



**Trainers' Notes**  
Rural Transport Training Materials

# Module 1: Policies and Strategies

## Part 1

Rural Transport safety strategy

## Part 2

Case Study from Nepal

### SESSION 1.6



**SSATP**  
Africa Transport  
Policy Program



**DFID** Department for  
International  
Development



theIDLgroup

<p><b>Learning Objectives</b></p>	<p>By the end of the session participants will be able to:</p> <p><b>Technical paper</b></p> <ul style="list-style-type: none"> <li>Describe the issues of road safety in developing countries</li> <li>Analyse the issues related to an effective safety improvement strategy</li> <li>Create recommendations for improvements in rural road safety</li> </ul> <p><b>Case study</b></p> <ul style="list-style-type: none"> <li>Identify the rationale for using the gabion safety barrier in Nepal</li> <li>Explain the circumstances in which the gabion safety barrier is best used</li> <li>Analyse experiences from Nepal</li> <li>Collate lessons from the Nepal experience for other countries</li> </ul>
<p><b>Rural Transport Knowledge Base papers used with this session</b></p>	<p>Rural Transport Safety Strategy  <b>By:</b> TRL Limited</p> <p>Case Study: An Affordable Safety Barrier for Nepal  <b>By:</b> A. Jones 1999</p>
<p><b>Training Materials</b></p>	<p><u>Presentations</u></p> <p>1.6a Rural Transport Safety Strategy</p> <p>1.6b An affordable safety barrier for Nepal – Case Study</p> <p><u>Activity Sheets</u></p> <p>24 Addressing road safety issues</p> <p>25 Advantages and disadvantages of gabion safety barriers</p> <p>26 Nepal case study</p>

## Trainers' summary

**This session is divided into two parts:**


**Part 1** is based on the technical paper: Rural Transport Safety Strategy

**Part 2** is based on the case study: An affordable safety barrier for Nepal


<b>Key Topics</b>	<b>Training Methods</b>
<b>Part 1</b>  <b>1. Introduction</b>  <b>2. Road Safety Statistics</b>   <b>3. Addressing Road Safety Issues</b> <ul style="list-style-type: none"> <li>3.1 An analysis of road safety issues</li> <li>3.2 Organisational requirements</li> <li>3.3 Role of engineering and planning</li> <li>3.4 Role of education and training</li> </ul>	<b>Presentation</b>  <b>Ideas Gathering</b> <b>Q &amp; A</b> <b>Presentation with discussion</b>  <b>Group Activity</b> <b>Presentation &amp; discussion</b> <b>Presentation &amp; discussion</b> <b>Presentation &amp; discussion</b>
<b>Part 2</b>  <b>4. Case Study from Nepal</b> <ul style="list-style-type: none"> <li>4.1 Introduction</li> <li>4.2 Context of road safety in Nepal</li> <li>4.3 Requirements for safety barriers in Nepal</li> <li>4.4 The gabion safety barrier</li> <li>4.5 Guidelines for the use of the gabion safety barrier</li> </ul>	<b>Presentation</b> <b>Presentation</b> <b>Presentation</b> <b>Group Discussion</b> <b>Presentation</b> <b>Case study activity</b>
<b>Summary of session 1.6</b>	


## Session 1.4 Trainers' Notes


### 1. Introduction

<i>Training Methods</i>	<i>Content</i>	<i>Materials</i>
<b>Presentation</b> 	<p>Introduce the first part of session by explaining the learning objectives and session structure.</p> <p>The first part of this session is based on the technical paper: Rural Transport Safety Strategy. This part of the session examines road safety statistics from around the world and the factors that affect road safety. The role of engineering and education for road users is explored.</p> <p><b>Key Points:</b></p> <p><b>Session Overview Part 1</b></p> <ul style="list-style-type: none"><li>⦿ Road safety statistics</li><li>⦿ Addressing road safety issues</li></ul>	Presentation 1.6a Slides 1 - 5

## 2. Road Safety Statistics


Training Methods	Content	Materials
<p><b>Ideas Gathering</b></p> 	<p><b>An introduction to the issues</b></p> <ul style="list-style-type: none"> <li>④ Introduce the topic of road safety by beginning with a brainstorm, to gather as wide a range of ideas as possible.</li> <li>④ Ask participants to work individually and to think of the range of issues associated with the topic of <i>“Road Safety”</i></li> <li>④ Ask each person to write one point per post-it. Encourage them to write as many ideas as possible on as many post-its as they wish.</li> <li>④ Stick the post-its on the white board.</li> <li>④ Ask participants to assist you in grouping similar ideas: <ul style="list-style-type: none"> <li>≈ Behaviour and Attitudes</li> <li>≈ Vehicle &amp; Road Standards</li> <li>≈ Legislation</li> <li>≈ Organisational Issues</li> </ul> </li> <li>④ Summarise the Key Points raised.</li> <li>④ Explain that these areas will be explored in more detail during this session, and recommendations made to address safety issues.</li> </ul>	<p>Post-its White board Pens</p>

