmet programme, with realistic and achievable objectives.

### BOX 3.2: Achieving helmet use in Hyderabad, India

The city of Hyderabad, in the southern Indian state of Andhra Pradesh, has 1.26 million motorcyclists on its 250 km of roads. Motorcyclists there had twice succeeded in persuading the state government not to implement a compulsory helmet law. In September 2004, though, a fresh initiative was launched with a new law mandating motorcycle helmets, preceded by a vigorous publicity campaign.

The campaign had three stages. The first aimed to create awareness of road safety. All cinemas in Hyderabad screened three short promotional films on motorcycle safety before the start of every feature film. Motorcycle riders were informed of the forthcoming law and the eight-week period for buying a helmet before strict enforcement of the law began. They were also warned of the dangers of wearing substandard helmets.

The second stage focused on ensuring sufficient helmet stocks in the run-up to “enforcement day”. This required persuading helmet makers to collaborate in a “helmet fair”, at which all brands of helmets went on sale. Any substandard helmets found were seized and their sellers prosecuted.

At the same time, the media publicized the fact that once enforcement of the compulsory helmet law began, failure to wear a helmet while riding a motorcycle would not only incur a minimum fine of Rs. 50 (US\$ 1.10) but would require attendance at a compulsory counselling session, to which participants would have to bring a helmet.

Other events included debates, seminars, drawing competitions and parades. Road safety material was widely distributed. As the deadline for enforcement approached, the campaign was stepped up. Well-known media personalities were invited to speak publicly on helmets and road safety. A speaker at one demonstration in the city was a popular film comedian whose son had been killed while riding a motorcycle without a helmet.

The campaign’s third stage was to ensure strict enforcement. After enforcement day, police officers stopped motorcyclists who were not wearing helmets, confiscated their driving licences and official motorcycle documents, and summoning them to a counselling session scheduled for the following day.

These counselling sessions included films on road safety and the importance of wearing a helmet. Following the screening, participants had to answer to a written questionnaire on what they had seen. They were then required to present their newly-acquired helmet together with their summons notice, and only then were they allowed to collect their driving licences and motorcycle documents. The inconvenience of attending this two-hour session was considered a stronger deterrent than the small fine, and there was a keen demand for helmets. At the helmet fair, riders could buy helmets at competitive prices, choosing from a range of designs and colours. The Andhra Pradesh government also waived the sales tax on helmets bought before a specified date.

Initial results have been impressive. The proportion of riders wearing helmets increased from around 10% on enforcement day, to close to 70% six weeks later, while six months after the law came into force some 200 000 motorcyclists had been counselled for non-compliance.



A publicity campaign was the first component of Hyderabad’s motorcycle helmet campaign

© Hyderabad City Traffic Police 2005

**Table 3.1** Example of realistic and achievable objectives

	<i>STAGES OF THE PROGRAMME</i>		
	<b>STAGE 1</b> <b>Original introduction of helmets/laws</b>	<b>STAGE 2</b> <b>Increasing helmet use to next level</b>	<b>STAGE 3</b> <b>Strengthening and sustaining helmet use</b>
<b>Situation</b>	Less than 10% of riders wearing helmets	30%–40% of riders wearing helmets	60%–70% of riders wearing helmets
<b>Main problems identified</b>	<p>Low awareness of helmets and high degree of resistance to helmets</p> <p>Affordable helmets not widely available</p> <p>A low standard of helmets</p> <p>Low enforcement</p>	<p>Compliance with the law on the decline (e.g. due to discontinuing promotional messages)</p> <p>Enforcement wearing off</p> <p>Poor practices of helmet wearing (such as unbuckled helmets)</p> <p>A low standard of helmets</p>	<p>Compliance decreasing</p> <p>Enforcement resources diverted to other traffic issues</p> <p>Compulsory law revoked</p>
<b>General and specific objectives</b>	<p>Increase helmet use to 30%–40%</p> <p>Significantly increase the number of helmets sold</p> <p>Increase enforcement for specific groups of riders</p> <p>Reduce head injuries among motorcyclists, as shown by hospital records</p>	<p>Increase helmet use to 60%–70%</p> <p>Increase general acceptance of helmets to 80%–90%</p> <p>Increase rate of helmets on market meeting standard to 80%–90%</p> <p>Reduce deaths caused by head injury by a specified amount</p>	<p>Increase helmet use to over 90%</p> <p>Campaign to have compulsory law reinstated</p> <p>Achieve a positive attitude towards helmet use</p> <p>Achieve near-universal correct wearing of helmets</p> <p>Have almost all helmets meeting standard</p> <p>Reduce head injuries and deaths by a specified amount</p>
<b>Possible time period for this stage</b>	From 4–5 years	2–3 years	<p>Dependent on the circumstances</p> <p>6 months to 1 year</p>

### 3.2.3 Setting performance indicators

Once targets are set by the working group, performance indicators that will measure the progress towards the target must be agreed upon. Performance indicators are measures that indicate changes and improvements in areas of concern such as:

- the extent of helmet awareness;
- the extent of helmet use compliance;
- the number of head injuries and resulting deaths.

In order to show changes and improvements, these data need to be compared to the baseline data.

Typical performance indicators include:

- annual helmet sales;
- the rate of helmet use (for example, as a proportion of the total number of riders, or per 100 000 population);
- the annual number of injuries and deaths from road crashes;
- the number of head injuries at selected hospitals;
- the proportion of deaths from head injuries out of deaths from all injuries, as recorded at selected hospitals (noting that this indicator can be affected by head injuries resulting from other causes, such as falls, firearms and other categories of road traffic victims);
- the extent of police enforcement of helmet laws;
- the extent of public awareness of helmets;
- public perception of helmet use.

Further measurement criteria may also be created, particularly for the purpose of monitoring the project. These new indicators may not be readily available, though they should not be difficult to set up. They include:

- the extent of correct helmet use in the programme area;
- the availability and affordability of helmets meeting national standards;
- police capacity;
- the frequency of public awareness campaigns.

For each indicator there should be a specific target. These targets will generally be quantifiable, though they may in some cases be qualitative. In any case, they should be realistic. Table 3.2 provides an example of setting targets for a hypothetical helmet programme.

**Table 3.2** Example of performance indicators with realistic targets

Objective	Performance indicators	Initial value of indicator	Target value of indicator
To increase helmet awareness	<ul style="list-style-type: none"> <li>the frequency of helmet publicity campaigns</li> <li>helmet sales</li> <li>public attitudes on helmet use</li> </ul>	<ul style="list-style-type: none"> <li>0 per month</li> <li>200 month</li> <li>general disapproval</li> </ul>	<ul style="list-style-type: none"> <li>4 per month</li> <li>1500 per month</li> <li>general acceptance</li> </ul>
To increase helmet use	<ul style="list-style-type: none"> <li>the number of helmet outlets</li> <li>the number of helmets sold</li> <li>the rate of helmet use</li> </ul>	<ul style="list-style-type: none"> <li>10</li> <li>200 per month</li> <li>&lt;10%</li> </ul>	<ul style="list-style-type: none"> <li>50</li> <li>1500 per month</li> <li>30%</li> </ul>
To reduce head injury and death	<ul style="list-style-type: none"> <li>the number of head injuries among motorcyclists admitted to the central hospital</li> <li>the number of motorcyclist deaths</li> </ul>	<ul style="list-style-type: none"> <li>10 per day</li> <li>250 per year</li> </ul>	<ul style="list-style-type: none"> <li>8 per day</li> <li>a realistic target to be fixed</li> </ul>

**UNESCAP defines its road safety goal**

The Draft Road Safety Goals developed by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), include a specific goal and target for increasing helmet use in the region, as well as the indicators by which the achievement of this goal can be measured.

*Goal:* To make the wearing of helmets the norm in order to reduce by one-third the death rate of motorcyclists.

Indicators:

- Motorcyclists death per number of motorcycles.
- Helmet use (percentage).

Source: UNESCAP: [www.unescap.org/ttdw/common/TIS/AH/files/egm06/road\\_safety\\_goals.pdf](http://www.unescap.org/ttdw/common/TIS/AH/files/egm06/road_safety_goals.pdf)

### 3.2.4 Deciding on activities

After specifying the indicators and targets, the working group must decide on and plan activities. As with any programme to reduce road traffic injuries, the approach must involve a wide range of disciplines. Those to be involved in each activity must be identified.

Activities will fall into the broad categories of education, legislation and enforcement. Education should always come before enforcement. Enforcement should be undertaken only where the infrastructure is in place (i.e. where there is legislation and the capacity for enforcement) and where the public has already been informed. Table 3.3 is an example of typical activities that may be carried out in the various stages of a helmet use programme.

**Table 3.3 Typical activities for different stages of a helmet programme**

	STAGES OF THE PROGRAMME		
	Initial introduction of helmets	Raising helmet use to next level	Further raising rate and sustaining helmet use
<b>Objective</b>	To increase rate of helmet use to 30%–40%, from less than 10%	To increase rate of helmet use to 60%–70%, from 30%–40%	To increase rate of helmet use to over 90%, from 60%–70%
<b>Education</b>	<ul style="list-style-type: none"> <li>vigorous public awareness campaign on crashes and head injuries</li> <li>public awareness campaign on benefits of helmets</li> <li>publicity on legislation and penalties for non-compliance</li> <li>school education campaigns</li> <li>targeting of groups most receptive to helmet use</li> <li>promotion of helmet use by employers</li> </ul>	<ul style="list-style-type: none"> <li>publicity on enforcement</li> <li>school education beginning at early age</li> <li>targeting of existing users to maintain their use</li> <li>targeting of groups more resistant to wearing helmets</li> <li>promoting helmet wearing as fashionable</li> </ul>	<ul style="list-style-type: none"> <li>promotion of helmet use through connections with sport and fashion</li> <li>use of role models</li> <li>use of peer education</li> <li>strengthening education in schools</li> </ul>
<b>Legislation</b>	<ul style="list-style-type: none"> <li>Develop or amend an appropriate helmet law for motorcyclists or bicycles</li> <li>Pass the law through the appropriate legal channels</li> </ul>		
<b>Enforcement</b>	<ul style="list-style-type: none"> <li>decision on type of penalty and process for extracting penalty</li> <li>increasing police capacity</li> <li>training of police</li> <li>designation of area of initial enforcement</li> </ul>	<ul style="list-style-type: none"> <li>increasing enforcement, putting helmet use on a level with other traffic requirements, such as having a valid licence and observing speed limits</li> </ul>	<ul style="list-style-type: none"> <li>tightening of enforcement</li> </ul>

### 3.2.5 Setting a timeframe

An action programme to promote helmet use will include both “preparatory steps” – involving legislation, standards and design, and “launching steps” – ensuring compliance with the laws and regulations through incentives and enforcement. The timing of each step should be considered when planning the project.

The timeframe will depend on activities agreed upon. For example, if legislation is to be developed and implemented, it may be decided to phase in enforcement of this new law gradually in different areas (see section 3.3.2). However, clearly an overall timeline must be agreed upon at an early stage in the planning process, as this may be affected by resources.

### 3.2.6 Estimating resource needs

A helmet programme cannot be implemented without adequate financial and human resources. As part of designing the programme, it is therefore important that the following steps are taken:

- the human resource needs, including training, should be estimated.
- the costs of implementing the programme must be broken down by component and by activity chosen.
- national and international funding sources must be identified. Ideally, ministries who will be involved in implementing the programme should adjust their budgets to reflect the new activities. Alternatively, the working group can try to secure financial support from donors.

Failure to fully address resource needs for implementation during the planning stage can jeopardize the future success of the programme. Thus it is important that the working group is realistic in estimating the likelihood of being able to secure the funding needs of the programme.

Having worked out the programme’s activities in detail, the working group can now work out the cost of each of them and in the process draw up a budget, based on quotes from suppliers or on the cost of recent similar undertakings.

When formulating budgets, the following actions are recommended:

- estimating the funds available for the duration of the project;
- setting priorities, with activities phased if necessary to ensure that priority activities receive adequate funding;
- discussing with other government departments, non-profit-making organizations and private sector firms about similar projects already undertaken and their costs;
- estimating the likely administrative and operational expenses in implementing the programme;
- estimating the cost of monitoring and evaluation;
- planning for financial reports at regular intervals.

There are two methods for costing a programme:

- *Completed costs.* This involves the cost for each activity, plus the allocation of human resources and equipment used in the programme. If, for example, the traffic police have cars for highway patrols that are to be used for enforcing helmet use, then part of the cost of the police cars can be allocated to the programme.
- *Marginal costs.* This involves only costs directly related to the implementation of the programme, including new purchases.



**Cost effectiveness of legislating for helmet use**

Data from China have shown the cost effectiveness and economic benefits of bicycle and motorcycle helmets as follows:

- Motorcycle helmet legislation and enforcement costs are estimated at US\$ 437 per disability adjusted life year (DALY).
- For bicycle helmet legislation and enforcement, the cost effectiveness for going from 0 to 100% use would be US\$ 107 per DALY.

Source: 7

It is estimated that road traffic injuries and death cost developing countries US\$ 65 billion per year (3). An effective helmet-use programme that significantly reduces serious head trauma and deaths can make a major economic impact. It is essential, therefore, that the government has ownership of the programme and finance it. Table 3.4 provides some suggestions on how this might be done.

**Table 3.4 Possible ways to fund a helmet-use campaign**

Source of funding	Method of funding
Reinvestment	Some of the money from fines for non-compliance can be reinvested in a central fund to support public education and to help train the police to enforce the law. Similarly, funds from fuel tax, motorcycle licence and registration fees can be earmarked for particular purposes related to the helmet programme.
Sponsorship	Corporate groups often sponsor activities they see as worthwhile, and they may fund a helmet programme or specific components of it. Companies involved in manufacturing motorcycles or helmets, or those selling insurance, may benefit by being seen as a major sponsor of a helmet-use campaign.
Donor organizations	Development aid agencies and other charitable organizations are possible sources for funding a helmet programme. In a similar way, road safety organizations and educational bodies may provide funding or contribute technical expertise.

