Benchmarking international road policing in low to middle-income countries

A thesis submitted in fulfilment of the requirements for a Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the study is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Raymond Neil Shuey

September 2013.

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Abbreviations & Acronyms

24/7 24 hours a day, 7 days per week
ANCAP Australian New Car Assessment Program
BAC Blood alcohol concentration
CBD Central business district
CompStat COMParative STATistics (New York Police Department initiative)
DALYs Disability adjusted life years
ETSC European Transport Safety Council
GPS Global positioning satellite
GRSP Global Road Safety Partnerships
IPA International Police Association
IRPAP International road policing assessment program
iRAP International road assessment program
IRTE Institute of Road Traffic Education (India)
kph Kilometres per hour
kms Kilometres
KPK Indonesian Corruption Eradication Commission
Lao PDR Lao Peoples’ Democratic Republic
MUARC Monash University Accident Research Centre
NCAP New car assessment program
NRADS National Road Accident Database System (Viet Nam)
OECD Organisation for Economic Cooperation and Development
PIARC Permanent International Association of Road Congress, now known as the World Road Association
RBT Random breath-testing
RDT Random drug-testing
RPS Road protection score
RS10 Road safety in 10 countries funded by Bloomberg Philanthropic Society
RTS Road traffic safety
SWOV Institute of Road Safety Research, Netherlands
TISPOL Traffic Information System Police
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>USD/$US</td>
<td>United States of America dollar(s)</td>
</tr>
<tr>
<td>VIP</td>
<td>Very Important Person</td>
</tr>
<tr>
<td>VTAC</td>
<td>Victorian Transport Commission</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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Summary of the thesis

Benchmarking international road policing in low to middle-income countries

Globally, road fatalities claim 1.3 million lives annually with an additional 20 to 50 million people seriously injured. Over 90% of these deaths occur in low to middle-income countries, with almost half of those involving vulnerable road users such as pedestrians, cyclists and motorcyclists. In these countries road policing, traffic law enforcement strategies and education on traffic safety have generally been given low priority by governments and the policing authorities. In many cases the institutional arrangements for traffic safety have been fragmented and lack clear purpose and leadership, with road safety interests being obscured by other competing interests. The ‘Decade of Action’ 2011-2020 promulgated by the United Nations (UN) provides the incentive and foundation for road safety reform.

Road trauma is particularly challenging for law enforcement in these countries. The challenges include widespread social, economic and political instability coupled with archaic traffic laws, limited road policing standards, limited traffic law enforcement, poor law enforcement equipment, inadequate traffic police training, and poor-quality civilian driver training and licence testing as well as rudimentary data bases for registration, licensing and collision recording. This research examines these challenges and demonstrates that road safety is under-resourced and poorly funded by governments and exacerbated by the inability of police to provide strategic improvement in law enforcement. There is currently no audit, benchmark or road safety index to guide improvement.

The objectives of the research are to identify good practice, determine which aspects of traffic enforcement are appropriate for benchmarking and whether good practice can be translated into policy tools for an evidence-based framework to improve road safety enforcement. To achieve these objectives, the research examines ways to improve road safety and the capacity of road policing to reduce road trauma, with the intent of enabling police jurisdictions around the world to assess and improve their performance based on good practice.

This research by project was undertaken using a mixed-method approach of qualitative and quantitative research and employed a literature review and analysis; interviews with road
safety experts; a survey that involved 216 senior police practitioners; and participant observations undertaken in ten low to middle-income countries. The research has two phases, each with distinct outputs. The first phase, documented in the research, is a critical interrogation of road policing and traffic law enforcement. The study reviews international road trauma, develops the chronology of international discussion, action and commitment and then examines avenues to address the problem through a thematic approach to road policing. It seeks to understand traffic law enforcement as having a meaningful impact on road user behaviours. The second phase is the development of an applied tool based on the findings of the empirical research.

This research established that funding, resourcing and efficient resource systems underpin police enforcement and confirmed that traffic law enforcement is important in reducing road crashes. Enforcement is a key contributor for driver behavioural change, and somewhat more so than a softer approach, of education; the combination of both was considered the most appropriate strategy. To be effective, police need to understand the reasons driver commit offences so that remedial action can be instigated. The research has highlighted that the standard of governance and accountability of the police role and the ability to undertake any systematic examination of road policing activities is lacking. These identified issues point to the important potential contribution that international road policing and traffic law enforcement benchmarking could make for low to middle-income countries.

By examining the international focus on road trauma and the progress of remediation and counter-measures, the aim of this research has been to develop practical solutions for law enforcement rather than just documenting the problem. This includes examining the role of enforcement and how remedial interventions can be structured to build capacity and especially to achieve sustainable outcomes for road safety. The concepts outlined in road safety reform programs such as Sweden’s Vision Zero and the OECD’s Safe Systems approach provide acceptable foundation models that can be embraced to ensure that the companion law enforcement model is holistic in its approach and systematic in its application. The research takes these influences into consideration.

In each phase of the research, key themes have been identified and used to progress through the research. These themes are then consolidated into five gradable themes: quality
of data and analysis for evidence-based policing; community relationships; road policing support infrastructure; professionalism of traffic police; and operational capability. These themes form the foundation of a universal benchmarking and assessment enforcement framework, which has been developed as a practical, self-assessment ‘star rating’ manual for use by road safety professionals. This methodology enabled a deep understanding of the problems of traffic law enforcement as well as resulting in a practical policy outcome.

The research has drawn together a similar concept to that developed in the international road assessment and vehicle classification ratings (ANCAP/iRAP). My research has adopted this concept in a newly developed framework, classifying and benchmarking road policing and traffic law enforcement to identify index ratings of good practice. These are presented in the companion manual which serves as a ‘toolkit’ to evaluate a jurisdiction’s performance, clearly setting out the steps required to work towards good practice in this field.

The outcome from this research is the International Road Policing Assessment Program (IRPAP) that accompanies the dissertation and that documents a star-rating good practice, benchmarking assessment model. The interconnection of the academic discipline of learning and practical observations has been translated into a usable road policing and traffic law enforcement document. This dynamic document is an observable and durable record processed through a systematic methodology of academic rigour to provide a framework for international good practice in traffic law enforcement. The self-assessment index provides a measure for road policing standards through efficiency and effectiveness ratings. On completion of the assessment, graduated pathways are provided to enable continuous improvement and assist the road safety strategic direction with a practical and informed basis for policy makers and enforcement strategists. This innovative approach provides an original and substantial contribution to the recorded professional knowledge in this field and a concrete step towards building the capacity of traffic law enforcement in low to middle-income countries.

The next steps are to provide website availability, then to pilot, promote, evaluate and refine the IRPAP model in its practical application, as well as to provide coaching facilities to jurisdictions opting to initiate a self-assessment to determine their star-rating classification and initiate a continuous improvement program.
Introduction

1.1 Rationale for the research.

Globally, road fatalities claim 1.3 million lives annually with an additional 20 to 50 million people seriously injured.\(^1\) Over 90% of these deaths occur in low-income and middle-income countries,\(^2\) with almost half of those involving vulnerable road users such as pedestrians, cyclists and motorcyclists.\(^3\) In these countries road policing, traffic law enforcement strategies and education on traffic safety have generally been given low priority by governments and the policing authorities.\(^4\) In many cases the institutional arrangements for traffic safety have been fragmented and lack clear purpose and leadership, with road safety interests being obscured by other, competing interests.\(^5\)

Road trauma has been identified as an escalating international problem over the past two decades with unacceptable and largely avoidable levels of road traffic injuries.\(^6\) On a global scale, this trauma has been described as a neglected epidemic, with poor enforcement of traffic safety regulations, inadequate resources, administration problems and corruption the major contributing causes in low to middle-income countries.\(^7\) The World Report on Road Traffic Injury Prevention concludes that the solutions to road trauma include good road design and traffic management, improved vehicle standards, speed control, use of seat belts and the enforcement of alcohol limits.\(^8\)

The road safety challenges facing policing and traffic law enforcement agencies in low to middle-income countries include: widespread social, economic and political instability coupled with archaic traffic laws; limited road policing standards; limited traffic law

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3 Ibid, 25.
enforcement; poor law enforcement equipment; inadequate traffic police training; poor quality civilian driver training and licence testing; as well as rudimentary data bases for registration, licensing and collision recording.

Within the governance of low to middle-income countries the responsibilities for road safety the problems are fragmented across a complex landscape of agencies or groups. The central political leadership is often unwilling or unable to adopt the political resolve and financial commitment to develop and implement the effective road safety policies and programs that are the key to achieving road safety success. Globally, however, governments have prioritised attention and finance on poverty reduction, disease control and social health issues rather than road trauma reduction. Road trauma is compounded by the failure of governments to properly ensure the enforcement of road safety laws and by the failure of police to investigate road deaths as they would other situations involving death.

A UN General Assembly report states that road safety continues to be an area that has not been addressed systematically. This applies to the lack of national lead agencies, the lack of comprehensive and effective legislation and the lack of data to provide the basic foundation for remedial actions. To achieve positive outcomes from a road policing perspective in low to middle-income countries there is a need to strengthen efforts to improve legislation and regulation around the five identified risk factors – speeding, non-wearing of seat belts, lack of child restraint systems, driver impairment and non-wearing of motorcycle helmets. The UN report maintained this can be achieved through constant and sustained enforcement activities. This direction is consistent with the broad concepts identified at the commencement of my research and supported by the examination of the literature that is presented in Chapter 3.

Increasing populations and vehicular mobility combined with carelessness and deliberate speed provide a deadly mix for vulnerable road users in low to middle-income countries. The lack of basic safety features in cars, such as occupant restraints or vehicle roadworthiness, the

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12 Ibid.
absence of bicycle and motor cycle helmets, and the lack of restrictions on vehicle occupancy as well as limited regulatory enforcement strategies are all potent ingredients to exacerbate road trauma in these countries. A survey of the low to middle-income countries found that the legislation on the road safety risk factors is not comprehensive, laws are not enforced and there is a piecemeal approach to road safety in many countries because of the lack of strategic planning, leadership and government endorsement.\(^\text{13}\)

The UN identifies international road crashes as a global crisis.\(^\text{14}\) Without increased efforts and initiatives, the death and injury forecast is likely to rise to 1.9 million fatalities per annum by 2020.\(^\text{15}\) This problem is currently rated by the World Health Organisation as the ninth most serious cause of human tragedy. By 2030 with increasing vehicles and an increasing world population, it is estimated that the incidence of road fatalities will rise to the fifth highest cause of all human deaths per annum.\(^\text{16}\)

Appropriate response to the lack of effective laws and effective traffic law enforcement in low to middle-income countries is identified as a gap in international knowledge, specifically how best to achieve road safety reform through road policing and correspondingly, can lessons be learned from the high income nations where the knowledge gap is not prominent? This gap in knowledge in low to middle-income countries is expanded through the literature review in Chapter 3.

Traffic police organisations in Australia, Europe, Canada and USA have been working with performance measures as common practice for decades. The benchmarking measures they use have been developed as organisation or country-specific indicators, such as those employed by the Traffic Information System Police (TISPOL) in Europe and ‘Compstat’,\(^\text{17}\) initiated in New York to ensure continuous improvement in policing activities. In low to middle-income countries, road policing and traffic law enforcement practices are lacking the indicators to assess an organisation’s capability to deal with road trauma. They also lack a

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framework or any form of benchmark upon which to judge and measure comparative success. There are no generic or cross-jurisdictional measures which can be applied within or across traffic police jurisdictions in low to middle-income countries. Using a mixed-method approach, this research investigates road policing and traffic law enforcement in low to middle-income countries and develops a framework for organisational benchmarking in such countries.

1.2 Research approach

The overarching aim of this research is to strengthen the capacity of road policing and traffic law enforcement in low to middle-income countries and thereby directly impact upon road trauma reduction. I aim to identify good practice in traffic law enforcement, identify what is lacking in low to middle-income countries, and then develop policy tools to be applied as an instrument of change, initially to build police capability and ultimately to ensure road user compliance with the traffic laws.

The specific gap in knowledge provides the rationale for the research and the impetus to explore ways to improve road safety with the intent of enabling police jurisdictions around the world to assess and improve their performance based on good practice models. The research questions were formulated to address this gap and examine:

- What is good practice in traffic law enforcement?
- How well do traffic law enforcement policies and practices in low and middle-income countries align with those in good practice countries?
- What aspects of traffic law enforcement are appropriate for benchmarking?
- How can good practice be translated into policy tools for improving road safety enforcement, particularly in low and middle-income countries?

Answering these four questions provides a comprehensive understanding of traffic law enforcement; to clarify important issues, identify what can be measured, translate lessons into learning, focus on successful outcomes and target root problems to generate reform.

The research has two distinct phases and outputs. The first, documented in this research, is a critical interrogation of road policing and traffic law enforcement. The study reviews international road trauma, develops a chronology of international discussion, action and
commitment and then examines avenues to address the problem through a thematic approach to road policing. The focus is on building capacity and knowledge transfer to identify good practice and provide an evidence-based framework for police jurisdictional self-assessment and road safety reform. The research seeks to understand traffic law enforcement as having a meaningful impact on road user behaviours. The second phase is the development of an applied tool based on the findings of my empirical research; the result is the ‘International Road Policing Assessment Program’, a practical guide and performance assessment tool for road safety practitioners, particularly those in low to middle-income countries.

A central research challenge has been to identify whether there are universal road policing solutions, and therefore a universal framework that may be applied to traffic law enforcement, particularly in low to middle-income countries. If this conceptual framework is identified and progressed, then immediate and future benefits could be achieved in road trauma reduction. However, for any framework to be effective there needs to be a strong alignment of the theoretical model to the practical application so that the implementation can achieve demonstrable and sustainable gains in police enforcement effectiveness in preventing crashes and saving lives.

This research by project was undertaken using a mixed-methods approach of qualitative and quantitative research. The methods employed were: literature review and analysis; interviews with road safety experts; a survey of senior police practitioners; and participant observations undertaken in ten low to middle-income countries. In each phase of the research, key themes were identified and used to progress through the research. These themes also became the foundation for a universal benchmarking and assessment enforcement framework developed as a practical self-assessment ‘star-rating’ manual for use by traffic police and road safety professionals, particularly in the low to middle-income countries. The alignment between theory and practice has been addressed with the practical outcome of the thesis being a stand-alone International Road Policing Assessment Program. This methodology enabled a deep understanding of the problems of policing and traffic law enforcement in low to middle-income countries as well as resulting in a practical policy outcome.
The production of a comparative policing and traffic enforcement framework has filled a significant gap in the international field of road safety and road trauma reduction and it provides a more informed basis for road policing practitioners to institute practical applications, thereby adding an original and substantial contribution to the current body of knowledge in this field.

1.3 Demarcation of scope

The responsibilities for road safety and the development of strategies for road trauma reduction and interventions are complex involving multi-sectorial government, semi-government and non-government organisations. While the primary focus of this thesis is on traffic law enforcement policies and practices, attention is given to some road safety practices which facilitate road policing such as driver licensing, vehicle registration systems, data management and the judicial infrastructure. Other aspects of road safety such as vehicle safety features, engineering design feature, hazardous road locations and related treatment programs are out of scope for this research.

1.4 Structure of the research

The research is structured in seven chapters:

Chapter 1, Introduction. This provides the rationale for the research and the research approach

Chapter 2, Methodology – research by project

Chapter 3, International road safety and the role of law enforcement – literature review

Chapter 4, The critical views of road safety experts

Chapter 5, The perspective of the police practitioner

Chapter 6, Participant observation – road policing in low to middle income-countries

Chapter 7, Synthesis and analysis of the research

A stand-alone practitioners’ manual – the International Road Policing Assessment Program (IRPAP) – accompanies the research.
Methodology – Research by Project

This ‘research by project’ was undertaken using a mixed-method approach of qualitative and quantitative methods including research in ten low to middle-income countries over a six year period. It provides multiple data sources to inform the analysis – statistics, trends, expert opinion and observations. The methodology enabled a deeper understanding of the problems of policing and traffic law enforcement in low to middle-income countries, and potential solutions to them.

The research methodology is outlined in Figure 1.

![Benchmarking international road policing and traffic law enforcement Methodology – Research by project](image)

**Figure 1: Research Methodology**

The key components of the research are:

- Critical literature review to identify and substantiate issues in road safety and police enforcement in order to provide a sound theoretical and practical knowledge base.
- In depth semi-structured interviews with ten international road safety experts to obtain insight into how policing and traffic law enforcement can best contribute to road safety reform.
• Survey of 216 senior police officers (practitioners) in ten low to middle-income countries to examine views on road policing issues.

• Participant observation of road policing and traffic law enforcement in ten low to middle-income countries to more thoroughly understand the issues arising from the literature reviewed, the interviews and the survey.

• Synthesis and analysis of the data identifying the prominent themes which would help enable the embedment of capacity building in road policing into traffic law enforcement.

The motivation for this research was the opportunity for me to impact on road trauma reduction through a specific focus on policing and traffic law enforcement practice. Based on the nature of the problem and my professional background in this field, I have chosen to undertake the research by project using a mixed-method approach. This approach relies upon data collection and practical observations with a systematic review of the material to directly inform the development of a practical ‘star-rated’ manual of police traffic enforcement capabilities. This combines the rigour of academic research methodology with the opportunity to make a significant contribution to practice through the production of an applied tool.

The low and middle-income countries selected for the survey were Cambodia, China, Ethiopia, Indonesia, Lao PDR, Malaysia, Thailand, Viet Nam and Yemen. Although not a low to middle-income country, the United Arab Emirates was also selected because of its rapid rise to economic prominence, the high rate of road trauma, the poor road safety culture, the limited observed road policing activity and the developing nature of its road safety reform. It therefore provides an interesting example of the impact of rapid change, and evidence that high income does not necessarily correlate with strong road safety performance. These selections and the participant observations were opportunistic: I was professionally engaged in those places during the life of the research and, therefore could observe the day to day activities and practices of both road users and traffic enforcement officers.

Authorities on qualitative and quantitative research were reviewed before the research design was settled. The Sage Handbook\(^1\) provides advice on methods of collecting and

analysing empirical materials and the arts and practices of interpretation, evaluation and representation, including the benefits of each approach and the different ways to research the same set of issues to discern the reality from its perception. My research follows a mixed-methods approach as described in the handbook, to capture as much of reality as possible and to address cause and effect (such as poor driver behaviour and road crashes), operating theory (such as enforcement strategies) and measurement through statistical collection (performance measures for police and road safety outcomes).19 A combination of ‘grounded theory’, clinical interviews and participant observation has been selected to thoroughly address the research questions; this combination in my qualitative research is similar to that described by Crabtree,20 and a notable method of effecting social change.21 The method provides a sound process for my research in order to achieve my objectives to develop an assessment tool to be used as an instrument of change.