Training Methods	Content	Materials
<p><b>Q &amp; A</b></p> 	<p><b>How big is the problem of road safety?</b></p> <ul style="list-style-type: none"> <li>⦿ To open the discussion on road safety statistics facilitate a discussion around the question</li> </ul> <p><i>What road safety statistics do you know of? These may relate to road crashes, fatalities, vehicles and so on.</i></p> <ul style="list-style-type: none"> <li>⦿ Note the points made by participants on a flip chart. Details of road safety statistics are discussed in the section below.</li> </ul> <p><b><u>Trainers' Note</u></b></p> <p><i>The aim of this activity is to provide those participants that do have statistical knowledge to share this with the rest of the group. If you know participants have no such knowledge then you may wish to omit this activity.</i></p> <p><i>This activity may also be modified by asking participants to estimate say the cost of road crashes in terms of GDP, by offering them a range of statistics / figures e.g. 0.1%? 0.5%? 1%? 10%? This would require some preparation by the trainer before the session.</i></p>	<p>Flip chart, pens</p>



<i>Training Methods</i>	<i>Content</i>	<i>Materials</i>
<p><b>Presentation</b></p> 	<p>Describe some road crash statistics collected by TRL Limited.</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Human factor, fatalities, injuries</li> <li>Economic costs</li> <li>Regional difference</li> <li>Common indicators: fatality rates, fatality risks</li> <li>Road users most often affected by fatalities</li> </ul>	<p>Presentation 1.6a Slides 6 - 13</p>





## 3. Addressing Road Safety Issues


Training Methods	Content	Materials
<p><b>Group Activity</b></p> 	<p><b>3.1 An analysis of road safety issues</b></p> <p>This exercise explores some of the causes of road crashes and considers a variety of measures to address the issues associated with accidents so as to improve road safety.</p> <ul style="list-style-type: none"> <li>④ Divide the participants into 3 groups.</li> <li>④ Ask <b>Group 1</b> (Activity Sheet 24 - Group 1) to discuss <ul style="list-style-type: none"> <li>A. <i>What part do organisational and institutional issues play in the cause of road crashes?</i></li> <li>B. <i>In what ways may the organisations &amp; institutions responsible for road safety be strengthened so as to improve road safety?</i></li> </ul> </li> <li>④ Ask <b>Group 2</b> (Activity Sheet 24 - Group 2) to discuss <ul style="list-style-type: none"> <li>A. <i>What part do engineering issues play in the cause of road crashes?</i></li> <li>B. <i>What role does engineering have to play in preventing/ reducing crashes and fatalities?</i></li> </ul> </li> <li>④ Ask <b>Group 3</b> (Activity Sheet 24 - Group 3) to discuss <ul style="list-style-type: none"> <li>A. <i>What part does road user behaviour play in causing crashes?</i></li> <li>B. <i>How may education and training be used to increase road safety and prevent / reduce crashes and fatalities?</i></li> </ul> </li> </ul> <p><b>Continued...</b></p>	<p>Presentation 1.6a Slide 14 Activity sheet 24</p>


Training Methods	Content	Materials
	<p><b>...Continued</b></p> <ul style="list-style-type: none"> <li>④ Ask each group to present their findings to the plenary.</li> <li>④ Facilitate a discussion on the key issues arising, drawing out common themes.</li> <li>④ Key learning points will be discussed in the sections below (3.2, 3.3 and 3.4). <i>See trainers' note below.</i></li> </ul>	
	<p><b><u>Trainers' Note</u></b></p> <p><i>The feedback from the participants' group work may be facilitated in conjunction with the discussions in sections 3.2, 3.3 and 3.4 below.</i></p> <p><i>This may be done in the following way: first ask group 1 to present the results of their discussions on 'organisational and institutional issues', facilitate a discussion on these findings, then bring in the presentation slides (presentation 1.4a slides 13 – 18) to complement what group 1 has said, by facilitating a discussion around the slides, and finally pull together the key learning points for this topic.</i></p> <p><i>Then ask group 2 to present their findings on 'engineering issues', facilitate a discussion on their findings, bring in the presentation slides (19 – 26) and facilitate a discussion on these slides, and pull together the key learning points.</i></p> <p><i>Repeat for group 3 on 'road safety education'.</i></p>	