**NOTE****Who pays? Investing in helmet programmes**

Governments and policy-makers must realise that a helmet programme requires considerable investment, but that there can be significant economic returns on investment and overall societal benefits, through reduced medical costs. Cost benefit analyses that quantitatively illustrate that financing a helmet programme provides “value for money” may be very useful in gaining political support for a helmet initiative. If such studies have not been conducted in a country, it may be necessary to rely on data or examples from similar countries, and to incorporate a cost benefit analysis into the evaluation of the planned helmet programme (see Module 4).

**3.2.7 Setting up a monitoring mechanism**

Monitoring the programme involves keeping a close check on all measurement indicators, to ensure the programme is on track towards the goals set out. Monitoring can be:

- *continuous*, with the lead agency of the working group overseeing the overall programme in case problems arise;
- *periodic*, with activities measured at the end of each stage of implementation.

Table 3.5 gives an example of what might be monitored during a typical helmet-use programme, and the possible actions to take if the indicators suggest that activities are missing their objectives. It is important to:

- Define resources for this task: human, as well as financial, should also be allocated at the outset of the process, to ensure that the monitoring and evaluation takes place at an appropriate time, and the results are disseminated.
- Define the mechanism for monitoring: setting out who will be responsible for monitoring progress, at what intervals progress should be reported and to whom, and how implementation can be enforced if needed, as early as possible. A feedback mechanism should be put in place to allow the regular revision of a programme, should it be necessary to improve its accuracy and relevance.
- Evaluate the programme periodically to determine its effectiveness. Evaluation methods are discussed in more detail in Module 4.

This section has described the steps to be taken in going from a situational assessment (Module 2), to developing an action plan for a helmet programme. The next sections go into more detail on the particular components of a helmet programme that one might include in the action plan. Firstly, however, Figure 3.3 outlines such a possible action programme.

**Table 3.5** Defining indicators and actions for monitoring

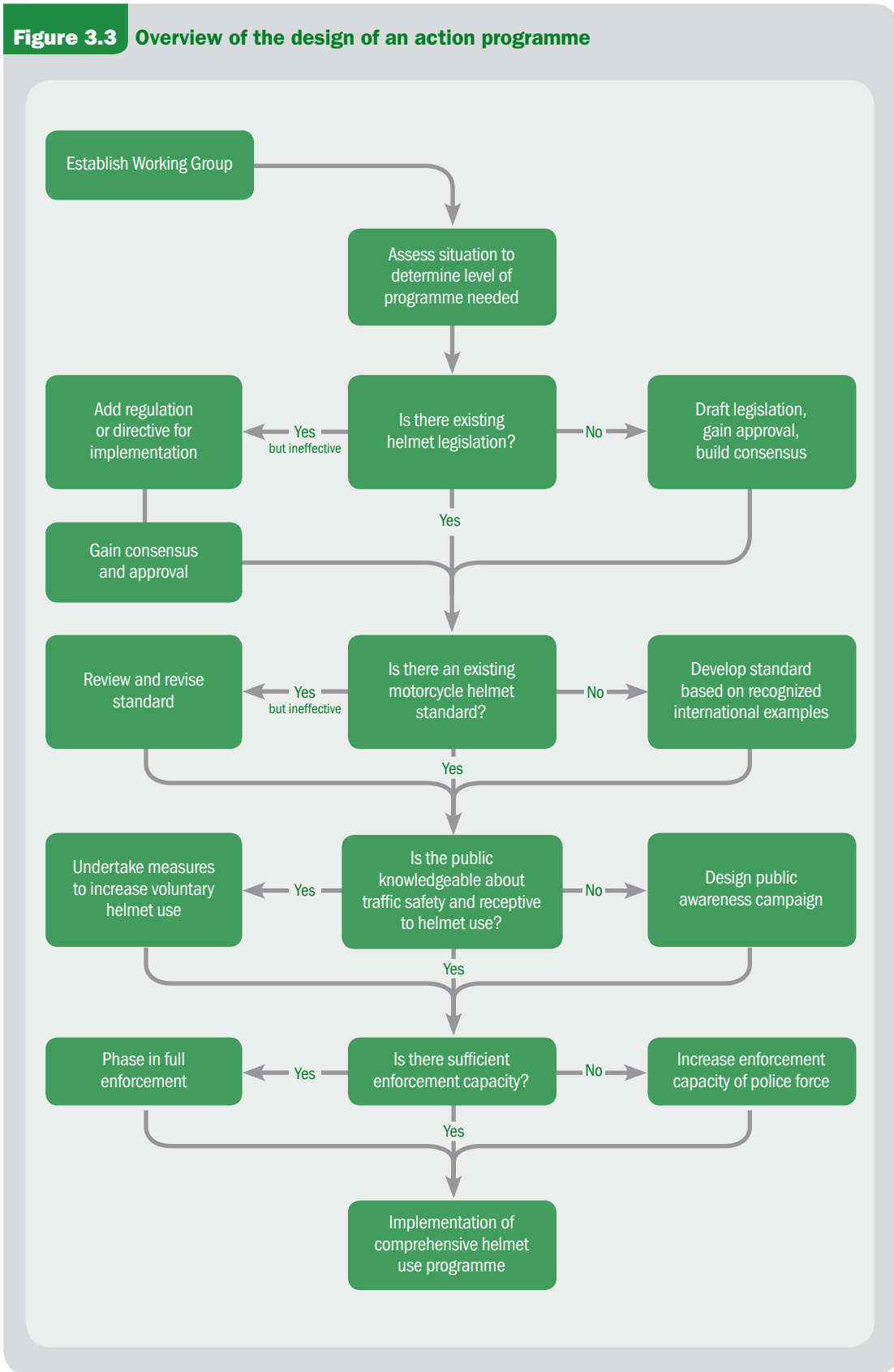
Activity	Indicator(s) for monitoring	Actions to take if monitoring suggests activity is below target
Increasing public awareness of helmet-use legislation	<ul style="list-style-type: none"> <li>• number and frequency of publicity spots in the media</li> <li>• amount of feedback from target audience</li> </ul>	<ul style="list-style-type: none"> <li>• improve persuasiveness of media stories and messages</li> </ul>
Increasing capacity of police to enforce	<ul style="list-style-type: none"> <li>• helmet-use rates</li> <li>• extent of area covered by enforcement</li> <li>• number of penalties issued</li> <li>• ratio of traffic police to motorcycle riders</li> </ul>	<ul style="list-style-type: none"> <li>• increase size of traffic police force</li> <li>• change enforcement areas</li> <li>• improve system of issuing penalties and collecting fines</li> </ul>
Designing awareness campaign on road safety and helmet use	<ul style="list-style-type: none"> <li>• level of awareness of traffic safety</li> <li>• level of awareness of benefits of helmet use</li> <li>• level of knowledge of helmet laws and their enforcement</li> <li>• level of knowledge of helmet standards</li> <li>• observed (or self-reported) changes in behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• redefine target audience</li> <li>• redefine message(s)</li> <li>• evaluate the means of delivering the messages and change it if necessary</li> </ul>

### 3.2.8 Ensuring sustainability of the programme

The sustainability of a helmet programme is essential to ensure that any benefits that result from the programme persist. In developing the action plan, it is therefore important to anticipate longer term funding requirements, and the possibility of reinforcement of any communications components of a helmet programme. Thus, for example, if improving enforcement of a helmet law is a project objective, the capacity for enforcement to be provided beyond a short campaign must be considered, and the strategy for enforcement must be made sustainable – with funds allocated on a yearly basis to support the operational capacity of the traffic police. What has been achieved must be maintained, with future programmes aiming at the next level of compliance.

Successfully sustaining a programme also requires that the components of the programme are evaluated to determine what worked and what did not work (see Module 4). The results of this evaluation should be fed back into the design and implementation of future activities.

**Figure 3.3** Overview of the design of an action programme





### 3.3 How to develop and implement a helmet law

The overall objective of a law is to make helmet use universal. The process of developing a law, though, will also help with other activities, such as the practical issues around enforcing the law. In addition, the process should strengthen the public consensus on the need for a helmet law.

#### 3.3.1 Developing the law

In most cases, a compulsory helmet law will involve adding a clause to a law already in existence – part of a health policy or a traffic code. Sometimes, though, a completely new piece of legislation will be necessary.

There are a number of steps that need to be taken in designing the legislation around compulsory helmet use. In particular, there should be assessment of the current legislation (see Module 2), and if this legislation is to be refined, it should be confirmed that the responsible authorities will be able to implement the new legislation effectively (see Figure 3.4).

In developing legislation on compulsory helmet use, the following checklist is a good guide:

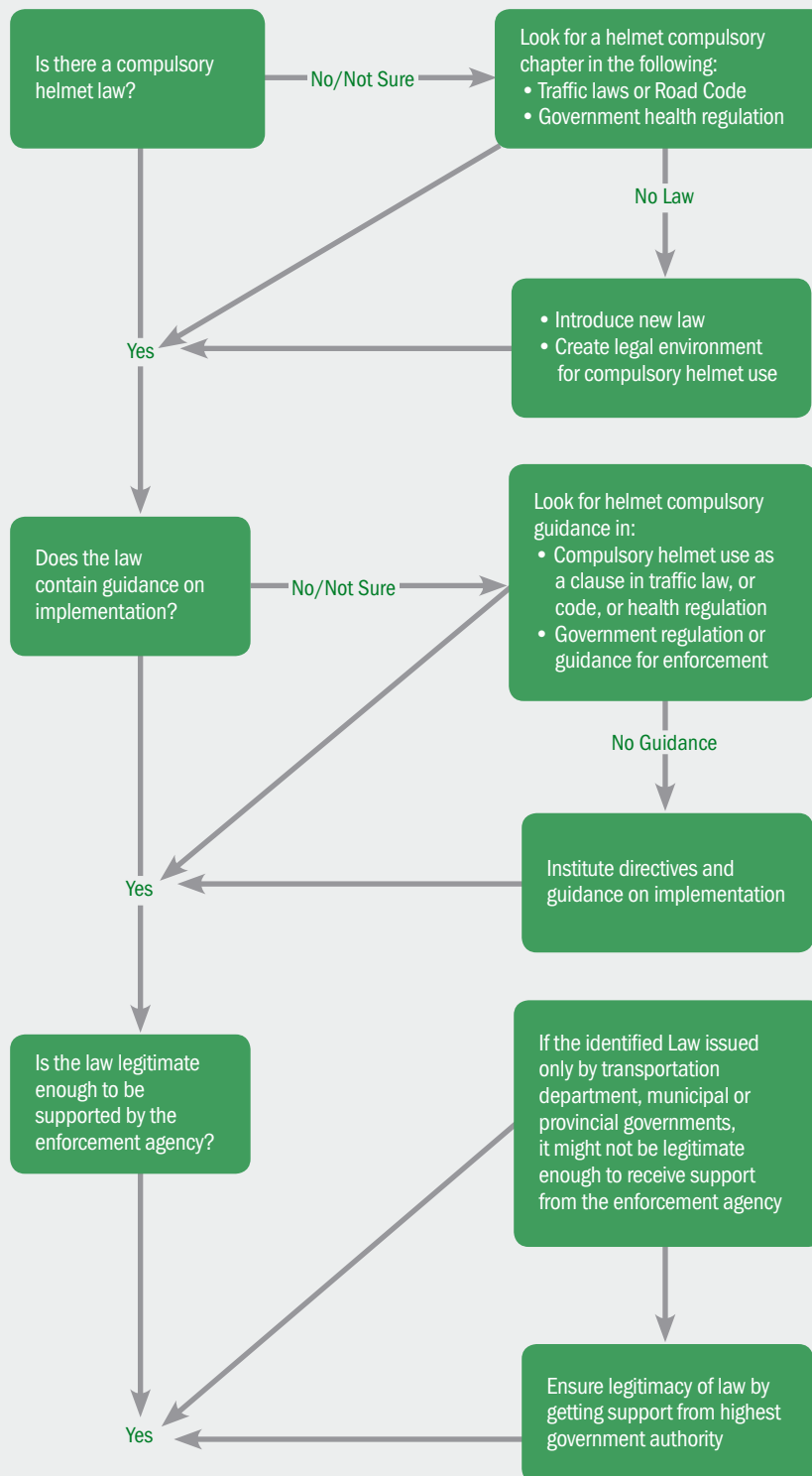
- Assess legislative situation to determine the scope of existing law, if any (Module 2).
- Determine if new legislation needs to be written or existing legislation revised.
- Decide the scope of legislation.
- Identify the government bodies that will be most involved in implementing the law.
- Ensure that government bodies have the capacity to implement and enforce legislation.

Once the current legislative situation has been assessed, the main purpose of developing the law should be determined. These are likely to include one of the following:

- address the absence of legislation;
- strengthen an existing law;
- offer further guidance and support to enforce legislation;
- provide greater legitimacy for the law, so that those responsible can enforce it more effectively.

Most high-income countries have compulsory helmet legislation. In some countries, individual states or provinces have the prerogative to decide on helmet legislation, such as in the United States of America and in India. Legislation on helmet use should be appropriate to a country's situation. Nonetheless, examining examples from other countries can be useful as a starting point. Table 3.6 provides examples of the actual text from legislation on helmet use in a number of countries.

**Figure 3.4** Finding out about the legislative situation



### 3.3.2 Introducing and implementing legislation

The level of complexity involved in the passage of a compulsory helmet law depends on the legislative situation. For maximum effectiveness, legislation on helmet use needs strong support from the highest levels of government, thereby sending a message to society that helmet use and traffic safety are vital national issues.