Patton identifies twelve major themes as needed for a coherent strategic framework for qualitative enquiry.22 These are grouped into categories of design strategies, data collection, and strategies for fieldwork and analysis. This model has been cited widely by other researchers in the social sciences and other fields23 and provides a practical and otherwise useful framework for this research to follow. Although my research focuses on benchmarking road policing, it is set in the broader context of road safety and in the global perspective, to ensure a full engagement with the contextual environment. This acknowledges the importance of context in framing the specific research enquiry.24

19 Ibid, 12.
21 Denzin, The Sage Handbook of Qualitative Research, 385.
23 Presented as a resource training tool for applied researchers, evaluators and graduate students. Patton has created the most comprehensive and systematic review of qualitative methods available. Patton, Qualitative Research and Evaluation Methods. Cited by over 100 authors such as Uwe Flick, An Introduction to Qualitative Research (London: Sage Publications, 2002), 72, 124; and Pat Cryer, The Research Student’s Guide to Success, (Buckingham: Open University, Nov 2000).
Such objectivity of approach and structure has been maintained to ensure that each phase of the research is based on the available evidence and leads to logical deductions. Perceptions, ideals and unsupported material have been avoided by challenging each concept and assertion as to its credible source and implications. This particularly applies to the themes derived from the literature review as well as the information-rich advice from the experts. These conceptual themes have been tested through the survey and the participant observation so as to substantiate their use as a foundation for the manual. This process accords with the conceptual process of ‘grounded theory’, in systematically gathering and analysing data and ensuring that it aligns with the real-world environment, and as proposed by Glaser.\(^{25}\) The multiple strands of this methodology provide the ‘checks and balances’ through a breadth and depth of the research that ensures the conclusions are accurate and that the companion manual has the credibility of thorough research and is practically sound.

2.1 The role of law enforcement in road safety - literature review

The initial strategy in my literature review followed the design strategy of Patton, of pursuing in an open and flexible manner the emergence of good practice/s, concepts and programs.\(^{26}\) This review traverses a number of fields: It identifies and examines international research on road safety, international benchmarking practices, road policing strategies and good practice in high-income countries as well as low to middle-income countries. Historic and current information on successful programs and successful philosophies was sought, in particular those with sustainable outcomes in road trauma reduction. The recent history of road trauma and road safety counter-measures was examined.

The structure of the search terms applied were to systematically review the databases of international reputable road safety research organisations\(^{27}\) and leading international road safety organisations\(^{28}\) to identify key studies which warrant inclusion in this research. These


\(^{26}\) Patton, *Qualitative Research and Evaluation Methods*, 40-41.

\(^{27}\) Monash University Accident Research Centre, Australia, the Transport Research Laboratory, UK, the Malaysian Institute of Road Safety Research SWOV Road Safety Research Institute, OECD International Transport Forum, PIARC – World Road Association, Centre for Accident Research and Road Safety, Queensland, The AAA Foundation for Traffic Safety and the Australasian College of Road Safety.

\(^{28}\) The World Health Organisation and the Global Road Safety Partnership.
applied research agencies are significant contributors to road safety research. Some government and university reports are not competitive peer-review literature and credentialed sources were referenced where available. The RMIT University library and State Library were significant sources for academic references and historic reports. Google scholar was accessed for references as well as to review the value of the research contribution sourced by virtue of the citations accredited to those studies. Particularly, I have reviewed the seminal work of road safety research over the last decade. Given that many studies in this field are published in conference proceedings as well as journals, special attention has been given to international road safety conference proceedings and peer reviewed articles in notable journals.

The literature presented in this thesis establishes the state of knowledge in traffic law enforcement with respect to low to middle-income countries. It identifies gaps in that knowledge, and it identifies both good traffic policing practice and key themes and problems in road safety discourse. This literature review also informs the interviewing strategy and framing the survey of police practitioners.

2.2 The views of road safety experts

A key component of the research is the views of international road safety experts on road safety and police enforcement in low to middle-income countries. The advice from the literature on data collection and fieldwork was also beneficial for the interviews of selected road safety experts, ensuring that the interviews effectively captured the comments, experiences and recommendations on the cultural, organisational and community change necessary to achieve the desired results in road safety. Ten experts were selected for interview, based on their level of experience in international road safety and road safety research, with a focus on experts from recognised safety institutions or international bodies whose activities or mandates included road safety.

29 Patton, Qualitative Research and Evaluation Methods, 230-243.
30 Such as the World Health Organisation, Malaysian Institute of Road Safety Research, the George Institute of International Health, SWOV Institute of Road Safety Research, The Institute of Road Traffic Education, India and the Global Road Safety Partnership.
The combined expertise included five interviewees who were born and raised in low to middle-income countries, three of whom are still working in their country of origin. This diversity of background, extensive experience in road safety and current work engagements added strength to the integrity of the interviews.

The ten experts are recorded in Table 1, showing their agency association and expertise. Further credentials of the experts are recorded in Appendix A.

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Agency</th>
<th>Location</th>
<th>Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Margaret Peden</td>
<td>Injury and Violence Prevention, World Health Organisation</td>
<td>Switzerland</td>
<td>Epidemiology, injury surveillance, medical research, road safety research</td>
</tr>
<tr>
<td>Professor Datuk Dr Radin Umar Radin Sohadi</td>
<td>University of Putra Malaysia</td>
<td>Malaysia</td>
<td>Road traffic engineering, Road safety engineering, Road safety research</td>
</tr>
<tr>
<td>Professor Claes Tingvall</td>
<td>Swedish National Road Administration. European New Car Assessment Program</td>
<td>Sweden</td>
<td>Injury epidemiology. Road safety research</td>
</tr>
<tr>
<td>* Dr Rohit Baluja</td>
<td>Institute of Road Traffic Education</td>
<td>India</td>
<td>Road safety education, Police training</td>
</tr>
<tr>
<td>Dr Junhua Zhang PhD</td>
<td>Asia Pacific Action Alliance on Human Resources for Health George Institute for Int. Health</td>
<td>China</td>
<td>Road safety research, Injury surveillance and research</td>
</tr>
<tr>
<td>Dr Charles Mercier-Guyon MD</td>
<td>Medical Council of the French Road Safety Association</td>
<td>France</td>
<td>Forensic practice, emergency medicine, Alcohol and drugs in traffic safety</td>
</tr>
<tr>
<td>* Dr Tsegazeab Kebede Kassaye MD</td>
<td>United Nations Organisation Stabilisation Mission in Entebbe, Uganda</td>
<td>Ethiopia</td>
<td>Injury surveillance, Data entry and analysis, Road safety research</td>
</tr>
<tr>
<td>Mr Eric Howard</td>
<td>International Road Safety Consultant</td>
<td>Australia</td>
<td>Strategic road safety advice Engineering Road safety research</td>
</tr>
<tr>
<td>Mr Robert Klein</td>
<td>Asian Regional Director, Global Road Safety Partnership</td>
<td>Asia (Thailand)</td>
<td>Strategic road safety advice Policy and strategy</td>
</tr>
<tr>
<td>Mr Peter Elsenaar</td>
<td>Director SWOV, Netherlands</td>
<td>Netherlands</td>
<td>Transport safety Advisor to the Global Road Safety Partnership</td>
</tr>
</tbody>
</table>

Table 1. Names of experts interviewed, organisation and expertise

* Note: The Ethiopian and Indian experts were interviewed via email and telephone.

The rationale for seeking a small sample of highly respected experts aligns with the methods of qualitative studies that pursue purposeful sampling to gain information-rich material from
knowledgeable sources.\textsuperscript{31} The number of experts selected enabled a representative view of international expertise and their collective input provided a highly valuable resource for the research.

Through in-depth semi-structured interviews with pre-identified questions, qualitative data was obtained from these experts. All verbal interviews were audio recorded in addition to extensive note taking taken during the interviews.

The interview technique was designed to facilitate rich conversation through “the art of asking questions and listening and to use situated understandings grounded in specific interactional episodes.”\textsuperscript{32} This technique was beneficial as an interactive means of eliciting the potent views, experiences and constructive statements from the participants while keeping two of the research questions of the project firmly in view:

- What is good practice in traffic law enforcement?
- What aspects of traffic law enforcement can be considered appropriate for benchmarking?

The interview questions were informed by these research questions as well as the findings from the literature review. The questions asked contributions on: good practice in law enforcement; sustainability of enforcement practices; the value of partnerships; driver attitudes and behaviours; and aspects of traffic law enforcement considered suitable for benchmarking. The questions were initially pre-tested with road safety associates, to ensure they elicited responses to affirm their relevance to the overall research aims and questions.

The research received Faculty ethics approval:\textsuperscript{33} All interviews were undertaken only on the basis of voluntary participation and informed consent. As detailed in the ethics approval, at the completion of each interview each participant was again asked if there was any objection to the use of any information provided in the interview, and which is included as quotations within this research. No objections or disclosure issues were raised by any of the

\textsuperscript{31} Patton, \textit{Qualitative Research and Evaluation Methods}, 230-243.
\textsuperscript{32} Denzin, \textit{The Sage Handbook of Qualitative Research}, 353.
\textsuperscript{33} Submitted to, and approved by the Ethics Committee, RMIT University (2\textsuperscript{nd} Nov 2006 & 13\textsuperscript{th} Dec 2006).
interviewees. The interview questions are provided in Appendix C, with the analysis of interview data presented in Chapter 4.

The commentary on the interviews in Chapter 4, rather than employing direct quotations combines the views of a number of experts. English is a second language for a number of the interviewees and some smoothing of the reporting of the conversation has been necessary; care has been taken to preserve the context of those commentaries. Confidentiality was respected at all times as well as strict adherence with the RMIT University’s Policy and Procedures for Higher Degrees by Research.34

The interviews were recorded using a combination of note taking and tape-recording. The recording facilitated the free flow of conversation with better listening by myself and a more natural conversational style. The note-taking complemented the tape recordings and provided highlighted references for later reflection and review. While the interviews were tape-recorded with consent, transcribed and coded into categories, the process could have been enhanced by referring any direct quotations to the experts for verification. By asking each expert, if there was any objection to direct quotations and their awareness of the tape recording as well as strictly complying with the ethics guidelines, this was considered appropriate to address the integrity of this issues. The structure of the interview was in accord with Patton’s advice and provided a framework that allowed the experts to respond in a way which represented accurately and thoroughly their point of view. The process as advised by Mason,35 enabled the linking of the research questions to the methodology and then practically to the questions presented to the experts for comment.

Content analysis of the interviews was conducted through coding of the information in line with the theoretical framework of the research questions, to ensure effective analysis of the breadth of material. Coding can influence subsequent data collection tasks, and in effect influence the continuing analysis,36 and categories and sub-categories were further refined as the interviews progressed. This process assisted the review of the interview findings against the themes identified in the literature as well enabling the documenting of emergent

34 RMIT University Policy, Higher Degree by Research – Section 16 applies.
35 J Mason, Planning and designing qualitative research, pp 9-34in Qualitative Researching, (London, Sage, 1996), 300.72 M399.
36 Matthew B. Miles, A. M. Huberman, Qualitative Data Analysis. (Beverley Hills: Sage, 1984), 63.
themes from the interviews that were not covered in the literature. On reflection, the process of content analysis and the related coding framework would have been strengthened by an independent review.

2.3 The survey of police practitioners

The survey was drafted extracting the critical issues from the literature review and the themes from the interviews with the experts as foundation material and in accord with advice outlined by Patton.\textsuperscript{37} The aim was to generate reliable and valid data from a very large sample population of police practitioners. The countries chosen were opportunistic in that I was engaged in those places over the life of the research. I had direct contacts with road safety country coordinators,\textsuperscript{38} to help with the distribution, collation and collection of the surveys. These countries were Cambodia, China, Ethiopia, Indonesia, Lao PDR, Malaysia, Thailand, Viet Nam and Yemen.\textsuperscript{39} The diversity of countries, each with rapidly increasing populations, expanding vehicular mobility and increasing road trauma provided a fertile base from which to source the views of senior police practitioners as a representative sample of enforcement and constraints in low to middle-income countries. Eleven senior officers from Victoria and Queensland, Australia also completed the questionnaire providing information for comparative analysis.

The 26 questions were organised within the following seven themes being an amalgam of the critical issues identified from the literature and the interviews with the experts:

- Data availability, use, accuracy and timeliness, and use in discerning trends and analysis to determine the primary causes of crashes
- Education of the community in road safety
- Infrastructure support for traffic law enforcement
- Community perceptions of traffic law enforcement
- Community partnerships
- Training and resources
- Police corruption

\textsuperscript{37} Patton, \textit{Qualitative Research and Evaluation Methods}, 230-243.

\textsuperscript{38} Global Road Safety Partnership, World Health Organisation or National Police country coordinators.

\textsuperscript{39} United Arab Emirates was excluded due to the lack of a road safety country coordinator.
The survey is detailed at Appendix D.

The survey was designed with both ‘open’ and ‘closed’ questions, to allow flexibility and initiative in responses. Pre-testing of the survey content was achieved by assessment and comment from three senior Victoria Police traffic officers with professional experience in low to middle-income countries. The straightforward approach and simplicity of the structured questions were designed to assist the motivation to answer all questions. A further motivation was the clearly stated aim that the research would assist the future development of traffic policing. The survey and proposal were submitted to RMIT University and received ethics approval in accord with University policy.\footnote{RMIT University policy.}

The structure of the survey allowed comparisons and response patterns to be elicited from the answers to the standard questions as well as through the free expression and innovation elicited from the open ended questions. The free expression responses required coding and analysis to determine the most frequent categories within the responses. Allowance was made in the analysis for language barriers in locations where English is a second language, and for translation impediments on those locations where English is not commonly practised. In Cambodia, China, Lao PDR, Thailand, Viet Nam and Yemen, the country coordinator organised the translation and assisted in collating the responses.

The participant recruitment strategy was to provide the individual surveys to senior traffic police officers who were considered by the country coordinator to be reputable, to have personal integrity and to be innovative in their own country. In Malaysia, in addition to a distribution of 35 questionnaires in this manner, it was opportune that at the time of the Malaysia interview component two cohorts of senior officers were undertaking a refresher traffic police training program, and it was agreed that they, too, would complete the questionnaires, as syndicates. A facilitator was engaged to administer the survey for each syndicate of ten to obtain a syndicate consensus, which resulted in 19 additional questionnaires that represented the combined views of a further 190 traffic officers.
The countries of distribution and the responses for each country are provided in Table 2.

<table>
<thead>
<tr>
<th>Countries contributing responses to the survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>11</td>
</tr>
</tbody>
</table>

The number of officers contributing to the Malaysian Syndicates was 190; the survey was provided to two cohorts of senior officers during a refresher training program. A facilitator was engaged to administer the survey for each syndicate and the answers were then combined for each syndicate as a general consensus. All other questionnaires were distributed and administered as individual documents by the country coordinators.

Table 2. Countries contributing to the survey

The 216 survey responses (387 when the Malaysian syndicates are taken into account as individuals), were considered an optimal sample size relative to the goals of my research. This applies particularly to the research question to determine what constitutes good practice as well as providing an assurance in the ability to detect any statistical significance in the purposeful sampling of the practitioners’ views from the ten countries. These responses were analysed by cross tabulation with the individual answers across the 26 variables. The overall response rate for returns was 100%, due to the recruitment strategy, the assistance of the country coordinators, the limited number of participants from within each country and the ability to ensure accountability in survey returns. This is a remarkable success rate for this kind of research. An analysis of the survey is provided in Chapter 5 with detail of the questionnaire at Appendix D.

During 2007 in Denpasar, Indonesia and during 2012 in Geneva, Switzerland, I was invited by the Global Road Safety Partnership, an international organisation supporting front-line good practice road safety initiatives, to facilitate an International Traffic Police leaders’ executive forum for selected low to middle-income countries. The agenda for discussion extended to the key challenges facing traffic law enforcement officers and identifying a way forward. The relevance of these two workshops is that a number of the representatives were

42 On each occasion, the representative countries were selected by the Global Road Safety Partnership international coordinator.
from countries other than those I have studied in this thesis thus broadening the international base of the police perspective. Those additional countries represented include the Philippines, Myanmar, Kenya, Brazil, Turkey, Russia and India. The outcomes of the discussions identifying key deficiencies provided foundation material to be included in future police training. The results of these discussions are included in Chapter 5 for verification purposes as the consolidated views recorded are consistent with and reinforced those perspectives of the senior officers contributing to the survey of police practitioners.

2.4 Participant observation

To enrich my research, my methodology employed participant observation through my professional involvement in road policing and traffic law enforcement in the ten low to middle income countries over the life of the research for the thesis. Working at least two to four months in each country has enabled a critical contribution to the development of knowledge, and specifically by addressing the relationships between theory, practice, research and action. As such, it represents a fruitful form of applied social science research that is complementary to the rigour of other approaches. This section provides a rich source of practical experience to address the research questions and particularly, be able to compare and contrast road policing policy and practices in the low to middle-income countries under investigation with those of high income countries where good practice road policing is undertaken.

2.4.1 Observation context

My professional engagement with road policing and law enforcement has allowed me opportunities to observe many relevant contexts. I have 41 years’ experience as a police officer in Australia, with the latter 14 years in the executive positions of Assistant Commissioner and acting Deputy Commissioner in command of operational and administrative portfolios. Following completion of service with Victoria Police in 2003, my career extension was as a road safety consultant and international road policing specialist

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44 Key portfolios relevant to this thesis included Department Head of Training for all aspects of Policing and Department Head of Road Safety Management, Administration and Traffic Law Enforcement for the State of Victoria, Australia. This included executive membership of the Ministerial Council for Road Safety in Victoria.
engaged in work assignments in low to middle-income countries, performing assessment of road safety conditions, capacity reviews, developing road safety strategies, designing and delivering training programs for traffic police as well as assessing driver behaviours and policing activities.

Major assignments in these counties included: team leader for the World Bank’s road safety capacity review for Yemen (2009-2010); team leader and capacity review for the Ethiopian Federal Police (2010-2011); team leader, review of road safety and police procedures for road policing in Indonesia (2011); a review of crash investigation procedures and accident reporting in Viet Nam; ‘train the trainer’ crash reporting, data entry and data analysis, Viet Nam (World Bank Project 2010-2012); Driver licensing review project, United Arab Emirates (2007); helmet-wearing law enforcement intervention strategies and programs in Cambodia, Thailand, Lao PDR, Viet Nam, Malaysia and Indonesia (2007-2009) as well as drink/drunk driving law enforcement and speed management enforcement programs in Cambodia, China, Lao PDR and Viet Nam (2010-2012).

I have observed driver behaviours and traffic law enforcement in over 40 countries and critically reviewed police driver training in both Western and non-Western countries. My 41 years of collision-free police driving experience includes urgent duty driving and pursuit driving at high speeds. These experiences provide the foundation for critical observation and comment for this research.