Training Methods	Content	Materials
<p><b>Presentation with Discussion</b></p> 	<h3>3.2 Organisational Requirements</h3> <p>Building on the points mentioned in the activity above, facilitate a discussion on the developments that need to take place within organisations responsible for addressing road safety issues. Ask questions like:</p> <p>What capabilities are required by road safety organisations? What sort of road safety data should they collect?</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Capabilities and activities</li> <li>Data collection and analysis</li> <li>Microcomputer Accident Analysis Package (MAAP)</li> </ul>	<p>Presentation 1.6a Slides 15 -20</p>
<p><b>Presentation with Discussion</b></p> 	<h3>3.3 Role of Engineering and Planning</h3> <p>Building on the points mentioned in the activity above, facilitate a discussion on the role of engineering in terms of road and vehicle standards in addressing road safety. Ask questions like:</p> <p>What is the main cause of crashes?</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Crash prevention</li> <li>Crash reduction</li> <li>Vehicle safety</li> </ul>	<p>Presentation 1.6a Slides 21 - 28</p>



Training Methods	Content	Materials
<p><b>Presentation with Discussion</b></p> 	<h3>3.4 Role of Education and Training</h3> <p>Building on the points mentioned in the activity above, facilitate a discussion on the various interventions that may be used to raise awareness of road safety, especially amongst children, and the need for more stringent driving standards.</p> <p>Ask questions like:          What road safety messages should be presented in schools?          In what ways could the police enforce road safety measures?</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Addressing road safety education in schools</li> <li>Teacher training</li> <li>Improve training of driving instructors and driving test examiners</li> <li>High quality driving tests</li> <li>Guidelines for certain classes of driver e.g. truck drivers</li> <li>Support for police enforcement of traffic regulations</li> <li>Influence driver behaviour through police patrols, advertising and awareness campaigns</li> </ul>	<p>Presentation 1.6a          Slides 29 - 35</p>
<p><b>Presentation</b></p> 	<h3>Concluding remarks</h3> <p>Summarise the first part of this session by highlighting the main issues explored and the essential activities for taking these issues forward.</p>	<p>Presentation 1.6a          Slides 36 - 37</p>

## 4. Nepal Case Study: An affordable safety barrier


<i>Training Methods</i>	<i>Content</i>	<i>Materials</i>
<p><b>Presentation</b></p> 	<p><b>4.1 Introduction</b></p> <p>Introduce the second part of session by explaining the learning objectives and session structure.</p> <p>This part of the session explores the experiences of the Traffic Engineering and Safety Unit of the Department of Roads in Nepal, involving their work in testing a safety barrier made of gabions (stone-filled steel mesh cages)</p> <p><b>Key Points:</b></p> <p><b>Session Overview Part 2</b></p> <ul style="list-style-type: none"><li>Context of road safety in Nepal</li><li>Requirements for safety barriers in Nepal</li><li>The gabion safety barrier</li><li>Guidelines for the use of the gabion safety barrier</li></ul>	<p>Presentation 1.6b Slides 1 - 3</p>


Training Methods	Content	Materials
<p><b>Presentation</b></p> 	<h3>4.2 Context of road safety in Nepal</h3> <p>Explain the problems of run-off-road accidents in Nepal.</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Many of the long term road safety programmes focus on building skills and addressing issues related to habits and attitudes</li> <li>In the short term road engineering solutions, such as safety barriers, may be required in order to reduce fatalities and injuries</li> <li>In Nepal most vehicles on inter-urban routes are trucks and busses</li> <li>Steep terrain, the long distances driven, poor maintenance of vehicles and high speeds all affects the nature of the run-off-road accidents</li> </ul>	<p>Presentation 1.6b Slides 4 - 8</p>


<b>Training Methods</b>	<b>Content</b>	<b>Materials</b>
<p><b>Presentation</b></p> 	<h3>4.3 Requirements for safety barriers in Nepal</h3> <p>Explain the various types of safety barrier that have been used in the past in the Nepal and the problems associates with them.</p> <p>Draw on any experiences that participants themselves may have of working in Nepal.</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Low blocks of cement masonry – simply ‘confidence blocks’, sheer on impact</li> <li>Reinforced concrete walls – costly, ridged</li> <li>Barriers used in Britain such as the steel beam safety fence are inappropriate due to the nature of run-off-road accidents in Nepal, cost and specialised skills required to design and install</li> <li>Requirements for a proper safety barrier at hazardous sights on busy roads, as outlined by the Safety Unit</li> </ul>	<p>Presentation 1.6b Slides 9 - 10</p>