To ensure that this support will be attainable, it is important that the working group has identified the key role players needed to endorse such legislation, as well as who will be needed in implementing such legislation. These factors should be articulated in the action plan.

The working group is an essential element in promoting and gaining approval for the legislation. Members of the group who are government officials, policy-makers, or injury prevention specialists will have the greatest influence in convincing others of the need for a law.

The following questions should be considered when introducing a new law:

- Which agencies will be most effective and influential in implementing legislation?
- Are the capabilities of the agencies adequately addressed in the legislation?
- Is the proposed legislation worded in an appropriate way, so as to gain support?
- What are the proposed penalties for motorcyclists disobeying the law? Are these penalties appropriate and are they likely to be effective?
- Is the law ethical? (see Box 3.3)

Implementing the law will often be a much greater hurdle than introducing it, particularly in low-income and middle-income countries. Guidance on implementation is therefore critical. It may be necessary to phase in the implementation of helmet legislation: in such a case, areas with low compliance and high rates of road traffic injuries should be the ones selected to implement first. For example, in Viet Nam, there is a national law mandating motorcycle helmet use. This was first introduced on highways, while urban roads were exempted. The implementation of the law on urban roads is decided by the local government of each city and province, such that helmet use is compulsory in some provinces and some urban roads, but not in others. In other countries, exemptions may be applied depending on the type of two-wheelers. In some Indian provinces, there is an exemption of the helmet law for users of low-powered scooters.

**Table 3.6** Wording of legal texts pertaining to motorcycle helmets in various countries**BRAZIL***Text:*

- a) Drivers of motorcycles, scooters and motorized bicycles may only circulate on roads:  
– Wearing a safety helmet, with visor or protection glasses;
- b) Passengers of motorcycles, scooters and motorized bicycles may only be carried:  
– Wearing a safety helmet;
- c) To drive a motorcycle, scooter and motorized bicycle:  
– Without using safety helmet with visor or protection glasses and clothing according to the norms and specifications approved by the Brazilian Road Traffic Code (CONTRAN);  
– Carrying a passenger not wearing a safety helmet, as established in the previous paragraph, or outside the supplementary seat set behind the driver or on a lateral car;

*Will incur:*

- \* Infraction – Very serious
- \* Penalty – Fine and driving license suspension
- \* Administrative step – Driving license withdrawal

*Source*

- a) Art.54, paragraph 1 of the Brazilian Road Traffic Code, 1997  
b) Art.55, paragraph 1 of the Brazilian Road Traffic Code, 1997  
c) Art.244, paragraphs 1 and 2 of the Brazilian Road Traffic Code, 1997

**CHINA***Text:*

When motor vehicles are running, drivers and passengers shall tighten safety belts in conformity with provisions, and motor drivers and passengers shall wear safety helmets in conformity with provisions.

*Source*

Article 51. Road traffic safety Law of the People's Republic of China. Date of issuance 28/10/2003. Order of the People's Republic of China (no. 8)

**INDIA***Text:*

Chapter VIII, section 129. Wearing of protective headgear

Every person driving or riding (otherwise than in a side car, on a motor cycle of any class or description) shall, while in a public place, wear<sup>1</sup> [protective headgear conforming to the standards of Bureau of Indian Standards]:

PROVIDED that the provisions of this subject shall not apply to a person who is a Sikh, if he is, while driving or riding on the motor cycle, in a public place, wearing a turban:

PROVIDED FURTHER that the State Government may, by such rules, provide for such exceptions as it may think fit.

Explanation: "Protective headgear" means a helmet which –

- (a) by virtue of its shape, material and construction, could reasonably be expected to afford to the person driving or riding on a motor cycle a degree of protection from injury in the event of an accident; and  
(b) is securely fastened to the head of the wearer by means of straps or other fastenings provided on the headgear.

**COMMENTS**

Wearing of a helmet compulsory to two wheeler riders is based on rational basis taking into consideration the alarming proportion of the road accidents involving two wheeler riders, such policy is not only rational but is also in the interest of larger public interest, since statistics reveal that more number of two wheelers are on the road having in view transport problems and economics of the cost. – *K. Veeresh Bahu v. UOI AIR 1994 Kar. 56.*

*Source*

The Indian Motor Vehicles Act, 1988. As amended by The Motor Vehicles (Amendment) act, 2001. Commercial law publishers (India) pvt. Ltd, New Delhi.

<sup>1</sup> Substituted by Act 54 of 1944, w.e.f.14–11 – 1944

## NEPAL

### Text:

130 Safety belt to be fastened and helmet to be worn while driving vehicle

- (1) While driving the prescribed categories of vehicles, both the driver and the person riding on the front seat must fasten safety belts.
- (2) The driver of a motorcycle and similar other two wheelers, as well as the person riding on such vehicle, must wear helmets.

### Source

Annex 2 Excerpts of Vehicle and Transport Management Act, 1993<sup>2</sup> (Unofficial translation) in Sharma, GK. *Road Traffic Injuries in Nepal: current situation and an agenda for action*. 2005. NIIP-National Institute for Injury Prevention, Kathmandu, Nepal. *Primary source (in Nepali): Ministry of Law Justice and Parliamentary Affairs: Nepal Rajpatra Vol. 42 No. 52 (Extraordinary), Pousha 22, 2049 and , Nepal Rajpatra Vol. 43 No. 28 (Extraordinary), Bhadra 9, 2050. (First Amendment)*

## QATAR

### Text:

Drivers of motor bikes and bicycles and the people whom they carry should wear on their heads helmets designated for this purpose (the fine for “not covering the head with special helmet is 200 QR).

### Source

Article 37, Qatar Road Traffic Law (13–1998). Qatari Traffic Directorate and Ministry of Interior. This law is applicable to other GCC Arabian Gulf Countries, Saudi, Kuwaiti, Bahraini, Oman.

<sup>2</sup> Regmi Research (Private) Ltd., Kathmandu April 15 1998

## SOUTH AFRICA

### Text:

Compulsory wearing of protective helmet

- (1) No person shall drive or be a passenger on a motor cycle, motor tricycle or motor quadrucycle, or be a passenger in the side-car attached to a motor cycle, on a public road, unless he or she is wearing a protective helmet –
  - (a) which is specially designed for use in conjunction with such cycle; and
  - (b) which fits him or her properly and of which the chin strap is properly fastened under the chin.

*Please note: a person may drive a motor cycle that is fitted with seat belts if the driver and passengers wear such belts, without wearing helmets.*

Sections (2), (3) and (4) have not been added here. These deal with passengers, pedal cycles and the introduction of motor cycles that do not require helmets.

### Source

Regulation 207, National Road Traffic Act, Act 93 of 1996, as amended. The excerpt is from the regulations.

## UNITED KINGDOM

### Text:

67: On all journeys, the rider and pillion passenger on a motorcycle, scooter or moped MUST wear a protective helmet. Helmets MUST comply with the Regulations and they MUST be fastened securely. It is also advisable to wear eye protectors, which MUST comply with the Regulations. Consider wearing ear protection. Strong boots, gloves and suitable clothing may help to protect you if you fall off

### Source

Laws RTA 1988 sects 16 &17 & MC(PH)R as amended reg 4, & RTA sect 18 & MC(EP)R as amended reg 4 ([www.highwaycode.gov.uk/](http://www.highwaycode.gov.uk/)).

**BOX 3.3: Ethical arguments around legislating for compulsory bicycle helmet use**

As clearer evidence on the effectiveness of helmets emerges, attention is shifting to the merits of bicycle helmet legislation. Although legislation requiring cyclists to wear helmets exists in several countries, in some countries the issue is controversial. Four principles (those of beneficence, non-maleficence, autonomy and justice) provide a useful framework for considering the ethical issues involved (8).

When evaluating the ethics of a health promotion programme, it is important to ask certain questions, such as: “is the programme’s goal good?”, “does the programme achieve its goal effectively?” and “does it do so in a manner consistent with the values of the target population?”

Clearly, the aim of reducing head injury is good, and is consistent with promoting cycling as an activity beneficial to health. With a health promotion scheme such as legislating cycle helmet use, there may be a benefit to the individual, but the main aim is usually to lower population risk for a particular health issue. The individual may actually be slightly worse off in the short term (as with vaccination campaigns, for example). So while society gains an overall benefit, and some individuals also benefit (by not suffering head injury), most individuals are trading off a moderate inconvenience, possibly including some expense, against a reduced risk of an already unlikely event. It can be argued that there are good, but somewhat paternalistic, grounds on the basis of justice for making this choice collectively, rather than individually.

Critics of legislation, though, have pointed out that reducing absolute numbers of cycling fatalities and serious head injuries can be at least partially explained by a decrease in cycling *per se*. Given that good evidence exists that regular cycling is associated with considerable health benefit, and that the benefits heavily outweigh the risk of injury, there is understandable concern about legislation resulting in a reduction of cycling levels. Similar concerns, though, were expressed before motorcycle helmets were made compulsory. Despite being initially unpopular, legislation is unlikely to have had any long-term impact on motorcycle use. Available evidence suggests that legislation requiring bicycle helmet use will similarly not lead to any sustained reduction in bicycle use, and hence the legislative intervention is likely to be effective in achieving its aims.

**Autonomy:** One of the strongest arguments against legislation is that it constitutes an unwarranted

infringement of the civil liberties of cyclists. While admitting that legislation will of necessity restrict autonomy, proponents point to the precedents of vehicle lights, speed limits, motorcycle helmets and seat-belt legislation that exist in many countries, stressing that any infringement of autonomy is minimal.

In addition, there is an argument that, given the evidence, most people would rationally choose to wear a helmet, and would agree that there are proper social grounds for encouraging bicycle helmets. But equally, people know that doing what is in their own interest can often be hard to achieve without external encouragement. It is therefore appropriate, in democratic societies, to recommend legislation as a collective autonomous choice in favour of one kind of external encouragement.

**Justice:** It is important to consider both *procedural* and *substantive* justice. From a procedural point of view, there are three important principles:

- The law should be consistent. If a principle is applied in one area, then it should be applied in all equivalent areas in an equivalent way.
- The legislation should be enacted in a fair way – that it is, after full public consultation and full debate in the country’s parliament or other legislative body.
- The legislation should be applied fairly – that is, not in an arbitrary way, and with penalties for “offenders” in accordance with the merits of the case.

Substantively, it is necessary to consider whether the overall collective benefits, and the local benefits to other road users, outweigh the strong claims of individual autonomy. Principally the benefit is a social one – reduced cost to the health service or to purchasers of insurance. It is arguable that individuals have some sort of duty to their fellow citizens to take responsibility for their own health, and that sometimes this duty can be an enforceable one.

**Conclusion:** In summary, there is a strong case for making the wearing of bicycle helmets legally compulsory wherever possible. The argument is weakly paternalistic, in that it gives priority to social costs and individual risks over individual autonomy, but it is consistent with much other injury prevention legislation currently in place.

**Acknowledgement:** This contribution draws on a previous co-authored publication by Sheikh and colleagues (9).

**NOTE****Viet Nam brings stakeholders on board**

In 1993, the municipal government of Ho Chi Minh City, Viet Nam passed a directive making helmet use compulsory in the city. At the time, there was no compulsory helmet law in the Road Code. In trying to enforce it, the municipal government ran into opposition from the local People's Committee, who challenged their authority to enforce the directive. Additionally, the municipal government lacked the support of the police, necessary for enforcing the law. This initial attempt to increase helmet use therefore failed because of a lack of commitment from the highest levels of government, the enforcement authorities and the general public.

As a result, the Ministry of Transport consulted interested parties and proposed a "helmet clause" to be inserted into the 2001 Road Code. When it came to being adopted by the National Assembly, it already had a broad base of support. From there, it was much more straightforward to implement the policy.

It may be necessary to introduce certain exemptions to helmet laws, on reasonable grounds of age or culture. Young children, for instance, might need to be exempt if there are not suitable helmets available for them. Similarly, members of particular religious groups that wear traditional head coverings that do not allow helmets might also be considered for exemption, depending on the circumstances.

Moving from the introduction of a new law to its full enforcement is usually a lengthy process. Compliance with the law should be built up gradually, and in planned stages.

However, it must be noted that phasing in legislation, and allowing certain exemptions from laws are steps that themselves introduce a set of concerns with regards to enforcement. Enforcement may be more time consuming and more difficult if there are differences in where the law applies, or if there are people who are exempt from the law.



*In Delhi, India, women pillion passengers are exempt from the law, as are Sikhs.*

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**NOTE****Whether or not to make bicycle helmet use mandatory**

Whether or not to introduce legislation on bicycle helmet use is a topic that has split the public health community as well as those involved in implementing road safety programmes. Briefly, the pro-bicycle helmet group base their argument overwhelmingly on one major point: that there is scientific evidence that, in the event of a fall, helmets substantially reduce head injury (see Module 1). The anti-helmet group base their argument on a wider range of issues, on which there is conflicting evidence. These include: that compulsory helmet wearing leads to a decline in bicycling, risk compensation theory negates health gains, scientific studies are defective, and the overall road environment needs to be improved (see Box 3.3).

**3.3.3 Developing a timeframe for implementation of a law**

It is important that an appropriate timeframe be developed for the implementation of the law. Adequate public awareness must be ensured in order to optimise the success of the law. The timeframe from implementation of the law to full enforcement and penalty for non-compliance can be anything from a couple of months to several years. This will depend on the circumstances, and must be articulated in the overall action plan. Similarly, the indicators by which this component of the programme will be measured must be included in the plan.

**NOTE****Phasing in a helmet law**

In Thailand, the Helmet Act of 1994 was enforced in Bangkok 90 days after legislation had been passed. In outlying provinces, the delay was 180 days. In the time between passage and enforcement, education on the issue was carried out so that the public was informed about the impending change in the law and the penalties for non-compliance.