Observations for this research have covered systems, processes and road policing activities as well as observing traffic violations and high-risk driver and pedestrian behaviours at signalized intersections, pedestrian crossings, major and minor highways, and in city, urban and rural areas. As observations of this type are difficult to replicate, particularly given the number and types of countries, and different vantage points, time periods and behaviours identified, only observations representative of repeated driver and road user behaviours are reported. This ensures the robustness and integrity of the reporting is maximised.

46 Statements about driving behaviours in any of the selected countries are considered in the context of the diversity of the traffic, road networks and highways in countries such as the expanses of China (city locations observed include Beijing, Benxi, Dalian, Dan Dong, Guangzhou, Guilin, Hangzhou, Hong Kong, Liu Zhou, Nanjing, Nanning, Shanghai, Shenyang, Suzhou, Wuxi and Xian) and Indonesia (city locations observed include...
behaviours were not subject to researcher influence and no interruption to routine activities occurred as a result of my observation. Likewise, my discrete observation of normal road policing activity was not subject to any influence or intervention of any kind. These observations accord with a non-intrusive research style in a way that minimally disturbs the subjects under investigation.\(^{47}\)

Precautionary measures were taken to ensure that no bias or ethical issues developed in regard to the experiences and observations. I discerned that there was a clear distinction in anonymously observing road users and police activities in the field to separately observing the police officers gathering and analysing data or setting up and intercepting drivers at planned checkpoints where I was officially engaged as a trainer and evaluator. In the latter circumstances, I appreciated that the officers were aware of my physical presence and that they might be observed undertaking their responsibilities. Capacity building in training requires this level of over-sight to ensure continuous improvement by the trainees. The impact of my presence on the officers was not readily identifiable or quantifiable from this study and it is important to note that no individual officers, commanders or group locations have been identified in the findings.

Specific police training and road safety evaluations undertaken in my professional work in the low to middle-income countries during the time of my research are contextually different from other elements of the research project; they were intended to enhance the active and visible police presence\(^{48}\) in those countries, and were intentionally designed to modify driver behaviour. Therefore, road user behaviour during these interventions was another observation phase where I studied the planned intervention by police and the results of those interventions.

My professional engagements created opportunities to conduct focus group discussions with police in different countries to determine critical issues in traffic law enforcement. This

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homogeneous sampling, largely in line with that described by Patton,\textsuperscript{49} of traffic law enforcement officers was a valuable inclusion for the research. Officers with similar backgrounds and experiences participated in group interviews about major problems that affect their capacity to provide sustainable law enforcement. The similarities in responses from each group and each country in these discussions was recorded and collated. Informed consent was obtained where relevant. The importance of including the findings in this segment was to assess first-hand the capability of police leaders to define their barriers to effective enforcement and for them to work through a structured process to reach a practical solution. Structured operational debriefings were another important component. These personal observations of the discussions contribute to assessing the practical viability of inclusion of similar workshop practices in the companion manual and to assess the value as a component of building capacity, organisational development and continuous improvement. My observations over the period were recorded in journal notes and as referenced in this research.

2.4.2 The rationale for using participant observation as a research approach

Participant observation has been associated historically with the researcher residing for an extended period within a small community and attempting to understand the motives and meanings of people’s behavior, and from the viewpoint of those being studied.\textsuperscript{50} It is commonly one part of a cluster of non-experimental, field based research strategies.\textsuperscript{51} One beneficial, practical aspect of participant observation component of my research is the staging: to first undertake the literature research, then obtain the views of the experts, followed by a practical and theoretical review through assessment of those views and themes through field observation. This enabled me to locate and clarify practical solutions and new possibilities, derived from the combined input of these sources.\textsuperscript{52} It has provided

\textsuperscript{49} Patton, \textit{Qualitative Research and Evaluation Methods}, 173.
\textsuperscript{52} Donald A. Schon, \textit{The Reflective Practitioner, How Professionals Think in Action} (Aldershot: Ashgate Publishing Limited, 2003), 141.
another dimension to assessing road user behaviour and law enforcement in the widest and most practical range of settings, coupled with rigorous reflection and understandings of behaviours that are the hallmarks of this approach.\textsuperscript{53}

Identifying and understanding the research value of this method was significant as I was experiencing the environment within which the research could be applied in practice. Participant observation enabled the opportunity to identify and assess the capacity and capability of police to provide effective enforcement and is an integral and essential component of my research. The rationale for using this approach is informed by the view that “you should look at what the practitioners of it do.”\textsuperscript{54} In a more fundamental way it shaped the way I was able to interpret the themes with my observations.\textsuperscript{55} Living and participating in the research context forced me to have a more flexible appreciation of the context and ensure that the findings were practical and reliable.\textsuperscript{56} It helped me to understand through personal experience the circumstances of, and occurrences in any given situation, and describe the practice observed and its genesis.\textsuperscript{57}

The need for me to experience the actuality in the research is reinforced by recognition that social behaviour cannot be entirely understood unless it is personally experienced.\textsuperscript{58} Relying on external accounts and objective evidence does not provide full appreciation as to why people behave or act as they do. Researchers are encouraged to participate in the problems to determine the solutions,\textsuperscript{59} or convert inquiry into practice by developing effective action that may contribute to the transformation of organisation in view.\textsuperscript{60} This advice is applied to my observations and particularly in relation to road user behaviours, the practicality of driving on or using the road and the law enforcement applicable to those behaviours. These

\textsuperscript{54} Clifford Geertz, \textit{The Interpretation of Cultures: Selected Essays} (New York: Basic Books Classics, 1973), 5.
\textsuperscript{56} Ibid, 13.
\textsuperscript{57} Sociology Central, \textit{Research Methods, Participant observation}, 2, \url{http://www.sociology.org.uk/mpoprint.pdf} (accessed 19th September, 2013)
research concepts have been directly applied to my road safety observations, where driver behavior initially appraised as undisciplined, indeed, conforms to a naturalised order in that context. A critical point in my research is that even though laws are in place, if they are not enforced or perceived not to be enforced, the inclusion of this contextual observation is essential for the research to yield value for change behaviours or compliance practices. Observation of police competence and the capability to provide this enforcement is significant to this thesis and is examined further in Chapter 6. In this regard, my research is enriched by participant observation and my learning from everyday events that proceed on the basis of local, every-day realities. It provides the capacity to highlight the contrast between internal observations and external perspectives.\textsuperscript{61}

2.5 Research direction

The mixed-method of qualitative and quantitative research uses four major approaches to provide a firm focus on the research questions. Each approach is designed to inform the research and strengthen that focus. The literature provides critical insight into the historical perspective on road safety and review law enforcement capability in low to middle-income countries and identify prominent strategies that are accepted as good practice in the high-income nations. Second, the views of the experts provide the broad perspective of the expected role of police and the police responsibility in road safety interventions and countermeasures. Third, the survey is designed to elicit the police practitioner’s perspective on what does and does not work in traffic law enforcement, and especially in low to middle-income countries. The survey is employed as a tool to confirm or reject questions of interest raised within the literature review and the interviews with the experts. Finally, participant observation provides first, a check, to confirm, challenge and more thoroughly understand the issues identified in the literature, interviews and surveys and second, to assess the practically of any solutions.

Engaging with research analysis strategies assisted me in settling on ways of identifying patterns, themes and inter-relationships, and helped to develop a holistic understanding of the role of police in road safety. The research focus was directed to the law enforcement

requirement within the complexity and dynamics of road safety in the countries of interest, and to develop the balance of credibility and authenticity of the research outcomes that Patton advocates. Chapter 7 analyses and synthesises the theoretical and practical perspectives identified through the methodology, to systematically address the research questions, develop solutions to the challenges identified and provide guidance for traffic police in low to middle-income countries.

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62 Patton, Qualitative Research and Evaluation Methods, 230-243.
International road safety and the role of law enforcement – literature review

This chapter clarifies how road trauma is an international crisis, especially in low to middle-income countries, and examines the role of road safety and law enforcement in responding to this crisis. The chapter first identifies the characteristics of the crisis and then traces the recent history of global counter-measures that led to the UN proclamation in 2011 of a ‘Decade of Action’. Within the proclamation, road policing is identified as integral to road safety. The chapter then examines successful strategies and principles in high-income nations as well as identifying successful programs and interventions in the poorer countries. This is achieved through a structured, broad and systematic search of recent international road safety literature. Finally, the chapter examines benchmarking and presents an assessment of two pivotal good-practice road safety intervention strategies as examples for road policing that may enhance enforcement and reduce road trauma.

3.1 Road Trauma – Recognition as an international crisis, and remedial action

In 1974, the World Health Organisation (WHO) passed a resolution to address the growing global problem of road traffic collisions and the ensuing health consequences. The resolution identified a need for coordinated international efforts and undertook that the WHO would provide leadership to member states. Over subsequent decades, the involvement of WHO in this area has been sporadic, largely due to a lack of personnel as well as poor donor response to the situation. Road traffic injuries and fatalities have continued to rise with global estimates of half a million deaths in 1990, between 750,000 and 880,000 deaths in 1999, to current estimates of 1.3 million deaths per annum. The lack of improvements in reducing injuries and fatalities highlights the inadequacy of a resolution

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that is not supported with strong coordination, action and commitment from all stakeholders.

While some responsibility can be directed at WHO in its lack of assistance, knowledge transfer and capacity building, individual governments need to acknowledge liability for their own inaction. In the low to middle-income countries road policing, traffic law enforcement strategies and education on traffic safety have received low priority by governments facing competing demands from the education, social and economic sectors.68

The World Report on Road Traffic Injury Prevention contends that the level of road traffic injury is unacceptable and projects that without increased efforts, interventions and initiatives, the death and injury forecast is likely to rise another 65% by 2020.69 This forecast is more extreme than that of the UN General Assembly and would place road trauma as the third most prevalent cause of human tragedy70 – rising from ninth position in 2002 – and signifies an urgent and increasing problem. These predictions and findings from different sources highlight the seriousness of road safety as a global problem and focus attention on the need for co-ordinated and systematic action, especially from a policing perspective. Describing road safety as a neglected epidemic71 and supporting these statements with global statistics is an integral basis to my research particularly when the major causative factors are attributed to poor enforcement of traffic safety regulations, inadequate traffic laws and poor driver behaviours.

Some positive outcomes have emerged over the last decade through the development of over 800 WHO Collaborating Centres,72 with scientific validity in research studies supported by universities, academies and research centres in over 80 countries.73 The centres have supported important projects such as the Global Status Report on Road Safety, the first

69 Ibid, 3.
70 Ibid, 5, Changes in the rank order of DALYs for the 10 leading causes of global burden of disease (1st ranking is projected to be Ischaemic heart disease and 2nd Unipolar Major Depression).
Ministerial conference on road safety and the road safety in ten countries (RS 10) project. Strong support from the health sector includes the British Medical Journal’s 2002 special edition, *War on the Roads* which focused debate on key road safety issues for low to middle-income countries. Recommendations include advocating for the establishment of a National Road Safety Council in each country and for each country to determine the primary agency responsible for road safety.

On 7th August, 2003, the UN General Assembly passed Resolution 57/309 which acknowledged road traffic injuries as a global public health crisis that required urgent action at national and international levels. The assertion that road trauma is in a crisis state has continued with descriptions of devastating health, social and economic impacts that threaten the health and development gains achieved in the last half century. The resolution acknowledged that road traffic injuries are preventable and encouraged a higher level of commitment from all countries to overcome the problem. Many donor organisations have increased commitments in capacity building through knowledge transfer, social marketing campaigns and training programs to achieve positive road safety outcomes. These agencies have individual objectives, different funding sources and different motivations to achieve their goals. The UN Road Safety Collaboration, established in 2004 to support these networks, also provided opportunities for the exchange of ideas and experiences and the generation of synergies of operational activities. However, the results under the auspices of the UN Collaboration and the collective activity of the individual agencies did not stem the upward trend in road trauma.

On the 7th April 2004, the World Health Day road safety theme provided a significant marker of the commencement of a global campaign and the launch of the first World Report on

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76 The statements have been reinforced in successive documents from the Global Road Safety Commission Report, the UN Secretary-General’s Report of 2009, the briefing reports for the Decade of Action and the progress report on the Decade of Action Global road safety crisis A/66/389 of 30th September 2011.
77 Donor organisations such as the Global Road Safety Facility, the Global Road Safety Partnership, the Federation of International de l’Automobile Foundation (FIA), the World Bank, the World Road Association and the International Federation of Red Cross and Red Crescent Societies.
Road Traffic Injury Prevention. A key resolution was an acknowledgement: “that every road user must take the responsibility to travel safely and respect traffic laws and regulations” – a consideration neglected by many drivers in all countries. Reports, discussions and resolutions continued to reinforce the concept of a global road safety crisis and call for a range of remedial interventions including passing and enforcing legislation. However, to be effective, expression of commitment and rhetoric need to be transposed into action. In November 2009, more than 70 Ministers and senior Government officials from 150 countries adopted the Moscow Declaration calling for a Decade of Action for road safety. On 2nd March 2010, the UN General Assembly proclaimed resolution 64/255, with a goal to reduce the forecast level of global road traffic fatalities. This included the strengthening of enforcement of existing road safety legislation on the key traffic injury risk factors – including using seat belts and helmets, drink-driving and speeding. These resolutions ensured that road safety was kept high on the international agenda so that the focus for political resolve could be maintained at country level.

Declarations and resolutions converted to a definitive action plan, and with specific objectives to stabilise and then reduce the predicted number of road fatalities and injuries by 50% over ten years. On 11th May 2011 the United Nations Global Plan for the Decade of Action for Road Safety 2011-2020 was launched in 110 Countries and identified five pillars to link road safety actions. The pillars were based on strong partnerships:

1. Building road safety management capacity
2. Improving the safety of road infrastructure and broader transport networks

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84 Ibid, 5
3. Further developing the safety of vehicles

4. Improving the behaviour of road users

5. Improving post-crash care

The application of traffic law enforcement to achieve pillar number four, safer road users, through education and compliance is of particular relevance to my research. The plan includes setting and enforcing laws requiring the use of seat belts, helmets and child restraints, setting and enforcing blood alcohol concentration limits for drivers, supporting the enforcement of legislative measures and increasing awareness of risks and penalties associated with breaking the law. This global action provides impetus to my research in identifying the most productive way to assist law enforcement progress its responsibilities within countries and internationally.

The coordination of 300 registered launches globally provided a clear declaration of support for this international intervention and included a requirement of comprehensive legislation on key risk factors and increased enforcement.86 These types of statements to increase enforcement are frequently recorded in national and international road safety discussion papers87 and verbally expressed by road safety and government officials. However, they provide little guidance to police authorities in low to middle-income countries on how to achieve these requirements.

3.2 A good practice approach

A leading case study for good practice for road safety is Sweden, with one of the lowest number of road crashes in relation to its population. Sweden’s long-term road safety goal of zero fatalities and serious injuries by 2020 is commonly referred to as Vision Zero. This visionary target is based on a refusal to accept the inevitability of human death or lifelong suffering as a result of road traffic crashes.88 The ideal of Vision Zero is to provide a road

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88 Claes Tingvall and Narelle Haworth, “Vision Zero: an ethical approach to safety and mobility”, *The 6th Institute of Transport Engineers International Conference on Road Safety and Traffic Enforcement; Beyond*
system where the dynamic energy resulting from a crash cannot exceed the human tolerance for injury.\textsuperscript{89} This traffic safety policy for Vision Zero was ratified by the Swedish Parliament in 1997 and is based on the four elements of ethics, responsibility, safety and a mechanism for change. It is of significance that low to middle-income countries such as Colombia are implementing a similar strategy to Vision Zero as well as injury surveillance systems for data collection.\textsuperscript{90}

Sweden’s systematic approach to road safety acknowledges that crashes are still likely to happen, however, there is a need to continually focus on prevention, especially understanding crash risks and crash causes through effective crash investigation. The approach emphasises the need to acknowledge the role speed plays in crashes, to engage in law reform, to provide a focus on vehicle safety and to provide more effective management of the road infrastructure. The vision requires guaranteed seat-belt use, sober drivers and speed limitations, and emphasises the role of the traffic police as a key component to achieve the outcomes.\textsuperscript{91} These ideals are not easily achieved because of inconsiderate road user attitudes and behaviours and this highlights the need for effective law enforcement to support this vision.

Although the emphasis is on protecting drivers from their own failings and on human errors through vehicle, infrastructure and system controls and improvements, the vision does not tolerate the violation of road rules and suggests countermeasures such as police intervention, breath-testing ignition interlock devices, automated speed and red light enforcement as well as mobile traffic law enforcement.\textsuperscript{92} The enforcement role is necessary where there are deliberate driver actions such as drink/drunk driving, speeding, overloading, dangerous and reckless driving over which enforcement and the legal process must take precedence. It is noted, however, that while Sweden has a comparatively respectable safety

\begin{footnotes}
\item [91] Tingvall, “Vision Zero”.
\end{footnotes}
record, police enforcement is still considered to be ineffective.\textsuperscript{93} Adverse comments by road safety professionals include, “real policy is more important than vision,”\textsuperscript{94} that the policy does not address how to “handle the goal conflicts of the system”\textsuperscript{95} and that the “road safety situation in Sweden is quite poor and not helped by Vision Zero.”\textsuperscript{96} These perspectives do not detract from the over-riding principle that no one need die on the roads. This philosophical approach, of zero deaths has merit – how this is to be achieved is a matter of integrated counter-measures including law enforcement.

The World Report has endorsed Vision Zero as relevant for any country because it is a proven and effective method to apply the basic principles of road safety at any stage of the country’s development.\textsuperscript{97} This endorsement underscores the importance of the philosophy of zero deaths in my research and a pressing need to ensure that the enforcement attributes of this vision are examined.

### 3.3 The Safe Systems approach

A development from Vision Zero is the ‘Safe Systems’ approach.\textsuperscript{98} This road safety philosophy was recommended by the World Report for adoption internationally from 2008.\textsuperscript{99} The research report culminated from a three-year cooperative effort by international road safety experts representing 21 countries as well as the World Bank, the WHO and the Federation Internationale de L’Automobile Foundation,\textsuperscript{100} a UK registered charity supporting international road safety programs. The report recommends that all countries adopt an aspirational vision to achieve challenging road safety reductions and regardless of their level of road safety performance, move to a Safe Systems approach to road safety.\textsuperscript{101} To achieve

\begin{itemize}
  \item \textsuperscript{93} Ibid, 13.
  \item \textsuperscript{94} Ibid, 26. Comments attributed to Pedder Jensen, European Environment Agency, during stakeholder interviews for the research.
  \item \textsuperscript{95} Ibid, 23, Comments attributed to Hans Erik Pettersson of the Swedish National Road and Transport Research Institute, during stakeholder interviews for the research.
  \item \textsuperscript{96} Ibid, 22, Comments attributed to Anders Englund, professor of Psychology, Stockholm University, during stakeholder interviews for the research.
  \item \textsuperscript{97} Peden, World Report on Road Traffic Injury Prevention, 20.
  \item \textsuperscript{99} Peden, World Report on Road Traffic Injury Prevention, 20.
  \item \textsuperscript{100} Federation Internationale de L’Automobile Foundation, http://www.fiafoundation.org/about/Pages/AboutHome.aspx (accessed 19th September 2013)
  \item \textsuperscript{101} Ibid, 24.
\end{itemize}
this, countries will require interventions that are some steps removed from prevailing best practice.\textsuperscript{102} The logic is that agencies within a country should adopt a safety-oriented and holistic approach to projects and programs to achieve road safety outcomes. A practical example is the Western Australian road safety strategy, which promotes a Safe System matrix with four cornerstones of safety: Safer vehicles, safer roads, safer speeds and safer road users.\textsuperscript{103} This holistic, integrated and collaborative approach continues to be accepted internationally as a foundation for achieving road trauma reductions.