Training Methods	Content	Materials
<p><b>Presentation</b></p> 	<h4>4.4 The gabion safety barrier</h4> <p>Explain what the gabion safety barrier is, and how it has been used in Nepal, especially by the Safety Unit.</p>	<p>Presentation 1.6b Slides 11 - 12</p>
<p><b>Group Discussion</b></p> 	<p>The purpose of this activity is to explore the potential pros and cons of gabion safety barriers either in Nepal and the countries in which participants are working.</p> <p>This activity may draw on the experiences of those participants that may have knowledge of this type of safety barrier.</p> <ul style="list-style-type: none"> <li>④ Divide participants into two groups.</li> <li>④ Ask <b>Group 1</b> (Activity sheet 25a) to discuss: <i>What are the advantages of gabion safety barriers?</i></li> <li>④ Ask <b>Group 2</b> (Activity sheet 25b) to discuss: <i>What are the disadvantages of gabion safety barriers?</i></li> <li>④ Ask each group to present their findings to the plenary.</li> <li>④ Facilitate a discussion around the Key Points raised. Draw on practical experience of participants if relevant.</li> <li>④ Key learning points on the experiences of using gabion barriers in Nepal are discussed below.</li> </ul>	<p>Presentation 1.6b Slide 13</p> <p>Activity sheet 25</p>



Training Methods	Content	Materials
<p><b>Presentation</b></p> 	<p>Building on the points mentioned in the activity above, describe the experiences of using gabion safety barriers in Nepal.</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Advantages (in Nepal) include low cost, easy to build if stone available, repairs are simple (but in practice are delayed while the Department waits for enough repairs to be of interest to a contractor), light stones easier to see in the dark</li> <li>Disadvantages (in Nepal) include taking up too much space and may lead to serious injury for light vehicles</li> <li>The gabion safety barrier fared well and prevented vehicles going off the road and reduced injuries</li> <li>The Safety Unit made modifications to the gabion barriers to improve their effectiveness</li> </ul>	<p>Presentation 1.6b Slides 14 - 17</p>

Training Methods	Content	Materials
<p><b>Presentation</b></p> 	<h3>4.5 Guidelines for the use of the gabion safety barrier</h3> <p>Describe the guidelines as laid out by the Safety Unit on where best to use gabion safety barriers.</p> <p><b>Key Points</b></p> <ul style="list-style-type: none"> <li>Prevent vehicles falling down a slope</li> <li>Prevent vehicles from hitting an object near to the road</li> <li>Prevent cross-over accidents on dual carriage ways</li> <li>Key questions to determine the cost effectiveness of gabion safety barriers – including the extent of previous run-off-road accidents, speed of vehicles, presence of bends in the road</li> <li>Summarise the key experiences from Nepal – the gabion safety barrier does have potential to increase road safety in Nepal, and demonstrates the role of a Safety Unit.</li> </ul>	<p>Presentation 1.6b Slide 18 - 21</p>

Training Methods	Content	Materials
<p><b>Case Study activity in groups</b></p> 	<p>This activity provides participants with the opportunity to reflect on the experiences from Nepal and to consider the extent to which any lessons may be applied to the countries in which they are working.</p> <ul style="list-style-type: none"> <li>④ Divide participants into groups of 4 or 5.</li> <li>④ If participants come from a number of countries then they may be divided into specific country groups.</li> <li>④ Give each group Activity Sheet 26, and a full copy of the case study (which they may read to recap on the Nepal case study), and ask them to discuss: <ul style="list-style-type: none"> <li>A. <i>What are the requirements for safety barriers in countries you are working in? How appropriate is the gabion safety barrier?</i></li> <li>B. <i>How may the experiences of using the gabion safety barrier in Nepal be applied to the countries you are working in? What lessons can be learnt?</i></li> </ul> </li> <li>④ Ask participants to explain the key learning points that have come out of their discussions in the groups.</li> <li>④ Note these points on flip chart and facilitate a discussion in plenary on the key issues arising.</li> </ul> <p><b><u>Trainers' Note</u></b></p> <p><i>There are no right and wrong answers to these questions. Encourage participants to explore a wide range of issues, as illustrated by the Nepal case study. These issues should not only include the technical appropriateness of gabion barriers but also financial issues, terrain, and maintenance issues.</i></p>	<p>Presentation 1.6b Slide 22</p> <p>Activity sheet 26</p>
	<p><b>Summary of Session 1.6</b></p> <p>Conclude this session by reviewing the issues explored and the key lessons learnt, highlighting areas that may need further investigation or discussion.</p>	