**NOTE****Preparing for implementation and enforcement of a helmet law**

In Viet Nam, the authorities gradually introduced implementation over a three-year period after helmet laws were passed by the National Assembly in June 2001, as part of the Road Code. Regulations for penalties and the method of collecting fines were issued during 2002 and 2003, during which period the size of the traffic police force was increased. In 2004, a comprehensive enforcement plan was implemented in selected areas.

## 3.4 How to design and implement a helmet standard

This section is for practitioners and campaigners who are responsible for the overall design and implementation of a helmet programme. It therefore aims to introduce helmet standards from a general point of view. A more detailed and technical examination of helmet standards should be undertaken by technical specialists.

### 3.4.1 Adopting a standard

One of the objectives of a helmet programme is usually to raise the quality of the helmets being used. This is best achieved by ensuring that all helmets meet a recognized safety standard – one that has been demonstrated as being effective in reducing head injuries. The standard should also provide quality assurances for the user. It must, of course, be suitable for the traffic and other conditions of the country, and it should be flexible enough to enable manufacturers to produce a range of approved models and styles.



#### Wearing substandard helmets

In some countries, although helmet use may be mandatory and the law may be enforced, the lack of a helmet standard means that motorcycle users who use construction helmets, horse riding hats, or other inappropriate forms of head protection might technically be within the limits of the law.

In many countries, the proportion of motorcycle users wearing substandard helmets is high. For example, in a study carried out in the Guangxi region of China, two thirds of nearly 5000 motorcyclists observed were wearing helmets that were substandard (10).



Module 2 described the need to assess whether or not there is a standard that is applicable to the project region, and whether this standard is abided by. A few questions to ask when adopting, developing, or revising a helmet standard include:

- Does a national standard exist?
- Does the national standard meeting international standards?
- Is the standard enforced and is it adhered to by helmet manufacturers and distributors?
- Are consumers aware of the standard?

- Do consumers favour certified helmets?

Based on the responses to the questions posed, a number of different actions are possible:

- **If a standard does not exist**, existing international and regional standards should be used as guides for new standards. These include UNECE Regulation No. 22, (see Box 3.4) as well as other standards from the more highly-motorized countries. If a standard is to be developed or adopted, it should take into account the traffic situation in the particular country – for example, traffic mix, whether two-wheelers share road space with four-wheelers, and the number of non-motorized vehicles. The technical aspects should be assigned to professionals with specialized expertise, but at the same time the working group should look at other existing standards and adopt components that are suitable for their country. In any case, input should be sought from researchers and technical experts in the field of helmet design.
- **If the existing standard is only in the form of an industry standard**, then it should be upgraded to an official national standard and approved by the government. The standard should also be reviewed to determine if it properly reflects the current traffic situation. There should be consultation with helmet manufacturers to make sure they are aware of the revised standard and to seek their support in producing a range of helmet designs that meet the standard.
- **If a national standard exists but is not apparently effective**, it should be examined. This should involve checking whether the standard is being properly regulated, whether it takes into account risks to motorcyclists, whether it acts as a stimulus to improve helmet quality, and whether it is understood by consumers. If the standard lacks effectiveness in any of these areas, then prompt measures need to be taken. Either the standard should be revised, or there needs to be better collaboration between the authorities and helmet manufacturers, or else there should be more public education on the types of helmet that are the most protective.



#### Examples of motorcycle helmet standards

AS 1698 (Australia)	DOT FMVSS 218 (USA)
CSA CAN3-D230-M85 (Canada)	TCVN 5756:2001 (Viet Nam)
UN/ECE Regulation No. 22 (Europe)	TIS369-2539 (Thailand)
JIS T8133 (Japan)	MS1-1996 (Malaysia)
NZ 5430 (New Zealand)	SABS 799 or VC 8016 (South Africa)
BS 6658 (United Kingdom)	

**BOX 3.4: Helmet use in Europe: an international standard for helmets and visors**

The Transport Division of the United Nations Economic Commission for Europe (UNECE) is responsible for updating internationally agreed safety rules and regulations on all aspects of road traffic, for implementation by its Member States. UNECE Regulation No. 22 – annexed to the 1958 Agreement on type approval of vehicles, equipment and parts – provides uniform conditions for the approval of protective helmets for drivers and passengers of motorcycles and mopeds. [In the “type approval” method, a sample of a product is submitted to a designated approval department for independent testing and authorization.] The latest revision of this regulation came into force in February 2002, and is applied by 36 UNECE Member States as well as New Zealand.

Helmets approved under the regulation must have undergone prescribed tests and carry an approval mark, fixed to the protective helmet to show that it conforms to Regulation No. 22. A helmet may be fitted with ear flaps and a neck



curtain. It may also have a detachable peak, a visor and a lower face cover. If it is fitted with a non-protective lower face cover, the outer surface of this cover should either be marked “Does not protect chin from impacts” or carry the symbol shown here, indicating that the lower face cover does not offer any protection against impacts to the chin.

The UNECE regulation states that a helmet must not significantly affect the wearer’s ability to hear, and that the temperature in the space between the head and the shell should not increase unduly. To prevent a rise in temperature, there may be ventilation holes in the shell. In addition, the regulation stipulates that every protective helmet placed on the market must bear a clearly visible label with an inscription in the national language of the destination country – or at least one national language if there are more than one. The label should read: “For adequate protection, this helmet must fit closely and be securely attached. Any helmet that has sustained a violent impact should be replaced.”

Source: UNECE Regulation No. 22 can be downloaded from the internet at [www.unece.org/trans/main/wp29/wp29regs/22rv4e.pdf](http://www.unece.org/trans/main/wp29/wp29regs/22rv4e.pdf)

**3.4.2 Key considerations when setting standards**

Although details of motorcycle helmet standards are highly technical, and should be developed by professional experts in the field, the working group should play both an advisory and supporting role.

When setting a motorcycle helmet standard, it is important to take into account the local cultural, climatic and traffic conditions, since these factors will affect the willingness of motorcyclists to wear helmets. In newly-motorized countries, there is usually an environment of mixed traffic. Motorcyclists must share the roads with pedestrians and an array of vehicles, including animal-driven carts, cars, buses and trucks. These various forms of transport all present risks to those on motorcycles and should be borne in mind when working on a standard.

There should also be consultation with helmet manufacturers and distributors to ensure that a standard is not so stringent as to restrict production and availability. Their views should be reflected in a standard that leads to affordable helmets

providing good protection and available in a range of designs. A standard, of course, should also take into account the preferences of riders. One that allows only full-face helmets to be made, for example, will be unpopular with motorcyclists in tropical and subtropical countries.

In a number of countries, counterfeit – or “fake” – helmets are common on the market. As well as the risk of injury to users of these helmets, their production means that manufacturers who do meet helmet standards feel a financial loss as a result of these sales. However, if a helmet law and standard are in place, then the standard can be used to improve helmet quality among good, or compliant, manufacturers. Tightening quality control of helmets and providing incentives for manufacturers to produce higher quality and more affordable helmets is therefore a step that will benefit both the motorcycle user, and good manufacturers.

When developing the timeframe within an action plan, it is important to consider the optimal timing for adopting and enforcing a helmet standard. For example, a working group may decide to develop a culture of helmet usage *before* adding components for imposing standards of helmets. If a standard is specified too early, then the campaigns to promote helmet use will not be able to occur in many situations, due to lack of specific standards across countries, and the absence of a mechanism to check these standards. In addition, many Motor Vehicle Acts by transport departments specify a helmet law and do not mention standards.



#### **Viet Nam and helmet standards**

The case of Viet Nam shows how a country can devise a motorcycle helmet standard specifically tailored to meet specific climatic and traffic conditions while adhering to international standards. Viet Nam’s original helmet standard TCVN 5756:1993 restricted certification to only full-face helmets. This standard was inappropriate given the consistent levels of heat and humidity in the country. Helmets that would be more suitable, like the half-head model, were unable to meet standard specifications. This made people reluctant to wear helmets, which prevented a helmet use programme from getting off the ground. In 2001, the standard was revised. Standard TCVN 5756:2001 now allows the more suitable partial-coverage helmets. Importantly, the standard allows for ventilation holes in the helmet. Certified helmets can therefore be lighter in weight and have more ventilation, and as a result be cooler for wearers – an important consideration in hot climates. The new standard is also in line with UNECE Regulation No. 22 (see earlier Box 3.4) in terms of general specifications, testing and labelling.

**NOTE****Cycling in New Zealand**

It is compulsory to wear a bicycle helmet when cycling in New Zealand. Helmets must meet one of a set of helmet standards. Helmets should fit snugly and squarely on the head, be brightly coloured or covered with reflective material, and be strapped firmly under the chin. Failure to wear a helmet, wearing a non-approved helmet, or wearing a helmet incorrectly risks a fine of up to NZ\$55.

**NOTE****Thai Industrial Standard TIS 369-1995 (2538)  
PROTECTIVE HELMETS FOR VEHICLE USERS**

This standard can also be used as a reference point. It covers the following topics:

- Scope
- Definitions
- Components
- Requirements (Testing)
  - Shock absorption
  - Penetration resistance
  - Rigidity
  - Strength of chinstrap and fastening device
  - Flexibility of peak
  - Marking and labelling
  - Sampling and criteria for conformity

**3.4.3 General specifications for helmets**

International helmet standards often define a helmet as consisting of a hard outer liner and crushable inner liner. However, it is not necessary for a standard to stipulate that a helmet be made this way. An effective helmet standard can simply define a helmet as *a protective device designed to protect the head in the event of an impact*. It is important for a standard to be as inclusive as possible and to avoid restricting the design or the materials used.

The materials of a helmet should not undergo significant changes with age or normal use. Nor should materials experience degradation from exposure to weather conditions – such as sun, rain or extreme heat or cold. Materials that come into contact with the human body should not be affected by exposure to hair, skin or perspiration. The materials should also be non-toxic and not cause allergic reactions.

Helmets may be fitted with ear flaps or neck curtains. They may also have a detachable peak, a visor and a lower face cover.

Helmets should be designed so that they do not dangerously affect the wearer's ability to hear or see. The helmet's design should not cause the temperature in the space

between the head and the shell to rise inordinately. To prevent this, ventilation holes can be inserted into the helmet.

The helmet should be kept in place by a retention system that is placed under the lower jaw. All parts of this system should be permanently secured to the helmet. The chin strap should be adjustable and be fitted with a retention system.

### Testing

Proper testing of all the principal components of the helmet will ensure that products meet minimum safety and quality standards (Box 3.4). The following are examples of testing procedures used to determine the protective capabilities of a helmet. The relevant section to consult from UNECE Regulation No. 22 is given in brackets for each case.

- *Conditioning testing* exposes helmets and components to both high and low temperatures so as to determine the integrity of the product [UNECE Regulation 22, Section 7.2].
- *Impact-absorption tests* determine the capacity of a helmet to absorb impact when dropped from a guided free-fall onto a fixed steel anvil. An impact absorption test is absolutely necessary [UNECE Regulation 22, Section 7.3].
- *Tests for projection and surface friction* are done to assess the way in which an outer shell will shear away, become detached, or slide off when impacted [UNECE Regulation 22, Section 7.4].
- *Rigidity tests* determine the strength of a helmet when weight is applied to each side of the helmet [UNECE Regulation 22, Section 7.5].
- *Dynamic strength tests* are done on the retention system of the helmet. In this type of test, it is acceptable for the retention system to be damaged, as long as it is still possible to remove the helmet from the headform [UNECE Regulation 22, Sections 7.6 and 7.7].

An effective standard does not have to include all of these tests but can be limited to those ensuring the most effective helmet for the particular situation and the particular risks faced by motorcyclists in a given place. An appropriate standard will also take into account the testing capabilities of a country.

If a helmet type contains a *visor*, the visor should undergo testing. A metal punch should be used to determine if the visor will shatter or produce any sharp splinters when forcibly contacted [UNECE Regulation 22, Section 7.8].

The *chin-strap* should be tested for slippage, resistance to abrasion, inadvertent release by pressure, ease of release, and durability of the quick-release mechanisms [UNECE Regulation 22, Sections 7.9–7.11].

**NOTE****Adapting or adopting a helmet standard**

As described in Box 3.4, UNECE's helmet standard can be used as a starting point for a helmet standard by other countries. Regulation No.22 provides an overview of the tests that helmets and their components must all undergo and meet. However, the testing of helmets as specified in this standard is rigorous, but it also has drawbacks. Because a triaxial accelerometer must be used for the UNECE standard, the testing methods described are technically challenging and expensive to operate. Some countries, including Thailand and Viet Nam, have developed standards that use monorail test equipment that is easier to operate and less expensive.

The regulation imposes certain responsibilities on manufacturers, such as for notification of the administration department in the case a product is changed, and sets out penalties for non-compliance. According to the regulation, wearers have to be provided with standard information and warnings on labels inside the helmets.



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*All motorcycle helmets should comply with international or national standards.*

### BOX 3.5: How helmet tests should be improved: oblique impact tests

Head injuries are the most frequent type of severe injuries which result from motorcycle crashes. The most common impact to the head in a motorcycle crash is what is called an “oblique impact condition”, where the force from a hard surface hits the head tangentially. This is more common than a “pure radial impact”, where the surface hits the head directly, at a 90° angle. A force that hits a helmet obliquely will result in a strain, or deformation, to the brain tissue that is six times the magnitude of the strain that results when that same force hits a helmet directly.

Subdural haematomas and diffuse axonal injuries are the most frequent severe brain injuries arising from motorcycle crashes. These two types of injury arise from tangential forces hitting the skull, and are directly related to the rotational acceleration in the brain.