The Safe Systems approach has been described as the new performance frontier for road safety management because it builds on existing road safety interventions and reframes the way in which road safety is viewed and managed in the community.\textsuperscript{104} It addresses all elements of the road transport system in an integrated way, requiring acceptance of shared responsibilities and accountability from all sectors, including road users. This logical approach to road safety ensures that all factors are considered in the planning and development of any projects, programs or initiatives and requires a coordinated and consultative approach to achieve the common objectives of safety on the roads, principally to protect road users and reduce the number of deaths and serious injuries.

In complying with the Safe Systems approach, enforcement organisations are encouraged to consider the educational and public awareness components of road safety preventative measures as well as to thoroughly investigate crashes for primary and secondary causes including road and vehicle faults. Enforcement is discussed throughout the OECD report and from many perspectives including different categories of effort, quality of activity, outputs, realignment of strategies, efficacy, intensity, compliance, media awareness through educating the community, dispersed enforcement and enforcement and compliance measures.\textsuperscript{105} This report reinforces previous research in enforcement strategies by demonstrating that effective and efficient police enforcement, in whatever way it is

\textsuperscript{102} Ibid.
\textsuperscript{105} OECD, \textit{Towards zero}, 25, 30, 44, 49, 73, 76, 79, 90.
reported, promoted or implemented is an integral component of the Safe Systems approach, and it is inextricably linked to road safety reform.

In this section, road trauma has been identified as an international crisis that requires coordinated commitment from all stakeholders under the United Nations proclamation of a Decade of Action. Within the structure of the five pillars of action, road policing is acknowledged to have a key role in improving the behaviour of road users through the enforcement of traffic laws for the key risk factors. I now examine good practice in the high-income nations to determine if guidance can be provided for the police role in road safety reform in low to middle-income countries.

### 3.4 Traffic law enforcement in the high-income nations

This section examines good practice by first, defining traffic law enforcement, tracing the history and then describing different types of enforcement models, strategies and philosophies that impact on driver attitudes and behaviours in the high-income nations.

#### 3.4.1 Traffic law enforcement defined

Traffic law enforcement has been defined as activity aimed at controlling road user behaviour by preventative, persuasive or punitive measures in order to effect the safe and efficient movement of traffic. The ultimate aim for enforcement is safety, demonstrated through the absence of crashes and the respect shown for other road users through disciplined road user behaviour.

#### 3.4.2 The development of traffic policing

Traffic laws were enforced passively in high-income countries in the first half of the twentieth century, and often after crashes occurred. Traditional traffic law enforcement strategies adopted a broad approach to enforcement including monitoring and observing road user behaviour, educating and informing road users, encouragement to comply with the law, apprehending and disciplining violators, investigating and reviewing

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countermeasures and recommending countermeasures for other agencies such as education and road maintenance.\textsuperscript{108}

Practical traffic law enforcement involved static observation and regular road patrols to identify and intercept offenders, usually for speeding or other moving vehicle violations coupled with periodic short-term intensive enforcement blitzes as a more cost effective enforcement option, though the effect on road user behaviour may be reduced.\textsuperscript{109} The benefits of blitzes are supported by other researchers, especially in reviews of programs such as drink-driving enforcement where there is a requirement to provide a general deterrence by creating a perception of ‘anywhere, anytime’ enforcement.\textsuperscript{110} Another example is the increase of seat belt wearing rates as a consequence of high levels of enforcement applied repeatedly over short periods to achieve long-term effects.\textsuperscript{111} ‘Blitzes’ as a general principle for enforcement are labour intensive, short lived and unsustainable with limited resources. They can be effective to generate short term road safety success but need to be incorporated into longer term strategic programs.\textsuperscript{112}

Notwithstanding the resource intensity and labour costs of traffic enforcement, studies in the United States reveal a positive cost-benefit analysis in the revenues produced by putting an officer on the road.\textsuperscript{113} Advanced traffic enforcement strategies target high-risk behaviours using integrated intelligence interventions and complementary technological equipment or systems to achieve a universal impact across a country. The most successful emerging strategies seek community acceptance in order to achieve a cultural shift in driver

\textsuperscript{108} Ibid, 166.
\textsuperscript{110} Katherine P. Owens and Martin Boorman, \textit{Evaluating the Deterrent Effect of Random Breath Testing (RBT) and Random Drug Testing (RDT) – The driver’s Perspective: Research Findings}. Monograph Series No. 41. (Canberra: Commonwealth of Australia National drug law enforcement research fund, 2009), 27.
\textsuperscript{112} Ray Shuey, “International enforcement strategies to reduce road trauma, Successful traffic safety measures” (Presentation at the PRI World Congress, Abu Dhabi, 26\textsuperscript{th} March 2006), www.lapri.org/X_PRI_World_Congress/Ray_Shuey.pdf (retrieved 3/8/2007).
behaviour and, so, to change society’s focus to a communal road safety mentality. These programs emphasise the benefits of education coupled with enforcement; both need to be applied in harmony.

3.4.3 Driver perception and driver behaviour

The expectation of being caught and punished is identified as a principal deterrent to the commission of traffic offences. A major literature review on traffic law enforcement undertaken in Australia concluded that significantly increasing the level of enforcement activity is the most effective means of increasing the perceived risk of apprehension. While this source is almost twenty years’ old, it is of critical value to road policing because for the first time, it collated and analysed the research to provide the foundation upon which effective law enforcement strategies have been further developed as operating principles. This research identified a major pressure influencing a driver’s behaviour – the perceived risk of detection as well as the severity and immediacy of any subsequent punishment. It was significant in a study of this nature that the determining factors to influence behaviour were detection and punishment rather than any perceived risk of injury or any other safety factors.

Perception issues identified in the literature include the perceived risk of detection being much lower than the actual risk of detection, the immediacy of punishment being a crucial factor in behavioural change and the certainty of detection being more important than the severity of punishment. The perceived risk of detection is further expanded in results from surveys in rural Victorian hotels revealing that licensed drivers actively avoid enforcement activity regardless of their self-reported alcohol consumption and the perceived risk of detection for specific enforcement related to the number of times respondents saw drink-driving enforcement activity. These studies describe the human behaviours of drivers continuing to commit offences and engaging avoidance techniques to prevent detection.

115 Zaal, Traffic Law Enforcement, 87.
116 Ibid, 10-11
117 Ibid.
Supporting research found that some drink-drivers faced with intense enforcement and heightened publicity changed their travel behaviour and used relatively unsafe minor roads, reducing their risk of detection although increasing their crash risk.\textsuperscript{119}

The critical factor is the impact enforcement has on driver behaviour. A speed survey analysis undertaken in Australia found that the presence of a police vehicle on an urban road may reduce the number of vehicles speeding by some two-thirds.\textsuperscript{120} However, the same study indicated that drivers return to their normal driving behaviour very soon after passing a police vehicle. This demonstrates the short-lived effect of enforcement and the necessity to involve other principles such as the enforcement being unpredictable, repeated often and the general perception of enforcement being ‘anywhere, anytime’.\textsuperscript{121}

Fundamental to implementing road safety interventions is the understanding of the attitude of drivers and riders towards their own safety and the safety of others and how these attitudes affect their risk behaviours on the roads. This understanding assists in determining the most effective way to generate road user compliance with laws and instil responsible behaviours for public safety. The influence of traffic law enforcement to ensure driver compliance is achieved through general and specific deterrence.\textsuperscript{122} General deterrence is the threat of punishment on the public at large whereas specific deterrence is the impact of the punishment on those apprehended experiencing the consequences of detection and punishment.

The deterrence theory is further examined as the theoretical underpinning of traffic law enforcement which involves the establishment of traffic laws, the policing of those laws and the application of penalties and sanctions to offenders. The perceived and actual risk of

\textsuperscript{119} K. Diamantopoulou and M. Cameron, “Localised effects on crashes of the country random breath testing and publicity program in Victoria” (Reported in Proceedings, 19\textsuperscript{th} ARRB Transport Research Conference: Investing in Transport, Sydney 1998).
\textsuperscript{121} ibid
detection are achieved by intensive, unpredictable and network-wide enforcement operations.\textsuperscript{123}

These philosophical positions provide the traditional foundation for enforcement strategies, with some individual initiatives acclaimed as being highly successful, such as the introduction of random breath testing and speed enforcement strategies in Victoria, Australia in 1990.\textsuperscript{124} The following principles have been determined as good practice especially as they apply to random breath testing: Highly visible enforcement; repeated often; fair and consistent application; and well publicised.\textsuperscript{125} In the practical application, checkpoints must be highly visible, unpredictable for drivers, difficult to evade, have a range of consequences and must be seen by the community as holding a strong threat of being caught, if an offender.\textsuperscript{126}

A key factor in achieving attitudinal and behavioural change is the correlation between the commission of the offence and the imposition of a sanction. This is particularly relevant with electronic enforcement. The more expedient the notification, the more immediate the behavioural change. The processing integrity of the infringement, including expediency, efficiency and accuracy are, therefore, critical to this equation. Studies confirm that offenders lower their risk of a fatal crash for up to three months after a conviction. Conversely, delays in ticket issue create denial of the offence, inaccuracy of memory recall and the potential to continue to offend.\textsuperscript{127} More caution and care is taken by the driver as a result of being caught and fined, thus providing a strong deterrent effect in future driver behaviour. These impacts have particular relevance in the transition from traditional enforcement to electronic enforcement such as speed cameras where there is no physical interception of the driver and delays occur in the issue of the ticket.\textsuperscript{128}

\textsuperscript{124} R. Homel, "Random Breath Testing in Australia" (Paper presented at the International Conference on Drinking and Driving 28-30 March 1990, Edmonton, Canada).
\textsuperscript{125} R. Homel, Policing and punishing the drinking driver: A study of general and specific deterrence (New York: Springer-Verlag, 1988).
\textsuperscript{128} Max Cameron et al., Scientific Basis for the Strategic Directions of the Safety Camera Program in Victoria (Clayton: Report No. 202, Monash University Accident Research Centre, June 2003), 8-21.
\textsuperscript{128} Ibid.
Other research provides similar focus to understanding the impact of driver perception in speed enforcement strategies and drink and drug-driving impairment strategies. These have led police in Australia and Europe to confirm the deployment of highly visible and active enforcement strategies, and reinforce the importance of creating the perception among the public that police enforcement will occur anywhere and anytime. The concepts of highly visible and active enforcement and creating the perception of enforcement ‘anywhere, anytime’ are now integrated into the WHO and Global Road Safety Partnerships (GRSP) international good practice guides as strategic advice for speed management, drinking and driving and helmet-wearing enforcement. Public acceptance of these concepts is a key factor in creating compliance and a deterrent for high-risk driver behaviours. Key findings from these studies are that law enforcement that engages best practice principles and strategies can be effective in achieving reductions in road fatalities and injuries. In the European Union it has been estimated that improving enforcement of current laws could reduce the number of road traffic deaths and serious injuries by some one half.

3.4.4 Traffic Safety Culture

Traffic safety culture is an emerging social risk factor defined as the common practices, expectations, and informal rules that drivers learn by observation from others in their

130 Katherine Owens and M. Boorman, Evaluating the deterrent effect of random breath testing (RBT) and random drug testing (RDT), 64-66.
The culture of complacency in road safety applies to behaviours that either increase crash risk such as speeding or behaviours that are protective such as the wearing of seat belts. This culture is a powerful influence on driving behaviour that has often been neglected when developing road safety interventions. The fundamental cause of this complacency is that motorists do not feel vulnerable to death or injury under normal driving conditions. This view was highlighted 40 years ago with the introduction of compulsory seatbelt wearing and now cited in current research.

A USA White Paper on Traffic Safety Culture in 2010 addressed the complexity of achieving attitudinal and behavioural change in drivers by describing the negative aspects of the culture as tolerating or engaging in risk while resisting safety interventions, propagating dangerous driving behaviours and impeding traffic safety policy. The study examined the inter-relationship between social reasoning, planned behaviours and social norms and explored the observed differences in international, regional and demographic crash risk as well as the propensity of drivers to commit high risk behaviours based on informal rules. A transformation can be achieved by using a guiding framework, understanding the traffic safety culture and providing focus on the counter-measures to significantly influence risk behaviours and resulting crash rates.

Since 2006, the AAA Foundation for Traffic Safety in the USA has sponsored research to better understand traffic safety culture. The annual Traffic Safety Culture Index collects representative views addressing the high risk behaviours of impaired driving, cell phone use and texting, speeding, red-light running, drowsy driving and the wearing of seatbelts and

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138 Ward, “White paper on traffic safety culture”
helmets, all offences identified by the baseline research. The consistent annual findings are that Americans value safe travel and desire a greater level of safety and yet the admitted driving behaviours characterize a culture of indifference - ‘do as I say, not as I do’. By example, two in three drivers (66.5%) support restricting the use of cell phones while driving yet more than two in three drivers report talking on their cell phone while driving at least once in the past month.

Another significant finding from USA research is that the prevalence of self-reported dangerous driving behaviours has changed little since 2009. The public know that traffic safety is important, however, there is often a discrepancy between perceptions of safe behaviour and actions. The inferential analysis of 21 countries reveals that the traffic safety culture of the USA is lower than most other developed countries and has changed little over decades. Using a guiding framework of this research, the AAA Foundation’s long term vision is to create a social climate in which traffic safety is highly valued and rigorously pursued through the expansion of public awareness efforts including social norming approaches.

Similar findings in Australia identify the mismatch between drivers’ beliefs and behaviours with many individuals reporting their belief that speeding is dangerous yet engage in the behaviour on a regular basis. This inconsistency between statements and self-reported actions is reinforced in the annual reports on the national community attitude to road safety. Over 20 years, great gains have been made to curb drink-driving by promoting a culture of unacceptability and to increase seat belt wearing by a culture of normality, however, the same gains have not been achieved with speed management and texting while

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142 Traffic safety culture index, op. cit.
144 T. Petroulias, “Community attitudes to road safety – 2011 Survey report”, Road safety report No. 5, Department of Infrastructure and Transport, Canberra, December, 2011.
driving. Point to point cameras and in-vehicle technology with mass media education campaigns are commended to address the paradox in driver thinking for these offences.\textsuperscript{145}

A major study investigated the road traffic risk perception, attitudes towards traffic safety and driver behaviours from 8 countries; Norway, Russia, India, Ghana, Tanzania, Uganda, Turkey and Iran. The findings showed that Norwegians reported overall safer attitudes towards traffic safety and driver behaviour at a higher level than the remaining country clusters.\textsuperscript{146} This is representative of the European influence in road safety, aimed to reach all individuals, not just drivers.

Internationally, the concept of a traffic safety culture is gaining momentum, however, requires the institutional framework within countries to foster research, understand the current attitudes, behaviours and norms and apply strategic interventions designed to address the complacency and the disconnect between driver beliefs and actions. The concept is now an integral component of national road safety plans in many countries where the objective is to instil a positive attitude towards road safety, to ensure the acceptance by society and to reject complacency and dangerous driving behaviours. A representative statement from the Irish road safety strategy is to ensure that ‘a road safety culture is firmly embedded in the road-using public’.\textsuperscript{147}

3.4.5 Good practice in law enforcement

Good practice enforcement models have been reviewed to strengthen my research. A review of enforcement activities and models found that road safety programs with major traffic enforcement components in Australia, New Zealand, the United Kingdom and Ireland have been very cost-beneficial and have achieved substantial reductions in road trauma.\textsuperscript{148}

Good-practice principles for enforcement of random breath testing for alcohol detection include the intensity of testing, testing during times of high alcohol use, the visibility of the


\textsuperscript{147} Road Safety Strategy 2013-2020, Ireland, p 22, Road Safety Authority, Dublin, Ireland 2013.

testing stations and the role of supporting mass-media publicity.\textsuperscript{149} Good-practice principles for speed enforcement include a combination of covert mobile speed cameras, fixed speed spot and point-to-point cameras, moving mode radar mobile police enforcement detectors and hand-held laser speed detectors.\textsuperscript{150} These principles rely on the intensity of operations and supporting publicity.

The European Transport Safety Council (ETSC) describes good practice policing as including the deterrence model where the fear of being sanctioned or the possibility of being caught are the central mechanisms motivating drivers to avoid unlawful behaviours. Increasing the likelihood and severity of sanction becomes a key motivator for driver compliance, especially if aligned with social norms and a sense of justice. The ETSC uses drink-driving as an example where initial compliance is motivated by the avoidance of a sanction and then the behaviour is actually changed by the personal belief that this is the right behaviour and, therefore, the traffic rule is internalised as a norm.\textsuperscript{151}

A European Commission road safety handbook describes best practice, good practice and promising practices within their 25 member states as well as Norway and Switzerland.\textsuperscript{152} The different categories arise because some examples lack quantitative information, scientific evaluation, evaluation measures and cost-benefit ratios. The practices described range from simple low-cost measures to those requiring a larger budget and broader strategies such as Vision Zero and the new car assessment program discussed within this chapter. Traffic law enforcement principles within the research highlight the importance of police controls that are accompanied by sufficient publicity, take place regularly over a long period, are unpredictable, are clearly visible and are difficult to avoid.\textsuperscript{153}

For the purposes of this research I have identified road safety good-practice within the literature using case studies from Europe, North America, Australia and New Zealand that

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{149} Ibid, 63-67.
\item \textsuperscript{150} Ibid, 68-78.
\item \textsuperscript{152} European Commission, \textit{Best Practice in Road Safety: Handbook for Measures at the Country Level, Summary and Publication of Best Practices in Road Safety in the Member States} (Brussels: European Commission 17th June 2007).
\item \textsuperscript{153} Ibid, 49.
\end{itemize}
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address the effectiveness of publicity campaigns when reinforced through enforcement. The purpose of these studies is to help achieve substantial reductions in the frequency and severity of casualty crashes. Varying styles of education and awareness campaigns were reviewed including combinations of emotive, instructive and enforcement-related advertising. The systematic approach adopted by the Victorian Transport Accident Commission (VTAC) had the potential to provoke all drivers to actively rethink their attitude towards offences. Scientific evaluations of the VTAC campaigns showed substantial reduction in road trauma from increased breath-testing and a new speed camera program. The fatality risk was reduced following months with very high levels of speeding tickets and increased following months with very low level of speeding tickets. The characteristics considered as best practice included campaigns supported by legislation, enforcement, public relations and associated publicity. Duration, intensity and timing of enforcement were among the key variables in conjunction with media exposure. These identified characteristics provide valuable insights for my research.

For maximum safety outcomes, the studies reviewed emphasise that traffic enforcement must have a direct relationship with road safety. Examples of best practice include: The safety camera program in the United Kingdom with 38 county partnerships managing over 4,000 speed enforcement sites; automated speed enforcement in France with a mix of fixed site and mobile speed cameras where average speeds decreased by five miles per hour from 2002 to 2005; section control distributed speed enforcement in the Netherlands where a 24/7 camera system means the chance of being caught for speeding is almost 100%; and random breath-testing in Scandinavia where the Norwegian estimate is that tripling the number of random breath tests would lead to 3% reduction in fatal crashes with a cost-benefit ratio of 1:2. These examples from the European Union cover a broad range of enforcement practices and procedures across a range of countries.

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155 Ibid, 5-6.
156 Ibid.
157 Ibid, 53.
3.4.6 Road trauma, crash risk and police enforcement

In the high-income nations, studies show the correlation between road trauma and the crash causation factors of speed, drink driving and fatigue as well as the injury exacerbation factors of non-helmet wearing and non-seat belt wearing and pedestrian vulnerability. In a study of 13,568 police crash reports it was found that human errors were identified as definite causes of 71% of crashes and that an individual’s crash risk is dependent upon how that person drives and how other road users behave. Another study found that traffic law enforcement effectively reduces the frequency of fatal motor vehicle crashes in countries with high rates of motor vehicle use. Inconsistent enforcement, therefore, may contribute to many thousands of deaths each year worldwide. Importantly, these findings support the need for police enforcement and the needs to inform and assist police in the development and implementation of road safety strategies and interventions. Similar lessons for police enforcement can be applied from research outside road safety where evidence-based decision-making for wild-life conservation includes maximising the use of limited resources, pro-active enforcement strategies and using long term solutions to alter human behaviours, and this has proved to be highly successful. These common concepts have application across the range of enforcement and human behaviours and are readily adaptable to road safety.

3.4.7 Road safety and education

Research over the past three decades has demonstrated that maximum road safety outcomes are achieved by a direct link between education and enforcement when implementing countermeasures to address the various local, national and international

158 Cameron, Scientific basis for the strategic directions of the safety camera program in Victoria; Amanda Delaney, K. Diamantopoulo and M. Cameron, MUARC speed enforcement research: Principles learnt and implications for practice. Report No 200 (Melbourne: MUARC, 2003); A. Gains et al., The national safety camera programme, three year evaluation report (London: PA Consulting and University College London, June 2004); Wilson, Speed enforcement detection devices for preventing road traffic injuries.
This knowledge is often neglected by both educators and enforcers in the planning of interventions. It is strongly reinforced in comprehensive speed management policy requiring co-operation between road authorities, regulators, enforcers, educators and car manufacturers.

3.4.8 Performance measures

Road policing authorities in advanced communities with a high level of public accountability measure their performance against pre-set objectives and provide periodic and annual reports against targets. Since 1994, the New York City Police Department has developed ‘CompStat’ as a strategic control system to collect, analyse and map crime data and other essential police performance measures on a regular basis and hold police managers accountable for their performance. This process has now been adopted in other police jurisdictions in the United States of America, as a strategic traffic enforcement tool.

The European Transport Safety Council benchmarks police enforcement in the EU with the three major risk factors: Speed enforcement; drink-driving; and seat belt wearing. The level of enforcement is assessed by the number of speeding tickets per 1,000 people in the population and the number of roadside police breath-tests per 1,000 in the population. Other factors taken into account include seatbelt wearing in the front seats of light vehicles, seat belt wearing by truck drivers, driver surveys on legal alcohol limits, driver attitude surveys on their perception of the seriousness of speeding, and the proportion of cars and vans exceeding the speed limits on urban roads. This benchmarking model has merit within Europe through the consistency of data collection on policing activities and the ability to undertake driver perception surveys and a road safety ‘Euro-barometer’ to elucidate comparisons. The model treats outputs as the success without consideration of the differences between member states in their level of electronic enforcement, the amount

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and sophistication of police equipment, vehicle safety features such as alcohol ignition interlocks and seat-belt warnings, and the strategic road safety training of the police officers. However, there is no correlation drawn between enforcement strategies and any road safety outcomes, including reduction in fatalities, injuries and crashes.

3.4.9 Data collection and good practice

Accurate road safety data, reliable data collection and efficient data analyses are acknowledged as providing the basis of well-founded road safety strategies. They enable the underlying causes of crashes to be identified and road safety exposures treated. Best practice models in Europe include the Netherlands, with three data sources of police statistics, court files on unnatural deaths and municipal records being compared, linking date of birth, gender, date of death and the type of unnatural death. The resulting records and cross-referencing provide a combined fatality registration of 99.4% which in 2004 was well above the European acceptable range of 85% to 95%; the under-reporting, especially of fatalities is minimised.166

The Rhone Road Trauma Register in France provides a best-practice system for data collection with 96 first-line hospital services, 160 follow-up services and 11 rehabilitation centres centrally networked to record information of non-fatal casualties, including injury severity and long term impact. By 2005, over 10,000 cases were recorded providing regular data analysis and research on particular themes such as elderly road users, gender specific road risks, characteristics of injuries and pedestrian injuries.167 The information obtained from these types of database systems is seen as essential by law enforcement and other road safety disciplines to design and implement strategic countermeasures. However, crash statistics alone are insufficient to assess the road safety situation; other performance indicators are required, especially those targeted at improving vulnerable road user safety matters such as pedestrian crossings and safety audits.168 Such studies are highly relevant considering the high proportion of pedestrian fatalities internationally.

166 Ibid, 68-69.
167 Ibid, 70.
The United Kingdom Royal Society for the prevention of accidents has provided strategic guidance for road safety professionals based on a UK study. An inter-disciplinary approach provides guidance on for the four ‘E’s of road safety - engineering, education, enforcement and encouragement. The Society nominates the tasks for enforcement as enforcing the law, promoting road safety, investigating incidents and patrolling. The Society describes the functionality of the constituent disciplines but has limited advice or guidance for them on means to effect change. The value for this research is to stress the importance in targeted and intelligence-led strategies and the need to ensure that investigating officers understand the importance of gathering data as well as highlighting that contributory factors for crash causes are not always recorded nationally.169

Strategic enforcement models use data as the foundation for action and combine strategy with demonstrably sound philosophies and enforcement practices in an holistic approach to reducing road trauma. A model developed in Victoria, Australia used the experiences from Waikato police, New Zealand together with the Japanese Koban police program to combat recidivist drink driving.170 The model assisted in the classification of the top ten licensed premises for serving alcohol, based on apprehended drink-drivers over the past six months, and correlated crash locations and targeted the licensed premises as well as strategically enforcing the most frequently trafficked routes. The results achieved a reduction in road trauma and a reduction in anti-social behaviour.

3.5 Traffic law enforcement in the low to middle-income countries

Despite the growing level of road traffic injuries in low to middle-income countries, traffic law enforcement and road safety has not received the level of attention required. A consequence is that road user behaviour is seen to be reckless with drivers routinely ignoring traffic laws.171 Within low to middle-income countries, the problem of road crashes and injuries does not reside with any specific agency and invariably is divided among many

169 The Royal Society for the Prevention of Accidents, Strategic guidance for road safety professionals (London: The RSPA, United Kingdom, 2003), 46.
170 J. Ingham, Strategic enforcement management model, A practical approach to road trauma reduction (Melbourne: Traffic Drug and Alcohol Section Operation Unit, Victoria Police, October 2008).
different sectors and groups.\(^{172}\) Where National Road Safety Councils have been formed they often lack legal or regulatory powers.\(^{173}\) Research in the low to middle-income countries usually identifies road trauma as a major problem without specific findings to assist law enforcement with interventions or remedial actions.\(^{174}\) Poor road user behaviours and studies on traffic laws are all too often broadly referenced throughout the literature without identifying remedies.\(^{175}\) Research should form the basis of major enforcement initiatives, to secure appropriate understanding of driver attitudes and behaviours and provide a conceptual framework for educating for safer driving behaviours.

The road trauma reduction in the high-income nations has not been achieved in the low to middle-income countries where the foundational elements of quality data, awareness and education, effective enforcement, engineering and research infrastructure have not been available. In the high-income countries, speed limits are visibly and practically enforced by police, but in low income countries this is difficult due to resource constraints. In Ghana, for example, a police force with 16,500 police officers has a fleet of just 145 vehicles.\(^{176}\) This lack of resourcing sits with increasing crash injury rates and recommendations that “police control of speed and drunk-driving must be intensified on the rural highways to stem the high incidence of traffic fatalities and injuries on the roads in Ghana.”\(^{177}\)

A study of pedestrian crashes in low to middle-income countries, used Ethiopia as a case in point to highlight impediments to road safety reform. Poor enforcement of traffic regulations was attributed to deficiencies in resources, funding, training, linkage with engineering and education, coordination among enforcement bodies, role definition and corruption. The study identified that the enforcement focus on ensuring traffic flow often leads to police ignoring other offences. These impediments make enforcement practices


\(^{175}\) Ibid.


much more difficult than in developed nations. Enforcement interventions were required for both pedestrian compliance with the legal and safety issues and driver compliance with speed limits, traffic control signals, signs and the observance of pedestrian safety. The findings were that an integrated evidence-based approach combining enforcement with engineering and education was an essential component for reform.¹⁷⁸

In a South African study, human behaviour was identified as the single biggest cause of accidents with estimates that 90% of fatal accidents are a result of a traffic offence. South Africa was assessed to have a poor road safety record with a fatality rate per capita of 25.5 deaths per 100,000 population, comparing badly with both developed and developing countries. A general lawlessness amongst road users was attributed to socio-economic factors including; the lack of human and other resources; selective application of traffic laws, and the legal process. It was considered that law enforcement is one action that can change human behaviour and cause drivers to have more respect for the law. The study concluded that education, training, capacity building and the general advancement of society and all road users, therefore remain an important field for making a difference to the country’s poor traffic record.¹⁷⁹

A Brazilian study on drink-driving policies assessed data from peer-reviewed journals and public discussions since the new law of 2008, reducing the legal BAC limit to 0.02% and raising the penalties, and compared these policies with strategies demonstrated to be effective in reducing alcohol-related traffic accidents in developed countries. The study found it essential to undertake a full assessment of the infrastructure and supporting measures of the laws such as enforcement capability, the involvement of government sectors and the support of the public. This approach was considered far more effective than relying on the general deterrence effect of stricter laws. Evidence-based policy emerging

¹⁷⁸ G Tulu, et al., “Why are pedestrian crashes so different in developing countries? A review of relevant factors in relation to their impact in Ethiopia” In proceedings of the 2013 Australasian Transport Research Forum, 2-4 October 2013, Brisbane, Australia
¹⁷⁹ H Stander and C Bester, “Road safety in developing countries – a South African perspective”, In proceedings of Road Safety in Four Continents, Warsaw, Poland 2005.
from research was the key to improving the effectiveness of actions to reduce alcohol
related traffic accidents.\textsuperscript{180}

Traffic law enforcement and particularly drink-driving prevention initiatives in low to middle-
income countries require an understanding of the economic, legal and cultural context to
develop a tailored intervention. Programs in Nigeria and Viet Nam highlight the challenging
tasks of obtaining baseline survey information of driver awareness of the dangers of drinking
and driving: understanding the resource impediments to enforcement; adapting strategies
from high income countries; and show the importance of effective partnerships with local
government and nongovernment organizations.\textsuperscript{181} Another review of drink driving
interventions in Viet Nam advised a structured approach of legislative review; training large
cohorts of national stakeholders, particularly police; mass media campaigns for national
television; intensive roadside enforcement operations; and monitoring and evaluation.\textsuperscript{182}

There is grave danger in a direct translation of what is perceived to be good road safety
policies and practices directly to low to middle-income countries. As an example, it is well
documented that motor-cycle and bicycle helmets are a critical in saving lives.\textsuperscript{183} However,
they have been partially or totally rejected in some Asian communities because of the lack of
flow-through ventilation and are colloquially referred to as ‘head or brain cookers’.
Translation of successful strategies in low to middle-income nations must take into account
the cultural, economic and climatic environment of the receiving nation.

3.5.1 The quality of enforcement

The 2013 Global Status Report on Road Safety provides data from 175 countries which have
‘self-rated’ enforcement of the five major road user risk behaviours. On a scale from zero to
ten, eight or higher is classified as good enforcement.\textsuperscript{184} Less than 20/175 countries rate

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\textsuperscript{180} G Andreuccetti et al., “Evidence-based drinking and driving policies in Brazil: using evidence to guide policy changes”, In proceedings of the 20\textsuperscript{th} International Council on Alcohol, Drugs & Traffic Safety Conference, Brisbane, Australia, 25-28 August 2013.
\textsuperscript{181} K Stewart et al., “Drink-driving prevention initiatives in low and middle-income countries: Challenges and progress in Nigeria and Vietnam” In proceedings of the 20\textsuperscript{th} International Council on Alcohol, Drugs & Traffic Safety Conference, Brisbane, Australia, 25-28 August 2013.
\textsuperscript{183} The Royal Society for the Prevention of Accidents. The Effectiveness of Cycle Helmets. A Synopsis of selected research papers and medical articles (Birmingham: RSPA, May 2003).
\textsuperscript{184} WHO, Global Status Report on Road Safety, Supporting a Decade of Action, 2013.
\end{flushright}
their enforcement as good for child restraint law; less than 50/175 for seat belt law; less than 60/175 for motorcycle helmet law; less than 40/175 for drink-driving law; and less than 30/175 for urban speed law. While new road safety laws have been passed in 35 countries, only 28 countries, covering 7% of the world’s population have comprehensive legislation for all five risk factors.\textsuperscript{185} The lack of effective laws compounds the challenges associated with effective enforcement methods. Yet, the findings from the Global Status Report identify eighty-eight countries which have reduced the number of deaths, showing that improvements are possible. The remaining 87 countries have seen increases in traffic deaths over the same period. Australia, Canada, France, the Netherlands, Sweden and the United Kingdom are examples of countries with a steady decline in road traffic death rates through coordinated, multi-sectorial responses to road trauma over the past three years.\textsuperscript{186} Those low to middle-income countries in my research have not achieved road trauma reduction. One example of ineffective laws in Thailand, Cambodia, Lao PDR and Viet Nam is that helmet-wearing legislation applies only to the motorcycle driver. It is common, therefore, to see the male driver wearing a helmet with a female passenger and two or three child passengers on the motorcycle completely unprotected, diminishing the safety impact of helmet use.\textsuperscript{187} This is a common scenario in the Asian environment and is discussed further in Chapter 6.

A common criticism is that authorities, particularly those involved in enforcement strategies, are devoid of purposeful direction. World Bank documentation, somewhat simplistically, summarises the character of the concern: traffic police are under-resourced and under-trained to deal effectively with road safety violations, while affirming that “effective traffic law enforcement can play an important role in reducing traffic crashes.”\textsuperscript{188}

Governments in low to middle income countries often lack the political will and financial and professional resources to tackle road safety issues effectively on their own.\textsuperscript{189} Governments have the power to prioritise funding, allocate resources, drive strategic plans and monitor

\textsuperscript{185} Ibid, 12.
\textsuperscript{186} Ibid, 1.
\textsuperscript{187} Jacobs, Estimating global fatalities.
\textsuperscript{189} Elsenaar, Road Safety Best Practices, 9.
agency performance, and their influence may assist, neutralise or restrain road safety reform. The lack of political will is a most important barrier to improvement as without the commitment of government, little action will be taken.190

3.5.2 The quality of data

Good practice enforcement relies on accurate, reliable and current data. The investigation skills of traffic police in high-income countries target the underlying cause of crashes so that preventative measures and road safety improvement strategies may be developed.191 The data analysis guides law enforcement practitioners to identify risk factors and priorities in strategies, targets and performance monitoring.192

Low to middle-income countries do not have reliable data. A specific objective of the Decade of Action is to improve the quality of data collection at the national, regional and global levels.193 The estimates of under-reporting of global road trauma in high to middle-income countries range from 0% to 26% and up to 351% in the Philippines in 1993 as an extreme example of the low to middle-income countries.194 China is estimated to experience 42% more road trauma than is officially reported. The variance in other research studies place under-reporting from 25% to 60% of accidents in the low income countries.195 Such findings are supported by reports for individual countries such as India where a special government committee advised that although the data on fatalities may be close to the true number of deaths in road accidents, the under-estimation of reported injuries could be 15 to 20 times the number of deaths.196 Globally and for individual countries accident numbers are far larger than reported through police records or hospital logs.197 The discrepancies in the

194 Jacobs, Estimating global fatalities, 8, 11.
195 A. Aeron-Thomas, Under-reporting of road traffic casualties in low income countries. TRL Project report, POR/INT/199/00 (Crowthorne: TRL Ltd, 2000).
196 Rohit Baluja, Assessing road traffic violations in developing countries, A case study of Delhi, India (Paper presented at University of Birmingham: Senior Road Executives Programme, 2009), 3.
percentages from the different sources does not detract from my research; rather, it affirms that under-reporting is a major impediment to the quality of data.

Global research identifies inadequate use of even the limited amount of accident information collected in low to middle-income countries and more research is needed into the dissemination and application of crash data. The lack of and underuse of available data as well as under-reporting of fatalities, major injuries and minor injuries distorts the true picture of road trauma; the potential to undermine road safety reform is significant. The masking of the real problems serves to undercut the critical nature of the issues for policy makers and thereby helps to justify inaction. In summation, the research makes clear that road accidents are a major problem within these countries; the data is not readily available for all countries; it is often incomplete and difficult to access and there is a lag in public release. The most recent international fatality data available is from 2010 and published in the 2013 Global Status Report on Road Safety. This data provides the baseline and monitoring tool for the Decade of Action evaluation.

3.5.3 Good practice traffic enforcement in low to middle-income countries

Internationally, good practice enforcement is intelligence-led, evidence-based and outcome-focused. Intelligence-led policing is a development from problem-oriented policing, incorporating the accountability of compstat and originally applied to criminal activity. It has been progressively applied to traffic law enforcement in Australia and Europe. Traffic data analysis is an essential component within the strategic framework of road safety reform, combined with sound evidence from crash data, and with a focus on road trauma reduction. Research shows many examples of a poor road safety culture requiring urgent counter-measures in low to middle-income countries as well as positive actions that can be improved upon.