Most safety helmets used by motorcyclists are developed to meet the requirements of tests for controlling standards. In existing tests, known as “drop tests”, the helmet is generally dropped onto a flat or curved surface tangential to the helmet surface,

and this results in a radial impact to the head (diagram a). However, as already mentioned, this type of direct impact is seen in only a minority of cases of injury, whereas about 90% of motorcyclists’ head injuries result from an oblique impact to the head. Most tests for regulating helmet standards do not take into account a fall from a motorcycle that is followed by an oblique impact to the head. This has resulted in helmets that provide good protection against radial impacts, while their protection against oblique impacts remains untested.

Recent research in this field has led to the development of an oblique impact test. In this test, a dummy helmeted head is dropped onto an angled surface, instead of a flat surface (diagram b). Compared with the conventional drop test, this new test shows substantially increased strain deformation of the brain tissue. All existing helmet tests should therefore be extended to include standards for both conventional drop tests as well as oblique impact tests. This would reflect most real-life impacts that occur in motorcycle crashes, and would therefore lead to improved helmet standards.

Source: 11, 12

Diagram a:  
radial impact

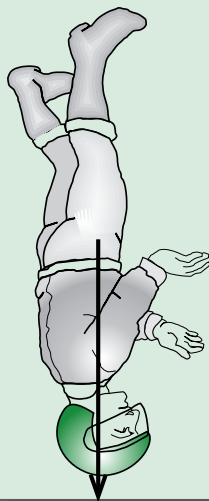
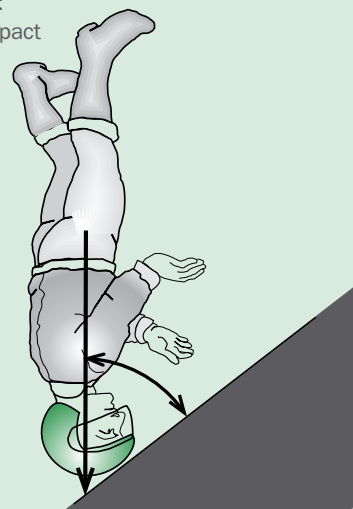


Diagram b:  
oblique impact



## Certification

The certification process is employed to enforce standards. It is recommended that the “type approval” method be used to ensure uniformity. In this method, a sample product is submitted to the designated approval department for independent testing and authorization. If a standard has been newly introduced, the procedures for testing a helmet will probably be carried out by an existing approval department. The most likely department will be a centre for standards in the ministry of science, or a testing centre in the department of standards or the vehicle registration office.

Type approval is recommended over self-certification because it allows for more stringent adherence to uniform standards. Apart from that, self-certification offers greater scope for dishonesty by unprincipled manufacturers.

In summary, when developing a motorcycle helmet standard, the following is a useful checklist:

- Examine the existing motorcycle standard, if any.
- Determine whether an existing standard needs revision or a new standard has to be developed.
- Consider the prevailing obstacles to helmet usage.
- Develop a standard that will ensure a reduction in head injuries.
- Decide on a standard and include the standard in national legislation.
- Establish a procedure for inspection by a regulatory agency and for enforcement of the new standard.
- Produce and disseminate information on the new standard to manufacturers, retailers and the public.
- Establish a timescale for manufacturers and retailers to conform to new standards.

## Motorcycle helmet design

If part of the helmet programme is to manufacture helmets, it is important that the helmets are designed to meet the latest standards, and to suit local conditions. Module 1 described the considerations that must be borne in mind when designing a helmet.

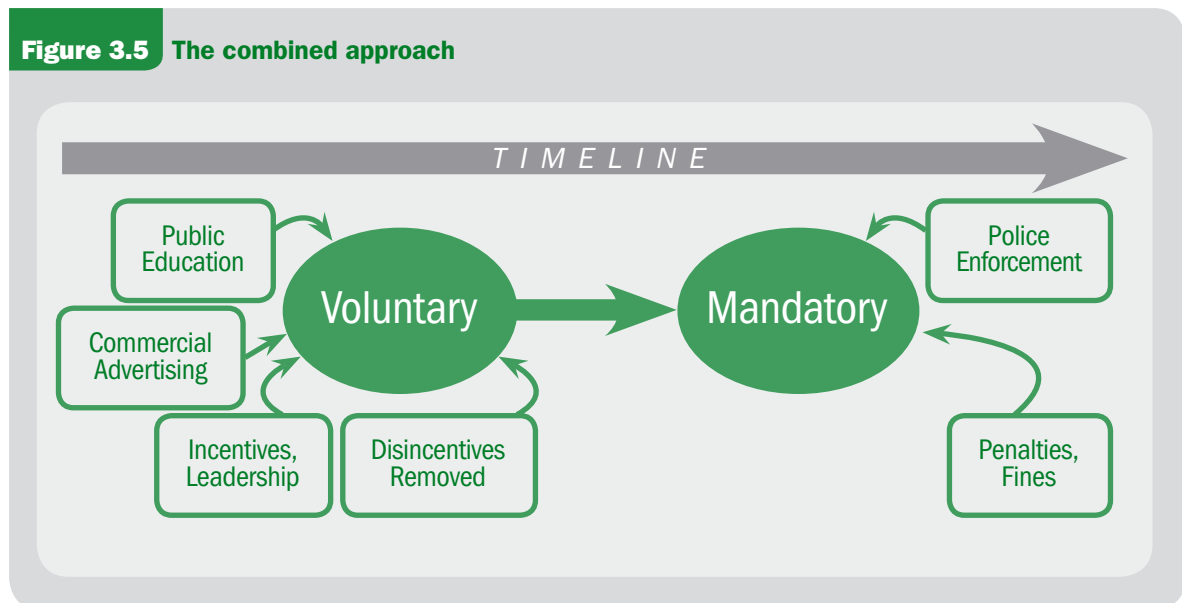


### 3.5 How to improve compliance with the law

Numerous studies have shown that helmet use is the most effective way to reduce fatalities and severity of head injuries among motorcycle riders. To achieve increased helmet use, however, calls for a combined approach involving a range of sectors and disciplines (see Figure 3.5). Efforts to get motorcyclists to wear helmets should be directed both at *voluntary* use as well as *compulsory* use.

It is a good idea to have a programme promoting voluntary measures to increase helmet use before mandatory measures are brought in. Figure 3.5 illustrates how public education campaigns, commercial advertising by helmet companies, role model initiatives (leadership) and both government and employee incentive schemes are all means of encouraging voluntary helmet use. Following on from these measures, activities should concentrate on informing the public of forthcoming legislation on helmet use, ensuring the police are equipped to effectively enforce new laws, and setting up a penalty system for those who do not comply.

**Figure 3.5** The combined approach



### **3.5.1 Voluntary measures to increase helmet use**

The following are measures that can be used to encourage helmet use:

#### **Public education**

Public education refers to all activities aimed at publicizing issues such as helmet standards, new legislation on helmets and the enforcement of helmet laws, as well as the scale of serious road traffic injuries among motorcyclists. It also includes information on the benefits of helmets and why wearing them should be a natural part of a motorcyclist's lifestyle. Ways of disseminating such information are described in more detail in section 3.6.

Education and public information programmes to encourage motorcycle and bicycle helmet use can:

- stimulate and reinforce behavioural change;
- increase public support;
- influence social norms, making helmet use more socially acceptable;
- create a supportive environment for the passage of laws and policies that increase helmet use.

#### **Commercial marketing**

Commercial marketing by helmet manufacturers and retailers can play an important role in increasing voluntary helmet use. Consumer behaviour studies have also shown that awareness of helmets can spread through word of mouth, and as helmet use becomes more common in a society.

#### **Role model initiatives**

Using selected role models can influence people to wear helmets before legislation is introduced. The particular role models chosen will depend on the group being targeted in the campaign. The target group could be young people – who usually make up a significant proportion of motorcycle riders and passengers. In this case, the role models publicly seen wearing fashionable motorcycle helmets might be well-known singers, film or television stars or sports stars. For a different target group, the role models could be prominent professionals, doctors or successful business people.

#### **Employee incentive schemes**

Employers in the public and private sectors can play a major role in promoting the use of helmets by arranging for their employees to be seen wearing helmets to and from work (see Note on page 95). Apart from the public benefit, it is beneficial for companies to be seen to be “good employers” for having introduced helmet use programmes for their staff. Such a scheme can be especially effective in countries where most employees travel to and from work on motorcycles.

Employers can offer the following incentives to their staff to wear helmets:

- subsidized helmets for employees and their family members;
- a mention of the employee in the company newsletter;
- promotional items from the company, and other gifts and prizes;
- entries into special lotteries. For example, those who use helmets can enter a lottery
- some companies consider regular use of helmets as a plus point when conducting end of year reviews and allocating bonuses;
- condition of employment (written in company regulations): this can be considered a semi-voluntary situation, since a person can choose not to work for a company stipulating these regulations.



#### **Private sector companies take on helmet wearing**

Realizing the importance of a healthy workforce and the potentially lost productivity of employees involved in road crashes, many companies in Viet Nam have begun to implement policies to increase motorcycle helmet use among their staff. These include a mix of voluntary and compulsory measures. For example, some companies provide helmets for all their staff, where others may extend this by supplying helmets that meet national standards to the family members of their employees. In addition to “carrots”, companies provide the appropriate “sticks” to increase helmet use. Those employees who fail to wear helmets on the way to or from work receive a verbal warning initially and written warnings for further offences. In some instances, the importance of this company policy is reinforced by a system which penalizes supervisors more than junior staff for not wearing helmets.

#### **Government schemes: providing incentives and reducing disincentives**

The establishment of government schemes can be an important mechanism to improve helmet wearing. This may be by providing incentives to helmet manufacturers, or users of helmets, or by reducing existing disincentives. For example, a government in a country where many children ride as passengers on their parents motorcycles, as in many Asian countries, could establish a scheme which subsidises the cost of motorcycle helmets for school children. The Note on page 96 shows an example of government incentives used to increase bicycle helmet use.

**NOTE****Victoria's incentives to increase bike helmet use**

Between 1984 and 1989 the Australian State government jurisdiction of Victoria conducted a Helmet Rebate Scheme on seven occasions. On each occasion a rebate of AUD \$10 was paid to purchasers of Australian-made and standards-approved bicycle helmets. Approximately 180 000 rebate claims were paid by the Government at a cost of AUD\$1.8 million. The helmet rebate scheme was an important component of a very successful programme that led to a dramatic increase in the rate of bicycle helmet usage and a corresponding decline in head injury and fatalities.

Financial disincentives to wear helmets faced by consumers generally manifest themselves through higher costs of a helmet. Typically, disincentives are “hidden” from the consumer and incorporated into various kinds of taxes and duties (e.g. sales tax, value added tax, import duties), and their outcome in terms of their impact on helmet wearing is not usually deliberate. Other disincentives may include the costs borne by consumers in terms of the time and money required to reach shops and garages selling helmets.

Addressing disincentives as part of a helmet campaign through lobbying for the specific exemption of helmets from taxes, or increasing the number of locations at which helmets can be purchased, can have a major impact on helmet use, particularly through the reduction of end prices of helmets charged to the consumer.

An assessment of the cost and requirements of providing helmets to the market is a good way of revealing any disincentives, and thus identifying actions needed to reduce their impact.

**3.5.2 Compulsory measures to increase helmet use**

Government agencies, especially those participating in the working group, should take the lead and make helmet use compulsory for their own staff under their contracts of employment. Agencies here include the departments of transportation and health as well as the police department.

**Publicizing the law on helmets**

Motorcyclists should be given ample notice of forthcoming legislation, and information on how the laws are to be enforced, and the penalties for non-compliance. Dissemination of this information can be carried out through the print and broadcast media and on advertisement boards.

**BOX 3.6: Work-related helmet use policy in Cambodia**

Although motorcycles make up more than 75% of the vehicle fleet in Cambodia and about 90% in the city of Phnom Penh, few people who ride on these motorcycles wear helmets. Since 2002, the World Health Organization (WHO) has supported a helmet-wearing initiative in Phnom Penh. This collaborative effort involves a number of ministries in the country, the police, as well as some nongovernmental organizations. The project is jointly coordinated by Handicap International and the Cambodian Ministry of Health, and incorporates a media campaign, helmet legislation, as well as policies to promote helmet wearing to prevent work-related injuries.

The work-related helmet wearing component of the project is an initiative which encourages staff from governmental and nongovernmental organizations and United Nations agencies to lead by example by adopting, enforcing and monitoring policies that

require helmet wearing for their employees when driving motorcycles. The WHO office in Cambodia contracted Handicap International to visit several institutions to promote road safety and develop organization-wide road safety policies.



Handicap International motorcycle riders in Phnom Penh wearing regulation helmets

**Enforcing the law and involving the police**

If a compulsory helmet law is to be effective, traffic police must be properly committed to enforcing it. While public education campaigns can raise awareness, enforcement of the law is essential to achieve widespread compliance. People must be made aware that the law will be enforced and that those ignoring it will incur monetary fines or – in the case of repeated offences – more severe penalties.

Enforcing a helmet law creates an extra burden on the police. It is useful in advance to examine the capacity of the police force, and to determine whether additional recruits are needed. In any case, traffic police will need training in the new law and how best to enforce it.

How well the police can cope will help decide whether to introduce a blanket enforcement of the law or to take a phased approach (see Box 3.7). If enforcement is to be phased in, those areas where few riders wear helmets and where casualty rates among motorcyclists are high should be the first to be targeted.

**What are the aims of enforcement?**

The *objective* of a pro-active, helmet law enforcement intervention is to ensure that helmets are worn by all motorcyclists on all roads at all times.

### BOX 3.7: Enforcing motorcycle helmet use in Nepal

Motorcycle use has increased more than six-fold in Nepal since 1993. A government law passed the previous year had stipulated the mandatory use of helmets by motorcycle drivers, though enforcement was poor and passengers were exempt from using helmets on most roads in the capital, Kathmandu. However, since January 2003, the compulsory helmet law has been strictly enforced for all motorcycle riders in the capital. The tightening of the law had strong political support from the then minister of health, a neurosurgeon acutely aware of the growing numbers of head injuries admitted to trauma clinics.