A study from India estimated that 146 million road traffic violations were committed daily in Delhi with police prosecuting a meagre 13,000 daily violators. This is hardly surprising

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200 Shuey, “Intelligent Enforcement, the Key to Road Safety,” 1.
given the resourcing limitations facing police, however, it identifies the need to understand the magnitude of offences and the relationship to law enforcement so that more effective evidence-based reform can be implemented. 203 An attitudinal study from Namibia recognised funding, resourcing and efficient support systems as pivotal to successful enforcement and concluded that police were capable and self-motivated and that driver attitudes to respect for the law were critical. 204 More positive examples can be found from the Kwa Zulu Natal Province of South Africa where strong enforcement on drink-driving and speeding combined with dramatic television advertisements adapted from Australia resulted in a 35% reduction in road fatalities in the Province compared with a 17% reduction for the entire country over the two years following the campaign. 205 In another African example, a study of 26 pedestrian safety educational intervention programs were notably lacking a strong enforcement component. 206 As with vehicle crashes, the lack of data and effective data analysis on factors causing pedestrian deaths and injuries hampers research, effective enforcement and education interventions within the low to middle-income countries. 207

Good practice drink-driving and drug testing interventions in Buenos Aires, Argentina, where 1 in 4 traffic collisions were attributed to an impaired driver, demonstrate that strong and consistent enforcement can achieve positive road safety results. From May 2008, a zero tolerance approach included: a 1,000 strong traffic police task force; random alcohol testing - over 200,000 drivers tested in 2012; designated driver programs with private support; drug testing - with training and guidance from Victoria Police in 2010; mobile police enforcement; offender vehicle confiscation; and alcohol ‘alcolocks’ fitted to school buses. The drunk-driving rate decreased from 2.5% of those tested in 2007 to 0.07% in 2012 and more importantly the overall fatalities were reduced from 142 in 2007 to 76 in 2012. This example

203 Ibid, 3.
204 Mike Winnett, Namibia police attitudinal study, Seat Belt Compliancy Study, Global Road Safety Partnership Namibia (Geneva: International Federation of Red Cross and Red Crescent, 2009), 4.
205 Elsenaar, Road safety best practices, 7.
207 A recorded category of ‘pedestrian hit by car’ on a crash report does not assist in identifying a causation factor. In the crash report, this is the source material upon which data is compiled and later analysed.
from a jurisdiction originally with no enforcement whatsoever of drink-driving demonstrates an effective intervention, at least in the short term.\footnote{208} A drink-driving intervention program in Suzhou, China, was established with multi-sectorial cooperation, to learn from advanced foreign experience, under the unified leadership of government, financial health, public security, traffic, propaganda, education and other departments to integrate resources and responsibilities. The focus was to engage whole of society participation, increase the awareness of traffic safety, change passive management to active management and improve law enforcement skills. The innovative approach resulted in Suzhou city being awarded the status of “health city” best practice award by the World Health Organisation in 2012.\footnote{209} This integrated approach brings legislation, enforcement and social marketing into prominence to provide a more cohesive, balanced and methodological/evidence based approach so the model city concept can be replicated throughout China.\footnote{210}

A major initiative in Malaysia during the Hari Raya festival period from 7-21 October 2007 combined inter-departmental road safety resources and organisational cooperation in a coordinated endeavour to save lives. The program included: perception studies; mass media advocacy; reduced speed limits; enforcement including undercover and unmarked police vehicles; injury controls such as advocacy on helmet and seat-belt; post-crash strategies including trauma and injury management; and, real-world crashworthiness crash investigation. The evaluation, undertaken by MIROS found that the overall perception of being caught for traffic offences during the operation increased from 26.9% before to 45.4% and the mean trauma projections reduced by 37 fatal accident cases and the actual fatalities dropped by 45 cases during the 14 days. This coordinated approach proved successful and offered a compelling reason for it to be continued throughout the year. Importantly,

\footnote{208} P Carignano, “Enforcement: the only efficient way to tackle road fatalities in South America” In proceedings of the 20th International Council on Alcohol, Drugs & Traffic Safety Conference, Brisbane, Australia, 25-28 August 2013.  
enforcement, whether covert or overt greatly influenced awareness of complying with traffic regulations.211

3.5.4 The classification of human error in crash causes

Human error and human factors are blamed for a high percentage of fatalities in low to middle-income countries where crashes are rarely investigated and analysed through scientific means to determine causes and impacts. A main aim of investigation by police is to determine whether there has been a traffic violation and, therefore, the emphasis of the investigation is likely to be on detecting human error and apportioning blame.212 Attributing causes to human error fails to acknowledge or identify the root cause of accidents and, therefore, inhibits remedial countermeasures.

The expression ‘human error’ is vague and generally applies to excusable failings such as the loss of vigilance caused by fatigue or stress, misperception of distance, failing to judge the severity of a corner or poor visibility due to lighting and distorted viewpoints.213 Excessive speed and panic reactions errors were initially recorded in high-income countries under a ‘driver error’ category.214 The most significant root cause is now the focus in standard procedures in good practice jurisdictions. The human error classification applies extensively across low to middle-income countries, and encompasses incidents involving excessive speed, drink-driving, failing to wear a seat belt, failing to wear a helmet or overloading, all of which are conscious actions or inactions and for which legal sanctions apply. This classification is demonstrated by a number of examples such as in India where the 2006 statistics record human error as the cause of 77% of the total road accidents.215 A study by the World Road Association found that 93% of crashes were due to human factors,216 a South African study

212 Goff Jacobs and C. J. Baguley, Towards a strategy for improving road safety in developing countries (Crowthorne: Transport Research Laboratory, 2004), 7.
215 Ibid, 2.
216 Permanent International Association of Road Congress (PIARC), Road Safety Manual (Quebec: World Road Association, 2003).
concluded that 78% of accidents are due to human factors\textsuperscript{217} and a National Department of Transport, South Africa found 95% were the direct result of traffic violations concluding that violations plus errors result in a collision.\textsuperscript{218}

‘Human factors’ as an alternative expression to ‘human error’ includes those crashes in which humans had control over the circumstances and were responsible for the crash for reasons such as speeding, and where the vehicle and the roadway were not contributing causes. A scientific analysis of accidents distinguishes the descriptor, ‘error’ from ‘fault’, which is a deliberately unsafe act and should be classified as a violation.\textsuperscript{219} Definitional clarification is valuable, to identify the true causes of a crash and to separate true errors from violations, and without it, caution must be exercised in reviewing the statistics and police crash reports. This caution also applies to the discussion in Chapter 6; an easy solution for an investigating police officer is to record the cause as human error, especially if the offending driver is deceased and there is no obligatory prosecution. The correct identification of crash causes will assist in remediation where errors may be addressed by infrastructure upgrades or vehicle improvements and violations may be treated with sanctions, education and driver training to ensure responsible driver behaviours.

3.5.5 Police corruption

Road safety countermeasures are exacerbated by limited control over bargaining, bribery and corruption and can impede strategic and generic solutions for road safety. Corruption generally refers to the abuse of power for gain, breaches of public trust and bribery to forgo duty.\textsuperscript{220}

\textsuperscript{218} L. Vogel, et al., “A Relationship between accident types and causes” (Reported in Proceedings of the 24\textsuperscript{th} Southern African Transport Conference, 11-13 July 2005), 233-141.
\textsuperscript{219} Traffic Accident Causation in Europe (TRACE), \textit{Analysing human factors in road accidents}, WP5 Summary report. Project No 027763-TRACE (Information Society Technologies), 12\textsuperscript{th} September 2008), 9-17.
\textsuperscript{220} \url{http://www.transparency.org/whoweare/organisation/faqs_on_corruption#defineCorruption} (retrieved 1/3/2013); \url{http://oxforddictionaries.com/definition/english/corruption} (retrieved 1/3/2013); Independent Commission against Corruption Act 1988, NSW. Section 8.
Transparency International, a global coalition against corruption, provides comparisons of the perceived levels of public sector corruption in 176 countries and territories. Because of the secrecy of corrupt activity, this composite index is based on perception. Police are only one section of the public sector but the information has relevance for the overall relationship between the community and the police. On the scale, number ‘1’, the best ranking, denotes least corrupt; 176, the most corrupt. Table Three compares Sweden, Australia and the ten countries under study. Notably, Yemen, Cambodia and Lao PDR are at the high end of the index.

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<th>Transparency International corruption perception index - 2012</th>
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<tr>
<td>Country</td>
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*The best performing country (least corrupt) is ranked Number 1 and the worst performing country (most corrupt) is ranked 176

Table 3. Transparency International corruption perception index-2012

Corruption among traffic police may arise from different causes and therefore different solutions may be required for the same actions. In one case police may be incompetent, poorly trained and poorly equipped while in another they may be extracting bribes on a regular basis and abusing their positions through explicit extortion. These manifestations of corruption vary from minor bribes of traffic police to systemic bureaucratic, criminal and political corruption. Corruption has been described by one author as primarily weak governance or a failure in governance while another states that the remedy is anti-corruption strategies that are in fact forms of good governance. Strong governance and controls must apply over police responsibilities and accountabilities from the front line to the commanding officer. A report for USAID concluded that corruption undermines public


223 Ibid.


trust, public cooperation and victimises vulnerable groups. Within policing, it is essential to build mechanisms that can detect and stem corruption and support a culture of integrity in policing.\footnote{USAID. \textit{Anti-corruption and Police Integrity}, Security Sector Reform Program, (Virginia: ARD, 2007), 17.}

The International Association of Anti-Corruption Authorities lists all ten countries addressed in this study as having anti-corruption authorities.\footnote{This includes the National Bureau of Corruption Prevention, China; the National anti-corruption Council Cambodia; the Federal Ethics and Anti-corruption Commission, Ethiopia; The National Assembly Lao PDR; the Malaysian Anti-corruption commission; The National anti-corruption commission Thailand; The State Audit Institution, United Arab Emirates; The Overview of Anti-corruption Agencies and the People’s Prosecution offices, Viet Nam; and the Central Organisation for Controlling and Auditing, Yemen. \url{http://www.iaaca.org/AntiCorruptionAuthorities/ByCountriesandRegions/C/Chinajigou/} \url{http://www.iaaca.org/AboutIAACA/BriefIntroduction/201103/t20110316_513122.shtml} (Retrieved 3rd February, 2013).} However, the effectiveness of these authorities is limited as there is no over-arching government zero tolerance policy. This integrated policy framework does not exist in those countries such as Indonesia where a Corruption Eradication Commission (KPK) has been established as the primary agency for prosecuting accused officials.\footnote{Indonesia. IDN 35985 –SPSI –Gapensi – Corruption, KPK. Australian Government Refugee Review Tribunal. 20th January 2010. \url{http://www.mrt-rrt.gov.au/CMSPages/GetFile.aspx?guid=bf2d17f8-c9cb-401f-bb63-e35188817d34} (Retrieved 3rd February 2013).} Subsidiary agencies in Indonesia such as the police and the Attorney General’s Department have the power to pursue investigations and prosecutions but both institutions are viewed by Indonesians as highly corrupt.\footnote{Ibid, 3.}

An example of a concerted effort is the Rwandan National police, which has a strategy of zero tolerance of corruption.\footnote{Ibid, 3.} The country ranks 50/176 on the Corruption Perception Index, a better ranking than nine of the ten low to middle-income countries in my research. The Ombudsman’s Office was established in Rwanda in 2004 as the anti-corruption authority and operates under a memorandum of understanding with police corruption investigators.\footnote{http://www.police.gov.rw/content/fighting-corruption-among-rwanda-national-police%E2%80%99s-top-priority (accessed 1st March 2013).} The national police strategies involve monitoring discipline within the police, an anti-corruption commission, an ethics centre, suggestion boxes, hotlines for complaints, rotating police units, stakeholder consultation and partnerships as well as
initiatives to sensitise the police on the negative effects of corruption. Punitive measures include prosecution and expulsion of police as well as prosecuting drivers caught attempting to bribe traffic officers. These coordinated strategies have proven to be successful, demonstrated through a substantial reduction in the external perception rankings from 121/163 in 2006, 102/180 in 2008, 66/178 in 2010 to the ranking of 50/176 in 2012. The Rwandan example demonstrates outcomes which can be achieved with a zero tolerance strategy and the importance of an effective framework of governance.

3.6 The value of benchmarking

‘Benchmarking’ involves an holistic approach of using a total quality tool to assess performance, share best practice and establish lines of communication. Its value is in measuring the quality of an organisation’s policies, products, programs, strategies and their comparison by way of standard or similar measurements of its peers. As an example, the Public Sector Benchmarking Service (UK), has developed an international on-line, self-assessment diagnostic service for member organisations, to exclusively compare their own performance capability as a ‘health-check’, with 17 key ratios and corresponding quality indicators. This tool provides for comparison against some of the ‘best in class’ organisations in the private sector and is widely recognised for its systematic approach to business improvement when best practice is sought and implemented.

Benchmarking identifies strengths and weaknesses, including gaps in performance that may facilitate change through continuous self-improvement. The seven steps of a leading public entity risk management model are: to identify what to benchmark; determine what to measure; identify who to benchmark; collect the data; analyse the data and determine the gap; set goals and develop an action plan; and monitor the process. This serves as a useful

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framework for policing particularly the underpinning philosophies of requiring organisational readiness to undertake the benchmark, the commitment required from senior management and the preparedness for change. Other models examined for my research were the Common Assessment Framework (CAF) and the Balanced Scorecard (BSC), to explore reforms, good practice and build sustainable quality. These applications are non-industry specific and their use reinforces the importance of key ratios and quality indicators for effective and efficient comparisons; they provide valuable insights for my research.

3.7 Benchmarking road traffic deaths and injuries

In 1968 the Vienna Convention of Road Traffic defined a road death as one where a person dies within 30 days of the crash and as a result of the crash. While most high-income nations adopt this definition, variations apply in many low to middle-income countries, including those in my study. For example, only recording deaths that occur at the crash scene or nominal periods thereafter such as within 24 hours, 3 days or 7 days. The Vienna Convention further defines an ‘injury road crash’ as a collision of a moving vehicle on a public road in which a road user is injured. Given the lack of adherence to these fatality and injury definitions, road trauma comparisons across countries are complex, due to: crash reporting and recording deficiencies, currency of data and analysis and deficiencies in the official figures published by each country. Under-reporting of injuries is perceived as even more serious, with a fraction of injury road crashes reported in many less motorised countries.

The standard benchmarks for road safety are deaths per 100,000 people and deaths per 10,000 registered vehicles. These standards can account for vastly different demographics, vehicle-to-pedestrian ratios and total deaths and injuries recorded. Because not all countries conform to the internationally recognized definition of fatality, the World Health

241 Convention of road traffic, Vienna 8th November 1968.
242 Australia and United Kingdom (30 days), Cambodia (30 days), China (7 days), Indonesia (1 day), Lao PDR (7 days), Malaysia (30 days) Thailand (at the scene), Viet Nam (7 days).
244 Convention of road traffic. Vienna 8th November 1968.
Organisation uses the available data to standardize the statistics based on the 30-day adjusted numbers for 178 countries.\textsuperscript{246} Under-reporting of collisions, injuries and fatalities is a serious problem in low to middle-income countries\textsuperscript{247} and has the potential to weaken the data depending upon the level of under-reporting. Data relevant to the countries I have studied has been extracted from the Global Status Report on road safety and included as Table 4, providing the best available official information on road trauma that uses the benchmark of deaths per 100,000 population. Australia and Sweden are considered by Delaney\textsuperscript{248} as good practice examples for road safety initiatives and are included in the comparison throughout this section. In this table, it is noted that the United Arab Emirates, the best performing nation of the low to middle-income countries studied, has four times the fatality rate of Sweden; the worst performing nation, Thailand has 12.7 times the fatality rate of Sweden. These statistics show the gravity of road trauma in low to middle-income countries compared with the high-income countries.\textsuperscript{249}

\textsuperscript{246} WHO, \textit{Global Status Report on Road Safety}, 2013. 16, 21, 42. Note: Data processing involved completion of a survey instrument and data entry at country level, and validation at regional level. Data cleaning, analysis and report-writing was completed by the World Health Organisation in 2010.

\textsuperscript{247} W. Odero, P. Garner and A. Zwi, “Road Traffic Injuries in Developing Countries; a comprehensive review of epidemiological studies”, \textit{Tropical Medicine and International Health} May 2 (5) (1997), 445-460.


\textsuperscript{249} Other internationally recognized road trauma data comparisons could have been made, such as deaths per 10,000 registered vehicles and deaths per 100 million kilometres travelled. Using this data in low to middle-income countries is problematic because not all vehicles are registered and the data collection for kilometres travelled is rudimentary. Multi-Country Statistical Road Crash Data 2004. http://www.driveandstayalive.com/info%20section/statistics/stats-multicountry-percapita-2004.htm
3.8 International standard ISO 39001

The International standard ISO 39001, for road traffic safety (RTS) management systems outlines requirements and guidance for identifying elements of good RTS management practice to be applied to public and private organisations. The guidelines include adopting a Safe Systems approach through policy, objectives and action plans so that strategic, operational and tactical goals are achieved. Evidence-based actions are advocated to strengthen organisational management capacity in road safety. These initiatives are a significant step to improving RTS as they can provide a framework for organisations to develop their own RTS management systems. Application to police traffic enforcement is directed mainly to the internal operations as well as provision of services to the community. As the standard is non-specific, services are interpreted as road safety, traffic control, law enforcement and education. No guidance is provided for operational planning and control or emergency preparedness and response. The standard has been incorporated into the global plan for the Decade of Action as an optional performance indicator for each country to include it in their systems and management structures.

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252 Ibid, 25.
3.9 The International Road Assessment Program as a benchmarking model

My research now examines international methods of benchmarking components of road safety. A major road safety star-rating assessment initiative is the international road assessment program (iRAP),\(^{254}\) and its country derivatives,\(^{255}\) benchmarking safety performance through the quality of roads including standards, safety and serviceability of the road network and applying a ranking of star-rating bands from one to five. The initial standardisation and benchmarking was undertaken in Europe where roads were rated for the potential risk of traffic accidents that cause death and serious injury.\(^{256}\) These road assessment programs proceed in partnership with government and non-government organisations and are now active in 70 countries throughout Europe, Asia Pacific, North, Central and South America and Africa.\(^{257}\) Star-ratings are applied following an inspection of road infrastructure elements that are known to have an impact on the likelihood of a crash and on its severity. Road protection scores are calculated for each 100 metres of road network. Five star roads are classified as the safest while one star roads are least safe.\(^{258}\) Ratings are undertaken by video and drive-through inspections by accredited assessors and provide a comparison of road design elements and categories against a recognised benchmark.

Four globally-consistent protocols have been developed by iRAP to assess and improve the safety of roads. These are: risk maps with detailed crash data to illustrate the true number of deaths and injuries on a road network; star-ratings to provide a simple and objective measure of the level of safety for car occupants, motorcyclists, bicyclists and pedestrians provided for in a road’s design; safer road investment plans that may draw on approximately 70 proven road improvement options; and performance tracking to enable the use of the star-ratings, and the risk maps to track road safety performance and establish policy positions.\(^{259}\) A road inventory database is included as an iRAP toolkit with over 30 attributes describing the network along with a recommended, cost-effective and network-wide

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\(^{255}\) AusRAP, EuroRAP, usRAP, ChinaRAP, sgRAP, KiwiRAP, iRAP Viet Nam


\(^{258}\) International road assessment programme. Star-rating roads for safety, The iRAP methodology (Basingstoke: iRAP Worting House, July 2009), 5. Also available on www.irap.org

\(^{259}\) Ibid, 2.
countermeasure program for specific guidance for local stakeholders, engineers, planners and funding bodies to establish safer road investment plans. In 2011, iRAP/EuroRAP undertook a review of 11 studies that make comparisons between average crash rates, costs or severities and the Road Assessment Programme’s Star Rating or Road Protection Score (RPS). The review found that there have been particularly good matches between the star-rating and average crash rates or costs where data sets are large and the road sections on the routes being compared are relatively homogenous such as Australia, New Zealand and the United States. Another study found that by improving the star-ratings of the Bruce Highway, in Queensland Australia, large reductions in fatal and serious injury crash costs would be achieved.

Independent evaluations of iRAP have provided strong support for the credibility and value of the model as a star-rating assessment tool for roads internationally. One study found the iRAP metric a good example for highlighting some relevant aspects that should be considered in any ‘value of statistical life’ used to estimate the benefits of road interventions in cost-benefit analysis. Other research found that a higher speed limit resulted in higher crash severity on roads with poor safety ratings whereas the opposite was found on roads with good safety ratings. In this research, statistically significant differences were found within the sub categories of four-star roads. Another study concluded that the developed model might be a tool to systematically identify which of the components are linked to fatal outcome. A further study found the star-ratings identify meaningful differences in safety

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260 iRAP International road assessment programme, Vaccines for roads, the new iRAP tools and their pilot application.
265 H. Stigson et al., Use of fatal real-life crashes to analyze a safe road transport system model, including the road user, the vehicle and the road, p 463, Traffic Injury Prevention, 9, 463-471, Taylor & Francis Group, 2008.
among roads with varying design features.\textsuperscript{266} These reports indicate that the star-rating and the road protection score is a valid measure of injury risk and a valuable assessment tool for road network quality. The value of iRAP as an international benchmarking tool is recognised through prestigious awards by the International Road Federation Global Road Achievement Award for Road Safety in 2013,\textsuperscript{267} and the Prince Michael International Road Safety Award in 2014.\textsuperscript{268}

3.10 The international new car assessment program as a benchmark model

Another road safety benchmarking model examined is the international new car assessment program (\textit{NCAP})\textsuperscript{269} and its derivatives\textsuperscript{270} which provide star-ratings on the standards, quality and safety features of new vehicles.\textsuperscript{271} This model applies an independent and transparent assessment of vehicles for crash avoidance technologies, crash severity reduction and injury mitigation. \textit{NCAP} was developed in 1979 in the USA and is a means of passively assessing vehicle safety for the consumer as distinct from dominant motor vehicle assessment criteria such as engine power, spaciousness, aero-dynamics and fuel consumption.\textsuperscript{272} The European new car assessment program (\textit{EuroNCAP}), was established in 1997 to provide a standardised independent assessment index to categorise and accredit new vehicles on a star-rating scale of one to five, with five being the safest vehicles and one being the least safe vehicles.\textsuperscript{273}

The ratings apply to crash testing, roll-over ratings and safety features. The application of star-ratings by \textit{NCAP} has proved a catalyst for encouraging significant safety improvements in new vehicle design as manufacturers constantly strive to achieve high ratings. The program is dynamic in its application as demonstrated by the development of new car safety features such as Electronic Stability Control (ESC) and the curtain air-bags now included in

\textsuperscript{267} http://www.irap.net/en/irap-news/408-kiwirap-wins-prestigious-international-award (retrieved 15/5/2014)
\textsuperscript{268} http://www.roadsafetyawards.com/international/default.aspx (retrieved 15/5/2014)
\textsuperscript{270} NCAP operates in Asia, Australia, China, Europe, Japan, Korea and New Zealand. It may be called the Global new car assessment program.
the NCAP star-rating.\textsuperscript{274} The program is also used as a marketing tool in the second-hand market. The Australian New Car Assessment Program (ANCAP), although having commenced testing in 1992, achieved significant impetus in 1999 following alignment with EuroNCAP and the development of individual test scores. Ideally, new car buyers can use the star-ratings to compare at a glance the safety assessment of their vehicles.\textsuperscript{275} ANCAP has raised the standard of vehicle safety and has pressured manufacturers to ensure that Australian motorists, their families and passengers are protected by the best safety equipment and protection available.\textsuperscript{276} Internationally, NCAP provides consumers with a measure of relative safety for passenger vehicles through easily identifiable star-rating assessments and has achieved the acceptance of both the manufacturers and the purchasers.\textsuperscript{277}

NCAP is noteworthy in its drive to achieve safer vehicles in the international new car market and its alignment with the second pillar of action under the United Nations road safety Decade of Action. The NCAP model is an additional example of a universal road safety application which applies a star-rating system and is simple for understanding by the consumer.

In USA, independent research on the effectiveness of the NCAP star rating program and the fatality risk in 396 head-on collisions involving 792 cars found that drivers of cars with a good NCAP score when compared with a cars of equal weight but a poor NCAP scores, had an average a 15% to 25% lower risk of fatal injury.\textsuperscript{278} In Europe, an examination of EuroNCAP with real-life injury risks found that cars with three to four stars were approximately 30% safer when compared with two-star cars or cars without a EuroNCAP score.\textsuperscript{279} Another European study found, on average, an association between the new measures of vehicle

\textsuperscript{274} Driving for Better Business eNewsletter, published by RoadSafe UK February 2009.
\textsuperscript{275} Ibid.
crashworthiness and EuroNCAP ratings.\textsuperscript{280} These latter findings from independent studies strongly support the benefits of NCAP as an assessment tool. The concept is further acclaimed as best practice with a Prince Michael International Road Safety Award in 2014.\textsuperscript{281} The model provides a valuable guide for this research and the impetus to explore a similar concept as a benchmarking tool for the effectiveness of law enforcement.

\textbf{3.11 Contribution of the literature review to my research}

The research confirmed road trauma as a critical international problem requiring urgent attention and commitment from all governments and stakeholders, and that the United Nations Decade of Action is a focal point for reform. Traffic law enforcement was identified as an integral component of the UN resolution with strategies requiring enforcement of the key risk factors to directly impact upon road user behaviour. The research further identifies Vision Zero and the Safe Systems approach as providing valuable conceptual frames in any reform agenda.

I found that good practice in the high-income nations is characterised by general and specific deterrence strategies to influence drivers’ perception of the risk of being caught and punished, and this is the principal motivation for driver compliance. These strategies must be accompanied by interventions that include highly visible and active enforcement, combine education and enforcement, have accurate and reliable data and that ensure that the enforcement strategies have a direct relationship with road safety outcomes. The intensity, duration and timing of enforcement are key variables in conjunction with media exposure and the requirement for traffic enforcement to have a direct relationship with road safety.

Appreciating the importance of the emerging social risk factor of the traffic safety culture provided a valuable insight as to the requirements for successful interventions, programs and countermeasures. There is a need for drivers to understand and accept the behavioural restraints so there is no mismatch between their beliefs and actions and to ensure their


\textsuperscript{281} \url{http://www.roadsafetyawards.com/international/default.aspx} (retrieved 15/5/2014).
driving reflects a positive traffic safety culture. Complementing this is the impact of enforcement on driver behaviours. There is a demonstrable need for police to understand road user response behaviours and in particular, the relative importance in the eye of the driver of fear of detection and punishment being stronger than the risk of injury or other safety factors. To ensure effective enforcement is maintained, performance indicators are an essential component for evaluation.

Benchmarking, too is important in the road safety reform agenda. One strength of the iRAP model is its simplicity and practicality in determining the road network quality, while NCAP star-rating program for vehicle quality and safety as well as the ISO 39001 standard for management systems are valuable models to emulate.

3.12 Gaps in knowledge to enhance the enforcement effectiveness in low to middle-income countries

The review into low to middle-income countries identified a lack of reliable crash data; that under-reporting of road trauma is a significant problem; and that traffic police are under-resourced, under-funded and not adequately trained to deal effectively with violations. While the data is readily available from all countries, it is clear from the research that the data is often incomplete and difficult to access and there is a lag in public release. Road accidents are a major problem within these countries. Further, crash causes need to be more definitive than a mere human error classification so that an evidence-base for road safety reform can be established. Additionally, bargaining, bribery and corruption have a serious negative impact on enforcement strategies.

There is a lack of general guidance and knowledge on how to enhance law enforcement capability, to improve performance and measure effectiveness in the low to middle-income countries to a level of good practice. Advisory comments simply affirm the need for more intensive enforcement or better enforcement. Importantly, there are no identified operational or strategic standards across nations from which to draw comparisons of police performance and no generic capacity for benchmarking police performance internationally. Training of senior officers in strategic traffic law enforcement is lacking. This is a critical gap in the capability and practical application of law enforcement which requires urgent attention so that its’ role in road safety can be fulfilled.
A thorough appreciation of the gaps in knowledge within the low to middle-income countries leads to a more detailed exposition of the research questions and guides this program of research.
The critical views of road safety experts

This chapter examined the perspectives and thematic groupings that emerged from the personal interviews with ten international road safety experts. These experts all have many years of experience with road safety research interventions and countermeasures. The interviews provided information about what they considered as good practice, the expected role of traffic law enforcement and how policing strategies may be enhanced to provide significant road safety reform in low to middle-income countries.

The selection of and interview with the experts was an integrating component of the thesis to facilitate the transition from the literature to the practical reality and experience of the real-world interventions and implementation strategies. Chapter 2 details the connectedness of this approach.

Common themes from the interviews were identified through content analysis. I found that the interviewees presented different perspectives, priorities and experiences though often they shared common perspectives on themes of importance and on foundational approaches to remedial interventions. This might be expected with professionals operating and researching in a common field. A primary consideration in initiating the interviews was that the views elicited could be sufficiently representative to guide the direction of my research. This observation was strengthened during the interviews and aided the closer identification of the core themes of the study.

Interviews were structured around an interview guide for the experts (included at Appendix C) and focused on two of the primary research questions:

- What is best practice in traffic law enforcement?
- What aspects of traffic law enforcement can be considered appropriate for benchmarking?
This approach enabled discussion on questions of the accountabilities of police as well as wide-ranging discussion on road safety. Specific comments and the names of interviewees have been used with their explicit permission.

This chapter discusses the ten themes identified through the interviews:

- The quality and use of road safety data.
- Community road safety awareness, education and engagement.
- Infrastructure support for the police.
- The benefits of agency partnerships.
- The quality of police training.
- The professionalism of police.
- The attitude and behaviour of drivers.
- The perception of the risk of being intercepted and punished.
- Police use of technology.
- Police operational capability which could be aligned with good practice.

4.1 The quality and use of road safety data

The quality and use of road safety data was identified in the literature as a critical basis for road safety reform. The experts independently reinforced this, emphasising that accident data provides the foundation for effective interventions, counter-measures, education campaigns and enforcement strategies. The value of data and data integrity was expressed with specific comments on good practice and data management. Within the low to middle-income countries there is a critical need for more effective use of data together with monitoring and evaluation of police services. Klein elaborated on the purpose and use of data:

Good policing practice must align with the fundamentals of good practice in road safety in the relevance of data, proper recording, analysis and dissemination of information to influence the tasking and to guide the implementation of projects and programs.\(^{282}\)

\(^{282}\) Klein, Robert, Asian Regional Director, GRSP, Interview by author, Tape recording, Geneva, 20\(^{th}\) October 2006.
The experts asserted that data needs to follow predictable and scientific methods of road safety. This acknowledges that crashes do not result from a single factor and that there are contributory causes for the crash and the deaths such as alcohol consumption or driving speed combined with unprotected roadside obstacles, no seat belts and a slow rescue operation: there is a “need to develop a contributory factor data base.”

The experts identified a range of problems in data quality in the low to middle-income countries and provided useful perspectives on the consequences of the problems. A summary is provided in Table 5 – Data collection, process and analysis.

<table>
<thead>
<tr>
<th>Data collection, process and analysis</th>
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<tbody>
<tr>
<td><strong>Problem</strong></td>
</tr>
<tr>
<td>Basic information only is collected at the crash scene</td>
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<tr>
<td>Out-dated annual crash data available. Sometimes two years old before release</td>
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<tr>
<td>Inaccuracy of recording site location</td>
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<tr>
<td>Incomplete recording of detail</td>
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<tr>
<td>Inaccuracy as to the primary crash cause</td>
</tr>
<tr>
<td>Delays in submission of crash reports</td>
</tr>
<tr>
<td>Countries receive advice from the high-income nations without local research</td>
</tr>
</tbody>
</table>

Table 5. Data quality in low to middle-income countries

Baluja stressed the importance of data collection:

> Road crash investigation must be given high priority so that factual causes and consequences of the crashes can be analysed and used as a basis for enforcement strategies.

The experts emphasised the importance of accurate and reliable crash data and the need for intermediate performance indicators as precursor information. This ensures that data is the foundation for law enforcement and used as intelligence in a productive and meaningful way. The validation of crash data should occur through hospital emergency services and medical centres. Further advice is that credible road safety data sources should include

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283 Elsenaar, Peter, Director SWOV, Netherlands, Interview by author, Tape recording, 25th October 2006.
284 Baluja, Rohit, President IRTE, India, response to survey and telephone, October 2010.
speed monitoring surveys, drink driving surveys, helmet wearing rates, seat belt wearing rates and driver attitude surveys. Instead of relying on the raw statistics, police need to take a broader approach to data collection and data use to drive police tasking, guide campaigns and the techniques employed for the implementation of countermeasures as well as data being used as the foundation for policy development. The experts further asserted that general benchmarking solutions for data management require standardisation of data collection forms, clear definitions and a minimum data set for collection. A guiding statement to achieve these outcomes is provided by Tsegazeab: “Low to middle-income countries need assistance to build the databases, analyse the supporting evidence and devise implementation strategies.” The collective views of the experts identified a gap in the police capability to fulfil a fundamental requirement of data collection, its management and use. These comments highlight the need for governments and road safety agencies to support police in maintaining these important administrative databases which are key to road safety research.

4.2 Community road safety awareness, education and engagement

Road safety education and awareness is identified in the literature as an integral component of law enforcement strategies for remedial interventions. Similarly, the experts provided strong commentary on community road safety awareness, education and engagement as an essential framework for successful road safety reform. The term community is considered by the experts as all-encompassing of the social, commercial and cultural context. An overarching perspective was provided by Mercier-Guyon:

Good practice needs to include law enforcement in the general fabric of society to ensure that laws are combined with education and that policy makers think in terms of the society and the general context of the country.

There was a strong convergence of opinion in this theme of combining education and enforcement: enforcement and education together provide the critical edge in road safety, education should support enforcement and consolidate the effects of enforcement, and

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285 Tsegazeab Kebede K MD, Chief of the Medical Program for MONUSCO, UN Stabilisation Mission in Entebbe, Uganda, response to survey and telephone interview, October 2010.

286 Mercier-Guyon, Dr Charles, Secretary Medical Council, French Road Safety Association, Interview by author, Tape recording, France, 22nd October 2006.
Linkages between education and enforcement are critical. Education provides the community with knowledge, but it is difficult for education alone to change the attitude of drivers; combining it with enforcement stops the drivers engaging in risky behaviours. The linkage is to provide the drivers with the knowledge to lead to good habits and the enforcement to ensure compliance.

According to the experts, police need to adopt a broader perspective and an holistic approach to ensure that the whole community is working together towards achieving road safety goals. This will not occur when only one or a few agencies provide leadership and endeavour to generate support within the community. Road safety must incorporate society groups such as transport forums, community forums, private sectors, banks, oil companies, motor vehicle and tyre companies, the mining companies as well as teachers and learners in all community social areas such as choir, drama, art and poetry. A strong statement of the need for community engagement is that “everyone in the community is responsible for safer road behaviours.”\textsuperscript{287} Hence, road safety awareness must involve the community in its entirety.

These views were extended by a further emphasis, on the importance of a high level of engagement such that communities acknowledge ownership of the problem and put forward their own solutions in road safety reform. Local ownership of the problem can lead to “social enforcement with controls at local level.”\textsuperscript{288} Such breadth in initiative will enable police to understand the community and help work through some of the complicated barriers to safer roads, and will assists police in energising and delivering road safety reform. As one expert explained, “this is working together to achieve results.”\textsuperscript{289}

Police do not have to take on the burden of all the problems but, rather, ensure that the community adopts responsibility for road safety. It was asserted throughout the interviews that the power of enforcement also lies in changing the culture of the community at a local

\textsuperscript{287} Elsenaar.
\textsuperscript{288} Klein. For example, in Thailand, during the Songkran festival, the village leaders are provided with breathalysers to test drivers for alcohol consumption before leaving their villages.
\textsuperscript{289} Tingvall Claes, Professor, Director of Traffic Safety, Swedish Road Administration, Interview by author, Tape recording, Sweden, 11\textsuperscript{th} October 2006.
level with new understandings of, and trust in the sharing of results, knowledge and implementation methods. Community views are critical for local reform. By working at the local level, pilot programs can be implemented and scaled up if necessary. Police and the communities must have an appreciation that local communities have the power to push governments for nationwide action. These comments identify road safety as a community problem and not just a police problem and, therefore, police do not have to solve every problem or defend every position on every issue. The important challenge is for police to recognise the value of working with the community. This includes understanding driver attitudes and the rationale for behaviours, understanding the motivations for community involvement and engaging the community in the ownership of road trauma and the need for road safety reform.

4.3 Infrastructure support for police enforcement

The literature review briefly discussed support functions for police, including driver licensing, laws and the judicial systems. These issues have emerged as a strong theme in the interviews. The expert perspective on infrastructure was that the road environment should be suitable for violation-free driving; this includes the road network, the signs and signals and particularly laws that are workable and enforceable. If the laws cannot be enforced they should not be legislated. As explained by one expert: “Laws must be clear and specific so that police can enforce those risk behaviours which cause road crashes.” This is strengthened by advice that the judicial system and legislative process requires a systematic approach so that any benchmarking can prove effective. The experts described the road safety framework as police being at the bottom of the road safety funding allocations, restricting their capability in road safety reform. As clarified by Klein:

Engineers receive the money for road building and maintenance, education is responsible for developing linear campaigns and enforcement usually lags behind because of lack of resources, support services and knowledge.

To overcome these issues, there needs to be a clear understanding of the problems associated with the lack of support so that remedial strategies can be developed. Examples

290 Tsegeazeab.
291 Klein.
given by the experts of the lack of infrastructure support are provided in Table 6. The examples highlight the difficulty of effective police enforcement in these circumstances.