The helmet law has resulted in a significant decline in head injuries among motorcycle riders in the capital, as recorded by the main hospitals, autopsy reports, and the traffic police's national database. A decline in fatalities has been observed primarily among motorcycle riders in the Kathmandu Valley, where enforcement of the law has improved since

2003. However, other serious injuries appear to have increased over the same period. This may have resulted from a substantial rise in drink-driving rates recorded among motorcycle riders, contributing to an increase in the overall number of motorcycle crashes. It is also possible that a proportion of the head injuries suffered since the law was passed have been as a result of improper use of helmets or substandard helmets. Despite the success in reducing motorcycle fatalities in the capital, enforcement is poor in many other urban areas, with correspondingly low rates of helmet use.

Nepal's rapid motorization and in particular the sharp growth in motorcycle use mean that helmet use is an extremely important intervention for reducing fatalities. While political commitment exists, for such commitment to translate into concrete results, efforts including the enforcement of helmet use need to be sustained in the capital and expanded to cover all roads in the country.

The *outcome* sought is an increase in helmet wearing, which will lead to a reduction in head injuries, road trauma and deaths. Political support is fundamental to sustained outcomes. Scarce police resources must be used effectively and efficiently to maximize the value of law enforcement operations.

Strategic law enforcement integrates four fundamental principles of policing in a multi-dimensional intervention. Enforcement practices must ensure:

- a) **Increased visibility of enforcement.** This includes highly visible, publicly observable and strategically located checkpoints and roadblocks. These must be varied in location, intensity, time of day and night. There should be many police officers in each working team. Visibility includes signage about the enforcement activity, safety vests for police and adequate lighting at night.
- b) **Repetition of enforcement campaigns.** This indicates to the motorcyclists that the risks of being caught are high – anywhere, anytime.
- c) **Strict and consistent enforcement.** After an initial public warning period, police enforcement should be strict, non-discriminatory, fair and consistent. This will lead to a permanent change in motorcycle rider habits – not just short-term, on highways or where police enforcement can be anticipated. If there is no enforcement, there will be limited or no compliance.
- d) **Well-publicised enforcement.** To achieve maximum effectiveness, compliance driven enforcement must be combined with coordinated education and publicity

campaigns involving the continuous engagement of government, local government, the mass media and other agencies. This means conducting publicity campaigns before, during and after policing activities with reinforced safety messages. Safety brochures on correct helmet wearing may be handed out with a warning as an alternative to issuing a fine. Education and instruction can include reminders for riders to buy and wear helmets and the constant promotion of safety messages.

Target operations should be well planned with all traffic officers being appropriately trained and briefed. Safety should be paramount with considerations for the safety of the interception officers and the driving public, the safe use of equipment and the selection of checkpoint sites.

Police commanders must appreciate the cost of enforcement compared with the cost of rescue operations, medical treatment and rehabilitation of the injured.

Strategic enforcement can achieve sustainable results by raising the percentage of riders and passengers wearing helmets. The aim is to create the perception that the risk of being caught and fined is greater than the cost of buying or the inconvenience of wearing a helmet.

**Training of police officers.** Police officers must be trained in effective strategies and tactics to achieve maximum success. This includes:

- knowledge of the law;
- understanding how helmet wearing reduces the risks of head, brain and facial injuries (even in low speed crashes);
- police officers on motorcycle duty and on private motorcycles must obey the law and must set the example;
- understanding how to set up safe and effective road blocks and check points for maximum “on-road” public exposure and enforcement. This will include signage or large banners indicating to all the driving population what enforcement is being undertaken e.g. “Helmet checkpoint” or “Helmets saves lives”;
- how to target areas with high rates of non-compliance;
- how to provide effective advice and education to motorcycle users;
- understanding the impact of motorcycle crashes on the financial and human resources; to the community as well as the resource savings to police and emergency rescue services when an effective law enforcement programme is undertaken;
- understanding other aspects of motorcycle safety including safe and defensive riding, motorcycle rider visibility as well as the use of protective clothing and footwear;
- understanding the best ways to measure the effectiveness of the law enforcement intervention. Success is indicated by the level of compliance observable in the riding community and not by the number of infringements or warnings given. Compliance is measured by the percentage increase in helmet wearing rates. Other performance measures are the number of checkpoint operations, target operations, educational lectures as well as individual and media warnings. There must also be positive reinforcement to reward and encourage rider safety.

Strategic traffic enforcement can and does make a difference. For effective implementation of helmet law enforcement:

- enforcement must provide a meaningful and deterrent threat to non-helmet wearing motorcycle users, and
- the perceived risk of apprehension must be high.

Table 3.7 shows some of the obstacles that can arise in trying to implement a helmet law, as well as possible actions to take to overcome these obstacles.

**Table 3.7 Overcoming barriers or obstacles to effective implementation of the law**

Barriers	Remedial Actions
Limited police resources	<ul style="list-style-type: none"> <li>• Strategic planning for intensive high profile, high visibility, enforcement activity – resource deployment and coordination</li> <li>• Combining education &amp; enforcement</li> <li>• Strong media campaigns</li> <li>• Community support campaigns</li> <li>• Allocation of additional traffic officers</li> </ul>
Competing police priorities	<ul style="list-style-type: none"> <li>• Government and senior police officers understanding the real economic and human costs of road trauma compared with the relatively lower costs of enforcement</li> <li>• Appreciating the cost-savings which can be achieved by strategic traffic enforcement</li> </ul>
Complacency in enforcement	<ul style="list-style-type: none"> <li>• Enhanced training of police officers, supervisors and police management with emphasis on the risks to riders, their passengers and the community</li> </ul>
Police officer sympathy in favour of the rider: <ul style="list-style-type: none"> <li>• Helmets stated to be hot, uncomfortable, inconvenient or muffling the warnings of car horns</li> <li>• Cost of helmet to the rider</li> <li>• Cost of cumulative fines e.g. several family members on one motorcycle</li> </ul>	<ul style="list-style-type: none"> <li>• Education of the police officers about the associated risks of not wearing helmets</li> <li>• Community education</li> <li>• Introduction of government subsidies for the purchase of helmets</li> <li>• Helmet purchase recommended before a licence or registration is issued or renewed</li> </ul>
Inadequate or ineffective policing capability or strategies and the perception that enforcement is too difficult with such extensive non-compliance	<ul style="list-style-type: none"> <li>• Development of an integrated law enforcement strategy</li> <li>• Identification and publication of minor successes</li> <li>• Modeling on “good practice” examples of success</li> <li>• Targeted helmet law enforcement</li> </ul>
Corruption including: <ul style="list-style-type: none"> <li>• Police officers collecting fines and not passing them on to Government authorities</li> <li>• Illegal and unethical receipt of monies as payment to overlook an offence (bribery)</li> </ul>	<ul style="list-style-type: none"> <li>• Anti-corruption measures</li> <li>• An appreciation that corruption undermines any road safety intervention</li> <li>• Enhanced education and training of officers</li> <li>• Salary reviews of traffic officers after appropriate training</li> <li>• Promotion of a code of ethics/behaviour</li> </ul>

### BOX 3.8: **Passing a bicycle helmet law: what else is needed to get helmets on heads?**

In October 2004, the South African government passed a law making it compulsory for all cyclists to wear helmets. The regulation requires the use of a protective helmet that is properly fastened and fitted while riding a bicycle or being carried as a passenger. According to national road traffic data in South Africa, 270 cyclists were killed during 2004.

Some South African bicycle manufacturers actively promote the use of a helmet through stickers on new bicycles, with messages such as “Use your head, wear a helmet!” Others give their sales representatives short training sessions on the different types of products sold alongside bicycles, including helmets. Sales representatives are also trained to encourage new bicycle owners to buy safety equipment such as helmets. Even before the law was passed, the South African Federation had been following international rules about helmet use in bicycle races, and preventing cyclists from racing without a properly-fitted helmet.

Despite this, however, less than a year after the law was passed, most South African cyclists are still not wearing helmets. Although there was considerable media coverage at the time the law was passed, there is still little awareness about it. This is the case even among some cycling associations – clubs mainly for ordinary cyclists, though they also organize races.



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Enforcement of the law is poor – a reflection of the difficulties in applying the national legislation at the local level. Some traffic officials, interviewed about the new law, did not even know it had been introduced. Others stated that the legislation was not being enforced because there was a lack of public knowledge of the issue, and that they were still considering what the appropriate fine for an offence should be. Although in certain areas traffic officers are actively involved in promoting awareness of the benefits of cycle helmets and the new legislation, this is not the case across the whole country. As a result, some officials are urging that the national traffic department provide clear guidance on how the legislation should be implemented at the local level.

### Penalties for non-compliance

Various methods can be used to enforce the law:

- *Warning notices* can be issued in the time between the law being passed and its full implementation. These notices inform motorcyclists that there has been a change in the law and that in the future a penalty will be imposed for breaking it.
- *Fixed penalties* can be issued with a written ticket handed out on the spot, requiring the offending rider to pay a fine to a given department by a specified date. To operate this method effectively, a computerized database should be set up to record all offences. During an introductory period, payment of fines could be waived if, for example, offenders can produce a helmet and a receipt of purchase dated after the offence.
- *On-the-spot fines* are levied in some countries whereby motorcyclists caught riding without helmets have to pay a fine directly to the police officer. The money is then passed on to the transportation authority. However, it must be noted that in many instances, particularly where salaries for the police officers are low, such measures are ineffective and may result in corruption and bribery. Such systems should be upgraded immediately to ensure that no money transactions occur at the interception point and a full audit of any financial transactions is maintained.
- *Confiscation of licences or of motorcycles* can be applied as a blanket rule, or to repeat offenders. However, such measures are usually implemented only after other measures have been tried.

## 3.6 How to involve the public

Conducting a campaign to involve the public will require expertise in marketing or advertising, development of specific campaign objectives, articulation of the campaign messages and the target audience, specifying a timeframe for implementation, and a methodology for evaluating this initiative.

### 3.6.1 Selecting an agency for the campaign

A successful marketing campaign may be carried out by qualified personnel within a government department, but usually needs the expertise of a professional marketing or advertising agency. Overall control of the campaign should, however, stay with the government agency responsible. The campaign may also require the services of a public relations agency and a research agency, unless the government agency can provide these services itself.

The first step in selecting an advertising agency is to issue a tendering document, outlining the overall aims and objectives of the campaign, the time schedule and the budget. The purpose of this tendering document is to assess the ability of responding agencies to do the work. From their initial applications, a shortlist of agencies should be drawn up, based on:

- the agencies' previous experience with social marketing campaigns;
- their creative ability;
- their physical location;
- their media purchasing ability;
- their size.

The shortlisted agencies are then asked to tender for the work, by providing creative ideas, plans for media work and budgets.

### 3.6.2 Objectives of the campaign

The most important aspect of any campaign is to have a clear idea of what the campaign is meant to achieve. The objectives may be stated in quantifiable terms. For instance, the public might be told that "By December 2006 it will be required by law that all motorcycle riders and passengers wear a helmet". However, there may be an *internal* target that is less ambitious. For example, the internal target that is not communicated to the public may be that by December 2006, 75% of motorcycle riders and passengers should be using helmets.

The assumptions for the campaign are that helmet use, if it exists at all, is very limited, that there are few legal requirements to use helmets, and that there is little or no enforcement.

Various objectives are possible, depending on the existing legislation and rate of helmet use. They include:

- to increase public awareness that helmets can prevent serious injury;
- to increase awareness that *every* rider and passenger is safer with a helmet;
- to encourage people to purchase and use helmets;
- to convey the message that use of a helmet is now mandatory;
- to inform people that helmet use is now being enforced, and to explain the penalties;
- to promote enforcement of the helmet laws by the police.

Each of these objectives should be quantifiable. It is therefore necessary first to ascertain:

- the current level of awareness of the safety value of helmets, their availability and cost, and the legal requirements for helmets;
- the current level of helmet use, by both riders and passengers, in urban and rural areas;
- the current level of enforcement.

### **3.6.3 Changing knowledge and attitudes on helmet use**

The most effective road safety campaigns have been those that achieve a change in behaviour. It is of course also important to increase awareness and improve attitudes, but lives are actually saved when the desired behaviour patterns are adopted.

New forms of behaviour can often be achieved by regulatory interventions backed up by information and enforcement. When helmet use is made compulsory, it is much easier to persuade people of the value of wearing helmets. Issuing penalties can even be held back in the early stages while people realize that the rules are being enforced.

In rural areas of some countries, where enforcement may be very limited, a campaign based solely on publicity and persuasion in these places is unlikely to be successful in the long term. In the absence of police, local enforcement may be carried out by village councils, community elders or even parents. These alternative enforcers will need to be sufficiently persuaded by the campaign to influence others to wear helmets.

### **3.6.4 Working with the media**

The media – including the printed media, the broadcast media and the Internet – serve various functions in any public education campaign. They will be interested in and will cover the campaign itself – its objectives, contents and progress. They may support it, but they may equally be critical, to the extent even of running a counter-campaign. It is therefore important that the reasons for the campaign are set out clearly and strongly. It could be stressed, for example, that helmets cost very little compared to the costs of injuries, or that the number of head injuries is unacceptably high and could easily be significantly reduced if more motorcyclists wore helmets.

### BOX 3.9: Enforcing motorcycle helmet law in Iran

Iran has one of the highest rates of traffic-related deaths in the world, and spends approximately US\$ 6 billion a year on traffic injuries. Motorcycles make up an increasing proportion of the country's registered vehicles – about 40% in 2005. Over half of road traffic crashes involve motorcyclists, for whom the risk of incurring a severe injury or fatality is 10 times higher than for users of four-wheeled vehicles. Almost 70% of motorcycle deaths are from head injuries, frequently as a result of the non-use or improper use of helmets.

Although there has been a law for many years in Iran stipulating that motorcycle users must wear helmets, it was not until 2003 that it was seriously enforced. Beginning with the main roads of Tehran, the capital city, traffic officials stepped up enforcement, increasing by a factor of ten the penalty for non-compliance of helmet use. At the same time, the Tehran municipal council launched a television campaign to raise awareness of the helmet law. As a result, helmet use increased from under 2% in 2003 to around 60% in 2004, and over 95% in 2005. The initiative was then taken to the country's other five major cities, with similar results.

However, in Iran's many small towns the situation was different. Here, about half of all motorists drive unregistered vehicles, and many motorcyclists lack a licence. In order to increase helmet use in these places, research was first undertaken to study motorcyclists and their socioeconomic situation.

The study found significant differences between motorcyclists in small towns and those in the large cities. For some 85% of the population of the smaller towns, the motorcycle is the single family vehicle, and 52% of motorcyclists rely on their vehicle to transport goods. Although 92% of motorcyclists surveyed owned a helmet, only 13% were willing to wear it, reflecting the high proportion – around 72% – who held a negative image of helmet use.

Following this research, a three-year programme has been established between the government and



Promoting helmet usage in the city of Arsanjan, Iran

the Karolinska Institute in Sweden. The *Safe Community Programme on Helmet Use* will use various approaches to increase helmet use in urban areas in Iran. In order to evaluate the programme, intervention cities will be compared to control group cities receiving no intervention. Cities in the intervention group will receive the following:

- an improved system of motorcycle registration, along with increased enforcement of motorcycle registration and driving licences;
- incentives for helmet use, for example, by providing helmets free or at discounted prices;
- strict enforcement of the helmet law;
- identification and banning of defective motorcycles, along with special incentives to repair motorcycles;
- public education on local helmet programmes;
- exhibitions and street carnivals to encourage helmet use;
- safety education for children;
- the active collaboration of driving schools;

Five case cities will be compared with nine control cities. The study's results will help formulate interventions to increase helmet use in all parts of Iran, tailored to the particular needs of individual towns.

Source: 13

If the media are supportive, then they should be used to promote the campaign message. The media are frequently keen to publicize statements from medical personalities, political leaders or the police on the value of helmets and on traffic safety issues in general. The local media can play an equally important role.

An ongoing part of the campaign should be to keep the media regularly informed about its progress and how it is meeting its targets. This can be done either by the government agency or by an external public relations agency.

### 3.6.5 Creating campaign messages

Before developing the communication messages for a helmet use campaign, the factors restricting helmet use need to be identified, through both local knowledge and market research. The key target groups also need to be determined.

#### BOX 3.10: The WHO Helmet Initiative: a global resource

Created in 1991, the World Health Organization's Helmet Initiative promotes the use of motorcycle and bicycle helmets worldwide and serves as a resource for those wishing to learn more about them or to promote their use. The Helmet Initiative serves and links public health agencies, safety organizations, nongovernmental organizations and other groups.

The Initiative's most visible feature is its Internet web site, which is primarily a means of communication. It contains *Headlines*, a quarterly magazine with news on helmet research and programmes, innovative strategies for promoting helmets, and helmet laws. There are links to a network of helmet programmes and to other relevant web-based groups and resources. Helmet promotion programmes not already part of this internationally-linked network are invited to join.

Through its web site, WHO's Helmet Initiative provides technical assistance to community programmes and public health agencies seeking information on helmets.

The Initiative also maintains an online database of published articles relating to the design and effectiveness of helmets and strategies for their



promotion. This database, compiled from a comprehensive search of over 500 journals and reports, is regularly updated to incorporate the latest information on helmets.

The improvement of helmet design through research is an activity encouraged by the Helmet Initiative. WHO is particularly interested in the development and promotion of motorcycle and bicycle helmets for use in tropical countries.

WHO's Helmet Initiative is available on the Internet at [www.whohelmets.org](http://www.whohelmets.org). Further information can be obtained from this web site, or by e-mail at [info@whohelmets.org](mailto:info@whohelmets.org), or from the local office of the WHO Country Representative.

The principal audience will be *non-users*, and any campaign should attempt to reach the majority of these. An important *secondary* audience is those close to the non-users – such as parents, other family members, employers and teachers – who might influence the non-users and, in any case, want to see them living safely.

The campaign message should:

- be simple, consistent and memorable;
- be appropriate to the conditions of the particular country, including its social and cultural standards;
- not cause offence to any group;
- be relevant to the target group chosen – and not necessarily aim to apply to the whole population.

It is useful to make the message itself the “brand” for the campaign. The product being sold is “Wear a helmet”, not the government agency responsible for the campaign.

While keeping its message consistent, the campaign should adapt its approach for changing audiences. The campaign, for instance, may initially operate in urban areas, or among younger people. Different approaches would then be needed to convey the same message to rural or older audiences.

### 3.6.6 Setting a campaign schedule

A campaign will usually have a number of stages. These should include some or all of the following, depending on the current situation of helmet legislation and enforcement:

- a *public education* stage to encourage voluntary helmet use by:
  - ▷ explaining why wearing helmets is beneficial;
  - ▷ informing potential wearers about their availability and cost;
  - ▷ giving information on when helmet use will become compulsory.
- an *advisory* stage as the date for the new regulation approaches to:
  - ▷ reinforce the importance of wearing helmets;
  - ▷ explain the penalties for failing to comply with the new regulations.
- a *marketing* stage – probably the single most important stage – that should:
  - ▷ continue to explain why wearing helmets is beneficial;
  - ▷ give further details on the consequences of not wearing helmets, both from the point of view of possible injury as well as from penalty fines;
  - ▷ reinforce the message for those who wear helmets only irregularly.
- a *maintenance* stage to:
  - ▷ reinforce the message for those who wear helmets;
  - ▷ remind those who have become lax in wearing helmets;
  - ▷ continue to explain the consequences of not wearing helmets.

The initial public education stage, before regulation sets in, should be no more than six months to one year in duration, since the initial impact of a campaign that goes on any longer will begin to fade.

The date set for the introduction of the new regulations should be one that is easily remembered.

The marketing stage will have the greatest effect on behaviour, and needs to be continued until its planned outcomes are achieved. However, marketing efforts need not be continuous – periodic marketing will reinforce a message, and is more cost-effective than continuous marketing. Such outcomes, of course, should be realistic and achievable. During this stage, it may be best to enforce the regulations with warnings only at first, though the campaign will become most effective when the regulations are fully enforced.

### 3.6.7 Carrying out and evaluating the campaign

Depending upon the budget, objectives and target audiences for the campaign, a range of media will usually be employed to convey its messages. Some media are more appropriate than others for a particular target group; newspapers may be better for middle-aged people, for example, cinema films for younger people and radio for those in rural areas. A competent advertising agency will be able to advise on the best way to reach different target groups.

The primary outcome of a helmet campaign is *helmets on people's heads*. This outcome is best measured by regular, independently conducted, observational surveys – before, during and after the campaign. Ideally, surveys should take place at six-monthly intervals during the campaign, and annually once the campaign has reached its maintenance stage. The cost of surveys should be built into the overall cost of the programme.

The survey should be sufficiently large to identify significant differences between different age groups, between men and women, motorcycle riders and motorcycle passengers, cities and smaller towns, urban roads and highways, and different regions of the country. As differences are found in surveys, it may be necessary to adjust the campaign focus more towards those groups with lower helmet-wearing rates.

Other less direct outcomes may also be measurable. These include knowledge and attitudes about helmet wearing, police ticketing rates and – where crash statistics are available – deaths and injuries among riders and passengers of two-wheeled vehicles. Knowledge and attitudes are often slower to change, but can be measured by regular, possibly annual, surveys conducted by interview. As with the observational surveys, these interview surveys should be able to detect differences between population groups. Police and casualty data can also be useful, but they are subject to numerous external influences and may not accurately reflect the effect of the campaign.

**BOX 3.11: Campaigning for bicycle helmets**

Many of the considerations regarding increased helmet wearing among riders and passengers of motorized two-wheelers also apply to bicycle riders. A campaign promoting bicycle helmet use can generally follow the same processes as outlined in this module. However, there are some special aspects for bicycles that may be incorporated into the campaign.

In most countries, bicycle helmet use is likely to be at a lower level than helmet use on mopeds, motor scooters and motorcycles. For good reasons, the risk for riders of motorized two-wheelers will be perceived as much greater than that for bicycle riders. If the more at-risk group is not seen to be using helmets, it is unlikely that the less at-risk group will adopt them. Therefore widespread use of helmets on motorized two-wheelers is likely to be a precondition for any attempt to increase bicycle helmet use.

The cost of a bicycle helmet may be comparable to that of the bicycle itself. This could make the bicycle helmet appear expensive, if the target group came from a poor segment of the population. Alternatively, the cost could be seen as fairly cheap, if the target

group was relatively well off. Campaign messages should take account of such differing perceptions.

In rural areas with little fast-moving traffic, it will be hard to persuade people that there is much of a risk in not wearing a bicycle helmet. The main danger to cyclists in these areas will generally be from other slow-moving traffic, resulting in falls, rather than from collisions with faster-moving cars, motorcycles, buses and trucks. The message for bicycle helmets should therefore stress the use of helmets in preventing head injuries from falling off a bicycle – the most common means of receiving such injuries – as well as from collisions with other vehicles.

Bicycles are often the main form of transportation for children, especially when they travel on their own. Parents and schools can usefully influence children to wear helmets. A campaign on bicycle helmets can therefore aim to persuade parents to look after their children's safety, and – as role models – to begin wearing helmets themselves. Alternatively, a school might make it mandatory for children to wear helmets when riding to and from school.



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*As bicycles are a primary form of transportation in many countries, campaigns that involve schools and parents are important in changing children's helmet wearing behaviour.*



### 3.7 Educating young people

The education of children and young people is an important ingredient within a package of interventions to increase helmet use. While the research on the effectiveness of road safety education in changing behaviour has been inconclusive, what has become clear is that educational approaches that concentrate only on teaching facts are unlikely to be successful. As the examples below illustrate, there has to be a comprehensive package containing several approaches.



#### NOTE

#### Increasing helmet use through health counselling

More successful educational approaches include health counselling by trusted professionals such as doctors, nurses or law enforcement officers. In the United Kingdom, one hospital-led promotion campaign resulted in an increase in bicycle helmet use among teens from 11% to 31% self-reported use following the intervention. Hospital casualty figures in the campaign area for bicycle related injuries fell from 112 per 100 000 population to 60 per 100 000 population.

Source: 14

Alongside formal education in schools, peer education is also often effective. One study, using children as educators of their peers, found that persuasive arguments given by older children can significantly influence the behaviour of younger children (15). In another study of factors affecting bicycle helmet use by secondary school students, encouragement by parents and close friends was the factor most likely to induce the correct behaviour (16). Other research has also shown the importance of parental involvement in motivating children to use bicycle helmets (17).

The timing of education campaigns is important to consider. For example, it may be useful to initiate public education around helmet use before new legislation is enforced. Similarly, prior to initiating such campaigns, it must be verified that helmets are available, affordable and convenient and comfortable to use.



Copyright: International School of Beijing/Shunyi 2005

*Social facilitation is a powerful technique for moulding behaviour. When children are taught physical or social skills that enable them correctly to carry out a protective action (such as putting on a helmet), they are more likely to perform the correct behaviour later.*

The examples in the Boxes and Notes show that campaigns that use education to increase helmet use among children and young people are often combined with other measures, in order to be effective.

### **The role of schools in promoting helmet use**

As community organizations, schools have an important role to play in promoting helmet use. As the examples from Viet Nam and the USA below illustrate, schools are environments in which helmet wearing can be implemented, parents can be persuaded to be supportive, sponsors are often keen to support financially, and that are generally well covered by the media. Programme planners should consider the possibility of the school environment as one to promote helmet use and assist in raising public awareness of the issue.



#### **Bicycle helmet campaigns**



A bicycle helmet educational campaign was initiated for children from low-income families in the state of Washington, United States of America (16). The federal-funded *Head Start* programme, that offers health, education and social support, was used to provide free bicycle helmets to young people and to educate both parents and children.

*(Continued next page)*

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The programme included:

- providing classroom instruction to children on the need to wear helmets;
- educating parents about the risks of head injuries from bicycle crashes, the effectiveness of helmets, and ways to encourage helmet use while children were still young;
- obtaining and fitting a helmet for each child;
- conducting bicycle “rodeo” events, so that children could see other children wearing helmets and practice safe riding skills;
- making bicycle helmet wearing compulsory on school grounds.

Education materials included activity books, posters, games and stories geared to the appropriate age group, as well as multilingual flyers.

An evaluation of the programme showed more than doubling of observed rates of helmet use, from 43% to 89%. Although the risk of bicycle-related injuries was low in this age group, a part of the educational objective was to encourage longer-term use of helmets, through to ages where the risks increased considerably.

#### NOTE

#### **Educational initiative to increase helmet use in Bangalore, India**

The Bangalore-based NGO *Friends for Life*, launched a public road safety awareness campaign to promote the wearing of helmets among riders of motorcycles. The campaign, entitled “Keep your head, Wear your helmet” relied on the internet to create awareness, increase interaction and foster behaviour change. In addition to targeting the public, the campaign used corporate managers to reach their employees. Physicians were also used by posting advocacy materials in their offices and in employee newsletters. Bangalore traffic police placed signs strategically at prominent traffic points and advocates persuaded helmet manufacturers to host music concerts. Although the immediate aim of this programme was to increase helmet use, it has a wider goal of fostering a critical mass of people to influence policy-makers to build safer roads and to develop education schemes for riders and drivers.

Education materials include posters and stickers, logos and computer “wallpaper”. Advice was provided to help independent campaign organisations. Surveys were undertaken before the campaign started to assess the reasons for not wearing helmets. Cost of helmets, poor ventilation of helmets in a hot climate and fashion were all factors to be addressed.

### BOX 3.12: Educating children on motorcycle helmet use



Copyright, Asia Injury Prevention Foundation 2004

*The Helmets for Kids programme has provided helmets to thousands of Viet Nameese children.*

Children in Viet Nam frequently bear the brunt of road traffic injuries. In a society where the motorcycle is the main means of road transport, children are the most vulnerable passengers while riding with their parents. In response, the nongovernmental organization *Asia Injury Prevention Foundation* undertook a safety campaign entitled “Helmets for Kids”. The scheme was launched in 2000 in Ho Chi Minh City by former United States President Bill Clinton.

The campaign includes a comprehensive curriculum on traffic safety for primary schools. The objectives are to ensure that children have a deeply ingrained understanding of safe behaviour in their daily activities and travel, that they understand traffic laws

and transport systems, and that they acquire the necessary skills and attitudes for safe behaviour when later they ride motorcycles themselves. In collaboration with the Ministry of Education and Training, books for pupils and teacher manuals have been produced that are used together with models of streets set up in the classrooms. Each school also has a “traffic corner”, built to provide a realistic setting for practical learning and training. After an initial pilot scheme that produced a positive evaluation, the scheme is being gradually introduced across the country.

Another strand of the campaign consists of raising public awareness, using posters and media publicity. This is aimed at older children and young people. Newspapers feature prominent personalities wearing helmets, and on national television helmets are selectively placed in television dramas and entertainment shows.



### 3.8 Ensuring an appropriate medical response

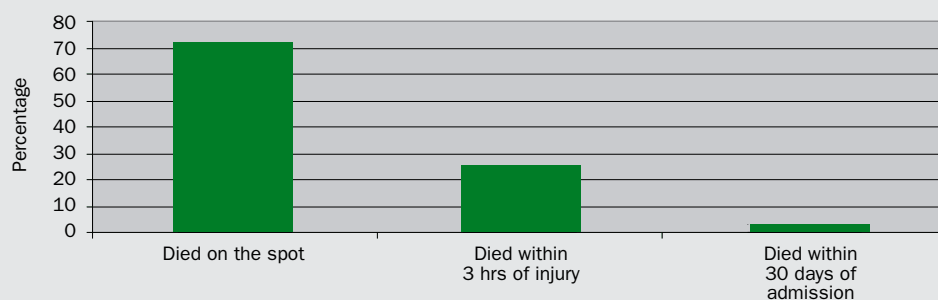
While the primary aim of a helmet programme will be to increase helmet use, it is also important for those planning the programme to consider the response provided in the event of a motorcycle crash (whether or not a helmet is worn by the motorcycle user). A quick and appropriate medical response to the victim of a crash may prevent a fatality, or reduce the severity of the injury suffered. Thus, those designing a programme may want to consider both the first aid response that is likely to be given at the scene of the crash, as well as the preparedness of the formal medical services that will deal with victims of motorcycle crashes.

#### NOTE

#### The importance of a quick response

Research in Malaysia found that the few hours that follow an injury are crucial in determining a victim's outcome. Of the 186 fatally injured motorcyclists included in the study, it was found that 71% of these deaths occurred on the spot, while 25% of the fatalities had occurred less than 3 hours after the occurrence of the crash. Implementing effective pre-hospital and emergency medical service treatment would reduce these deaths.

Death profiles of motorcyclists in Malaysia (data from 2000)



Source: 18

#### First aid for motorcycle and bicycle crash victims

Riding a motorcycle or a bicycle and being involved in a crash can result in life-threatening injuries – including severe wounds to the head, neck and back which might also lead to unconsciousness and heavy blood loss. Following a crash, a skilled first aid provider can make the difference between the crash victim's survival or death, and can help reduce the consequences of injuries. Immediate on-the scene assistance

is of major importance, especially if the emergency services are absent or delayed, and can be encouraged in various ways.

### *Legal efforts*

Laws and regulations should be introduced promoting good quality first aid, including the following:

- a law removing the threat of litigation against those giving first aid. Many countries provide legal immunity from charges of negligence against a bystander attempting, in good faith, to help a victim (good Samaritan law);
- the mandatory inclusion of first aid knowledge and skills in the requirements for obtaining a two-wheeler driving licence or certificate;
- a requirement for certain vehicles to carry a first-aid kit;
- an incentive for manufacturers or salespeople of two-wheeled vehicles to also provide a first-aid kit, or to support the participation of the buyer in a first aid training course.

### *First-aid education programmes*

First aid education programmes should deliver knowledge and practical skills, as well as a confidence to act. They should teach:

- how to act safely and protect the scene, to prevent further crashes and minimize the risk for those giving assistance;
- how to summon help, report the crash and give relevant information;
- how to make an emergency removal of an injured person from the scene, where this is necessary and possible;
- how to assess the physical state of an injured person, by checking vital functions;
- how to deal with visible bleeding, unconsciousness, breathing problems, wounds and bone trauma;
- how to give psychological support to victims and others who are affected.



*Appropriate first aid response can greatly improve the consequences of a motorcycle crash.*

*Specific first aid for motorcycle and bicycle crash victims*

- *Motorcyclists wearing full-face helmets.* A full-face helmet should only be removed if the injured rider does not have a clear airway or cannot breathe. The casualty's head and neck must be stabilized at all times.
- *Cyclists wearing skull helmets* (equivalent to half-head motorcycle helmets). If the face is severely injured, threatening the airway, the casualty should be sat up and bent forward. Stabilizing the head and neck is still essential.
- *Casualties encased in leather.* Bleeding wounds can be hidden from view or disguised by leather garments. If bleeding is suspected, expose the area and apply direct pressure .
- *Head trauma.* If the casualty is unconscious, clear the airway, roll onto a side, keeping the head, neck and body as one unit. This technique should also be performed on conscious casualties who are vomiting or suffering from a face injury.
- *Burns.* In a crash, a rider trapped under the bike may be burnt by extreme heat from the exhaust and engine parts. For all burns it is essential to expose the wound and cool it with clean running water.

**BOX 3.13: Ensuring that the emergency medical services are prepared**

The primary prevention of any disease or injury is an overriding priority. However, many lives can also be saved following an injury through proper trauma care. This is especially the case in developing countries, where there are high fatality rates from potentially non-life-threatening injuries.

Trauma care, in both prehospital and hospital settings, requires speedy and appropriate action by trained personnel, with proper supplies and equipment. Improving trauma systems has been shown to lower the mortality in all treated trauma patients by between 15% and 20% and to cut the number of preventable deaths by over 50%.

Several recent publications provide technical details of on how to improve trauma care. Two, published by WHO, that are strongly recommended are the *Guidelines for essential trauma care (19)* and *Prehospital trauma care systems (20)*.

**Prehospital care**

The prehospital stage is an important one to target in efforts to cut the number of road traffic deaths. The care given will depend on the services that exist

**1. Situations where no formal Emergency Medical Service exists**

A “formal” system of emergency medical services (EMS) is usually one with ambulances and trained personnel, who work in an agency with some supervision and with a network of communications. Where no formal EMS exists, governments should make alternative arrangements to provide prehospital care. Ways can be found to build on existing, informal systems and harness community resources, such as training members of the public in basic first aid. Setting up formal EMS systems in urban areas and along major inter-urban roadways should also be explored. Cost should be one consideration, given the high cost of these systems.

**2. Strengthening existing EMS systems**

Many EMS systems could be strengthened in a number of ways, for example, by establishing a regulatory agency to promote minimum standards for the delivery of prompt, quality and equitable prehospital care; or by streamlining communication between sites where calls are received (such as alarm centres) and the sites of ambulance dispatch, as well as between different ambulance services; and by keeping good records on people

cared for by the EMS, so as to monitor and improve the quality of care.

**Essential trauma care**

Improvements in trauma care need not necessarily involve high-cost, high-technology equipment. Much can be accomplished in an affordable and sustainable way through better planning and organization.

The essential trauma care services and the resources required for them can be promoted in several ways, including through needs assessments of trauma care requirements, through training in trauma care provided in appropriate educational settings, through quality improvement programmes that consider the entire trauma facility setting; and through the inspection of trauma facilities (19).

**Rehabilitation**

Many of those who survive injury go on to develop physical disabilities that limit their physical functions. Tragically, many of these consequences are avoidable and can be reduced by improving rehabilitation services. Rehabilitation services are an essential element of trauma care, and can be improved by conducting more in-depth needs assessments for injury-related rehabilitation, by strengthening the capabilities of national rehabilitation programmes, and by implementing the recommendations of World Health Assembly Resolution WHA58.23 and the recommendations on rehabilitation in the *Guidelines for Essential Trauma Care (19)* into a country's health policy.



Setting up an EMS system may not be feasible for many countries, but alternative prehospital care arrangements can be developed.

## **Summary**

- This module provides an overview of the steps necessary to design an effective programme aimed at increasing helmet use –in turn decreasing motorcycle-related head injuries and fatalities. As stressed throughout the module, an effective programme depends on a combined approach using legislation, standards, education and enforcement.
- A working group should be set up to oversee the formation of a helmet use programme. Consisting of individuals from a range of relevant backgrounds and disciplines, this working group will advise on all matters of the programme and ensure the necessary coordination between its different activities. The group should have the authority to carry out the programme.
- Once a working group is established, the results of the situational analysis can be used to plan the programme. Activities can then be defined, in the areas of legislation, enforcement and education. Alongside each activity, programme goals and objectives should be set.
- Funding needs to be secured for the programme so that it can be effectively implemented. Monitoring the programme throughout its various stages is essential, to identify shortcomings and correct them. Finally, an outcome evaluation should be carried out to determine whether the programme has been effective. Based on this, future programmes can be built, sustaining the impact of the initial programme.
- Appropriate legislation is an important step to increasing helmet use. An initial assessment of the current legislative situation will help decide whether a new law is needed or simply a revision to an existing law. It is important to identify how, when and where the new law will be implemented. Legislation should be promoted by the highest levels of government to ensure that it has the support of enforcement agencies and a proper legitimacy among the public.
- Standards for motorcycle helmets should be developed to ensure access to quality safety equipment. Standards – of design and materials used – should be set so as to give motorcyclists a high level of protection in the event of a crash. They should also be set in such a way that manufacturers have the flexibility to produce a range of helmet designs that will appeal to the public and help encourage their use.
- Both voluntary and compulsory measures can be used to increase compliance with a helmet law. Indeed, continuous and fair enforcement of the law are essential for raising rates to a significant level. This calls for a strong commitment from both the government and the enforcement agency. Existing enforcement agencies should be evaluated, to see if their capacity needs to be increased. A plan for penalizing motorcyclists who break the law on helmet use should be devised. Penalties can take the form of warnings, fines or the confiscation of licences or of motorcycles.

- Together with legislation and enforcement, a well-designed marketing and publicity campaign is essential for the success of a helmet use programme. To meet these objectives, a good marketing or advertising agency may need to be taken on to create an effective communication campaign. Communication should be aimed at motorcyclists not using helmets, as well as a secondary audience with the potential to influence the non-users. The messages should be simple, consistent and memorable – and appropriate to the social and cultural standards of a particular country.
- There is an important role for school education and peer education among young people. Educational programmes, combined with other activities, can help shift behavioural norms towards making helmet use more acceptable.
- When designing a helmet use programme, practitioners should consider the post-crash response to motorcycle injuries. This involves addressing the appropriateness of first aid services, and examining the capacity for provision of pre-hospital care, essential trauma care, and rehabilitation services to provide for motorcycle crash victims.

Table 3.8 summarizes the main steps in the process of implementing a helmet programme.

**Table 3.8 Checklist for designing and implementing a helmet programme**

Activity	Steps in design and implementation
Establishing a working group	<ul style="list-style-type: none"> <li>• Ensuring all those with an interest are represented</li> <li>• Assigning roles to members</li> </ul>
Developing an action plan	<ul style="list-style-type: none"> <li>• Defining objectives</li> <li>• Setting targets</li> <li>• Articulating activities for each objective</li> <li>• Defining performance indicators for activities</li> <li>• Estimating resources</li> <li>• Setting a timeframe</li> <li>• Articulating how the programme will be monitored and evaluated.</li> <li>• To ensure sustainability of the programme, include at least a 5 year timeframe in overall planning and a plan for longer term funding</li> </ul>
Developing legislation	<ul style="list-style-type: none"> <li>• Consideration of institutional or cultural constraints</li> <li>• Selection of objectives</li> <li>• Drafting of legislation</li> <li>• Approval of legislation</li> <li>• Implementation of legislation</li> </ul>
Developing enforcement strategy	<ul style="list-style-type: none"> <li>• Assessment of capacity to enforce</li> <li>• Increasing policy capacity if necessary</li> <li>• Training police in enforcement</li> <li>• Creating a penalty system</li> </ul>
Developing public awareness campaign	<ul style="list-style-type: none"> <li>• Choice of communication agency</li> <li>• Selection of campaign objectives</li> <li>• Selection of campaign message</li> <li>• Delivery of campaign</li> <li>• Evaluation of campaign</li> </ul>
Implementing overall helmet-use programme	<ul style="list-style-type: none"> <li>• Assessment of helmet use</li> <li>• Identification of problem</li> <li>• Selection of objectives</li> <li>• Selection of corresponding activities</li> <li>• Launch of programme</li> <li>• Monitoring of programme</li> <li>• Evaluation of programme's effectiveness</li> <li>• Planning of future programmes</li> </ul>
Ensure appropriate response at and after scene of the crash	<ul style="list-style-type: none"> <li>• Encourage appropriate first aid to victims of motorcycle and bicycle crashes through appropriate legal framework and delivery of first aid education programmes.</li> <li>• Consider the prehospital care, essential trauma care, and rehabilitation services that are required and existing capacity to respond to these needs.</li> </ul>

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