<table>
<thead>
<tr>
<th>Experts’ examples of where infrastructure support is lacking</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is naive to say in Kenya that seat belts are compulsory without the vehicle industry being involved, the education sector, the legal sector and without the ability to deliver enforcement and fines collection</td>
</tr>
<tr>
<td>It is not possible to have zero tolerance for alcohol and driving in the Muslim countries without the equipment, ability and procedures for enforcement</td>
</tr>
<tr>
<td>Governments provide window dressing for solutions without infrastructure support such as claiming success with drink-driving programs with a few billboards and mass media and without proper laws, sustainable police enforcement and sufficient processing equipment</td>
</tr>
<tr>
<td>In an example from India: driver licensing procedures are so weak and inadequate that almost 90% of the drivers who secured licences were not aware of the basic legislation.</td>
</tr>
</tbody>
</table>

Table 6. Experts’ examples of where infrastructure support is lacking

To counteract such deficiencies, advice from the experts was that there must be road safety system controls in place for planning, collaboration, control and evaluation, and in an all-inclusive approach to intervention. Infrastructure support must be holistic in its approach so that the laws are workable, the legal system is strong and the driver licensing procedures are effective. Education, enforcement and engineering are the essential ingredients. The contention is that it is impossible to achieve results in road safety without working in these complementary areas via a multi-sectorial approach. This insight was beneficial to my research: ‘infrastructure support’ receives due attention in the analysis in Chapter 7.

4.4 The value of partnerships

The literature review identified partnerships as pivotal in linking the pillars of road safety reform within the Decade of Action framework. The experts also viewed partnerships as critical to road safety success and applied the term to include internal country agency partners292 as well as international partners.293 They explained that in the low to middle-income countries, it is not possible to achieve road safety outcomes without partners as they provide the experience, practical help, sponsorship, funding and training. Further, the strength of road safety is maintained by the integration of the support agencies as coordinated partners. The experts advised that countries with good road safety records have found that co-ordinated approaches prove to be most effective and successful. These

292 Examples provided - Road Traffic Authority, Departments of Transport, Education, Interior, Media
293 Examples provided - Donor organisations such as World Health Organisation, Swedish International Development Co-operation agency, Handicap international Belgium and the Global Road Safety Partnership.
include the concept of shared responsibilities to achieve shared objectives and common goals.

According to the experts, road safety is a multi-sectorial problem requiring multi-sectorial responsibility to achieve outcomes. Partnerships should be embraced as a necessary component of this process. Establishing partnerships may involve challenges to be negotiated; examples provided by the experts are presented in Table 7.

<table>
<thead>
<tr>
<th>The challenges of establishing partnerships</th>
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<tbody>
<tr>
<td>Ministries traditionally work in a vertical role rather than horizontal and do not share responsibilities or finance. Different agendas apply and coordination is lacking.</td>
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<tr>
<td>Partnerships are built on trust, information sharing and mutual respect where everyone including the police must be comfortable with the arrangements. Partnerships do not occur naturally and usually evolve over time.</td>
</tr>
<tr>
<td>The biggest challenge is to bring the partners together in an effective way and work through organisational barriers and then ensure that the partnerships are maintained and sustained.</td>
</tr>
<tr>
<td>The general road safety view of partnerships is too narrow and needs to be expanded to embrace the community.</td>
</tr>
<tr>
<td>Police need to apply caution in public/private partnerships to ensure the motivation of the partner is appropriate.</td>
</tr>
<tr>
<td>Partnership initiatives are frequently driven by research and donor organisations, however they need to be adopted by government to gain the momentum required to achieve results.</td>
</tr>
</tbody>
</table>

Table 7. The challenges of establishing partnerships

The experts maintained that the agency partnerships needed the commitment of government and government agencies to achieve road safety outcomes. This applies at the highest level where political will, leadership and the commitment of police to achieve these objectives are necessary to bring in strong laws and to support sustained police enforcement. However, this is not always demonstrated and until there is a government commitment to unity of purpose then progress will not be achieved. There is a resistance by governments to impose sanctions upon the community for fear of political backlash.

Further, there is concern at the lack of internal support and funding for road safety by governments in low to middle-income countries while at the same time these governments express commitment to international strategies such as the Decade of Action. Governments are keen to accept financial assistance for infrastructure, equipment and systems without partnership arrangements, providing financial contributions or contributing by way of responsible and sustainable road safety initiatives.
As Peden points out:

There is concern with the lack of cooperation and coordination internationally and particularly the lack of governments to embrace road safety on the scale required for reform.\(^{294}\)

The experts endorsed the value of broad-ranging cohesive partnerships as integral to road safety with each partner working in harmony towards common outcomes and with specific accountabilities. Reducing road crashes is a multi-sectorial responsibility with many stakeholders. In low to middle-income countries, the experts advised that there is limited coordination or collaboration among stakeholders. They asserted that there is a need for collaboration and synthesis of road safety planning as well as strong leadership from government. An example from Africa provided a representative view:

Unless country policy makers are deeply involved and start implementation, all traffic safety issues which are mostly discussed in workshops, seminars and annual conferences will remain in papers.\(^{295}\)

Successful partnerships were described such as: the Delhi traffic police face-book community facility for citizens to post violations with evidence, following which notices are issued;\(^{296}\) Ethiopia’s compulsory third-party insurance and mandatory seat belt wearing was brought about through the persistence of partners;\(^{297}\) and the drink-driving studies in China which were coordinated through strategies with GRSP, the Ministry of Public Security and China CDC (Health Department).\(^{298}\)

The experts advised that integration of agency responsibility is the key. Road safety is not about traffic law in isolation or about roads in isolation; it is a health issue, an economic issue, a legal issue, a social issue and a development issue. The solutions need to be tailored to individual countries or developed as country-specific solutions depending on the country, the general policy and the administrative structure of law enforcement.

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\(^{294}\) Peden, Margaret, Dr, Coordinator, Department of Injury and Violence Prevention, WHO, Geneva, Interview by author, Tape recording, Geneva 22\(^{nd}\) October 2006.

\(^{295}\) Tsegazeab.

\(^{296}\) Baluja.

\(^{297}\) Tsegazeab.

\(^{298}\) Zhang, Junhua Dr, Chair Steering Committee for the Asia-Pacific Action Alliance on Human Resources for Health, Interview by author, Tape recording, Beijing, 23\(^{rd}\) June 2007.
According to the experts this sharing of responsibilities requires specific accountabilities. Tasks are required for each organisation and these tasks need to be recognised by the other parties. The role of partners becomes an integral component in achieving funding, especially for the professional development of police. Without agency partnerships, the experts advised that programs will be developed in isolation. There needs to be cohesion of the activities and with responsibilities linked to the sharing of outcomes. The key points highlighted were leadership, collaboration, coordination and a common objective with the definition of roles and responsibilities being critical to success. It also requires of partners a common view of the risk factors and linkages at all levels. An over-arching view is that police must consider the community as a partner and not be distracted by a concern about losing community support in undertaking enforcement on the assumption that the community may consider this as harassment.

At the working level, there needs to be a traffic safety committee to bring forward points for discussion, solve problems and propose plans of action. Representatives should be engineers, traffic police, health personnel, education officers and public representatives. This can be developed further with police engaging stakeholders such as the taxi, transport and car industries as partners because of their role in setting the ‘tempo’ for road safety in the community. If companies condone breaking road rules it is not good management. There are high insurance costs as a direct result, for example. These partnerships can be improved with integrated seminars, training courses and workshops. A leading view is that “police need to be much stronger in their approach to developing road safety partnerships and take a leadership role.”

The strength and power of partnerships is demonstrated in instances of effective integration of activities and pooling of valuable ‘know how’ from partner resources. This applies at both the highest level of government as well as with local ownership to local problems leading to local solutions. Partnering enables the sharing of knowledge among stakeholders and provides the community with confidence and trust in the outcomes. The ability to leverage funding, to engage external knowledge and the ability to obtain the best practical solutions.

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299 Tingvall.
to pressure governments for reform then becomes part of a ‘results-oriented’ focus. A key message from the interviews is that “partnerships build confidence in the community and confidence in governments to address critical problems.”

4.5 The quality of police training

The lack of effective police training was identified in the literature as a contributory cause of poor law enforcement in low to middle-income countries. This was confirmed by the experts who highlighted a lack of skills training for traffic officers at the basic level as well as in-service training. This deficiency applies notwithstanding the commissioned officer training for police leadership and management can range from three to four years with degree status on completion, as undertaken in the police academies in Malaysia, Viet Nam, Indonesia and China. The experts asserted that this lack of basic road safety information needs to be addressed in the design, delivery and resourcing of the entry level curriculum. Additionally there needs to be comprehensive professional development and technical skills upgrade for enforcement activities, especially for the safety factors of helmet-wearing, seat belt wearing, drink-driving and speeding. Academies provide basic police training such as for firearms, self-defence, law and incident reporting; they rely on the traffic departments to provide training in traffic control on appointment to the traffic units following graduation. This does not happen, however. As Baluja advised:

A key factor in the qualifications of police is that the police academies do not have the appropriate training for traffic officers and a ‘needs based’ curriculum is not developed to meet operational needs.

This deficiency in training was identified as an impediment to road safety reform; it is imperative that police are trained so they can educate the public on road safety, and not just rely on enforcement as their primary function. The experts maintained that sustainable enforcement requires a focus on training for officers to know of, understand and enforce the laws. The lack of training is compounded in the field by the lack of defined standard operating procedures. It was further asserted that there is a need to invest in the upgrade of

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301 Baluja.
knowledge of those officers with 20 years’ service and who have not been exposed to modern effective enforcement measures: They have wide influence and provide guidance to junior officers. The situation is exacerbated by the social status of traffic police officers which was expressed by Elsenaar:

The general training for traffic police is basic, the salaries are low and their social status in society is poor. This is a fundamental deficiency in the expectation of having quality enforcement and road safety provided by police.\textsuperscript{302}

The experts maintained that these deficiencies leave police exposed to criticism and not professionally equipped to enforce the traffic law. The recommendations to achieve good practice included establishing a sustainable system to focus more on building capacity of traffic police through training, efficiency in data management and effectiveness in the enforcement of laws. A critical comment by Zhang highlighted that:

Best practice is the effectiveness of law enforcement to reduce the accident and mortality rate. This is achieved by building the capacity and capability of the police through operational training.\textsuperscript{303}

The experts’ comments focused attention on the importance of a combination of education and enforcement training to ensure that the role for traffic officers is not just the traditional enforcement of the law. Good practice is to ensure that training provides for consistency in enforcement without fear or favour and encourages officers to work with the community and road users to ensure public safety. The experts agreed that the police should be equipped first to educate the public and then to implement the law. The educative role will ensure that the enforcement and compliance are not perceived to be so difficult as to be avoided. Consequently, “combining education and enforcement is the key.”\textsuperscript{304}

A positive example was provided with the example of training in India where enforcement practices are aimed at controlling road user behaviour through preventive, persuasive and punitive measures for the safe and efficient movement of traffic.

\textsuperscript{302} Elsenaar.
\textsuperscript{303} Zhang.
\textsuperscript{304} Radin, Umar, Director General, Professor, Datuk, Dr, Vice Chancellor, University Putra Malaysia, Interview by author, Tape recording, Adelaide, 28\textsuperscript{th} March 2007.
This was further explained by Baluja:

Traffic management and traffic enforcement topics are addressed in the curriculum of police training academies and institutions in India. This is because there is a need for police to have an understanding of ‘why’ road traffic violations occur.\(^{305}\)

The views of the experts were consistent in asserting that the training of traffic police is an essential component of successful road safety campaigns and effective law enforcement. A strategic approach is required for curriculum development of pre-service and in-service training so that the training meets operational requirements. Police must understand the rationale for traffic law enforcement, the reason why violations occur and the different strategies to control the behaviour of road users.

### 4.6 The need to enhance the professionalism of police

The professional status of police was not identified as an issue in the literature. However, it was raised by the experts as important for police officers engaged in road safety reform. The experts stressed that enforcement campaigns in low to middle-income countries must be preceded or accompanied by ‘in service’ training and ‘professional development’ strategies. The development of good practice in law enforcement is closely aligned with professional development, and described as “a need to check the capability of the police against a good practice model and transfer knowledge from that model to ensure capacity building.”\(^{306}\)

There is a need to define the role of traffic police, enhance the professional status of police and stimulate a higher level of enforcement. The experts advised that, in reality, police in the low income countries are dealing more with traffic control rather than enforcement. The way to address this is to clearly define the role and responsibility of the traffic management agencies. This role definition is a preliminary step in professional development.

The perspective of the experts was that the reputation of traffic police nationally and internationally is not well valued. This is due to a number of factors: police, along with teachers and nurses are among the lowest paid in these countries and, therefore, their views are not valued while the engineers have a Masters’ Degree and enjoy a louder professional

\(^{305}\) Baluja.  
\(^{306}\) Klein.
‘voice’. Additionally, the literature on police enforcement is weak, not often available in the
native language, the internet is not easily accessible and good policing practice is not widely
circulated. Police do not have the profile required to debate at the highest level. They need
to be involved in learning, sharing knowledge and research and then to speak their mind, be
well-represented in decision-making forums and have their convictions backed with research
and experience. The experts observed that there was an increasing trend in the raising of the
status for traffic law enforcement officers in these low to middle-income countries, although
there is a need to work on police cultures and elevate the importance of police work as a
specialist field. This would be strengthened with the following initiative:

The forming of a world traffic police network is critical to reduce these problems. I
consider the enhancing of the role of police will be the next great breakthrough on a
global approach to road safety.  

These views described the problem associated with the police profile and provided advice on
ways to strengthen the police voice locally and internationally.

Professionalism can be enhanced by using up-to-date knowledge from other countries as
well as increasing practical experience and education within each country. The inadequacy
was highlighted by Elsenaar: “What is lacking internationally is for knowledge transfer to be
better spread and implemented to get the most return on investment.” Innovation and
research are needed, and the knowledge, good practice and beneficial techniques are now
available and should be used in the low to middle-income countries.

Police corruption was raised as counter-productive to achieving a professional status for
police. Many low to middle-income countries such in Africa, Latin America, India and Asia are
struggling with the problem of corruption, and particularly within traffic law enforcement.
The experts identified contributory causes including infrastructure and systems. The
predominant issues were that the police officers are poorly paid, poorly educated and
employed in situations where their responsibilities include observing and taking action on
driver behaviours. In these countries, the legal system condones or endorses the collection

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307 Klein.
308 Radin.
309 Elsenaar.
of fines at the point of interception. This creates a critical exposure to corruption. The experts asserted that more needs to be done to eliminate this activity and to improve police professionalism. A critical comment captured this perspective:

Corruption is counter-productive to enforcement. The police do not verify the offence, they do not record the offence and there is a total injustice as a citizen to be held up for a non-offence.\textsuperscript{310}

Milder terms were used to cover the same point such as the need to avoid the potential for negotiation between the police and offenders and the requirement for the police to have integrity and be seen to apply the law in a fair and consistent manner. However, the majority of comments highlight corruption as particularly important in the context of advancing police professionalism and the necessity to eliminate this type of anti-social activity and the negative stigma that goes with it. These comments raised the problem of corruption without addressing solutions.

Advice from the experts on enhancing the profile of police included ‘in-service’ and ‘professional development’ training, the development of good practice and building capacity in law enforcement capability. This would be brought about by increased knowledge and practical experience as well as eliminating corruption.

\textbf{4.7 The attitude and behaviour of drivers}

The experts advised that poor driver attitudes and risk behaviours are key contributing factors in road trauma and identified effective enforcement and education as elements in a potential solution. These views were similar to those reported from the literature. The experts explained a lack of driver safety consciousness for risks involving speed and alcohol as well as a failure to appreciate the consequences of the non-wearing of seat belts and helmets. Poor driver behaviour results from a combination of an inadequate road environment, inappropriate legislation, poor driver training and assessment procedures, ineffective enforcement and poor political will to effect improvements. The experts maintained there will be a significant number of drivers who do not choose to obey the rules and therefore there is a need for on-going publicity to make offending socially unacceptable.

\textsuperscript{310} Elsenaar.
Some drivers only change their mind if they are caught and punished, so, the risk of being caught must be perceived to be high if enforcement is to be credible.

A key observation is the lack of a safety consciousness for risks against speed, alcohol use or non-wearing of seat belts. Knowledge does not flow through to driver behaviour, however, penalties do.\textsuperscript{311}

The experts advised that behaviours such as drink-driving are complex and difficult to change. Drivers have a ‘dangerous attitude’, do not understand the safety factors and take on the risk of driving after drinking. Similarly, there is a poor attitude about the need for helmet-wearing and even the quality of helmets on motorcycles. If there is no law enforcement, there is no traffic safety. Solutions presented included the need for police to reinforce road safety through effective communications strategy with drivers.

An example of poor driver attitudes is low level speeding was identified by Tingvall as a “poor social norm”. There is a need to rationally and clearly communicate to drivers that this speeding is dangerous and that penalties will be enforced without the need to criminalise the whole population.\textsuperscript{312} Another example linking driver attitudes and behaviours was explained by Zhang who advised that drivers do not wear their seat belts because they are in slow traffic; then they drive on a freeway and still neglect their belts. They must establish a habit of wearing a seat belt brought about through an attitude and clearer understanding of safety.\textsuperscript{313}

The experts asserted that attitudes towards road safety are directly reflected in the subsequent behaviours of the drivers and riders. The way to impact upon driver attitude is to increase the perception of enforcement and importantly, the perception of the risk of being caught which then directly impacts upon driver behaviour and with consequential road safety benefits. More important, there is a direct correlation between poor driver attitudes and causes of crashes. This was explained with examples of speeding, overtaking, driving against red lights, inappropriate use of road shoulders, parking in the wrong position, lack of

\textsuperscript{311} Klein.
\textsuperscript{312} Tingvall.
\textsuperscript{313} Zhang.
consideration for other drivers, and defying the rule of law. Such offences were maintained to be behavioural issues, a result of poor attitudes and asserted to be primary or secondary reasons for accidents. Mechanical failure of vehicles and other factors were not considered as major factors. Attitudes translating into bad driving behaviours, therefore, were identified as a substantial problem, and in all countries, as reflected in the comment by Tsegazeab.

Changing the attitude of drivers is considered to be the most difficult component of traffic safety whether the driver is highly educated or illiterate, peasant or somebody from the city centre, European or African.\textsuperscript{314}

Attitude and driving behaviour can vary depending upon the enforcement strategies and infrastructure for recording behaviours. This was demonstrated by the example of a driver from Europe whose driving style in Africa was completely different to their behaviour in Europe.

In Europe, if you are caught by law enforcers, the penalty is high, the record will be kept forever and law enforcement is more stringent, whereas in Africa, it is mostly loose and there is no record. There are implications for second time offenders in Europe but nothing in Africa.\textsuperscript{315}

Another perspective explained the complexity of attitude, behaviour and culture and the holistic approach required to achieve change. It was stressed that this change is not possible to achieve in twelve months as considered by some governments and sponsors, and it cannot be undertaken in a piecemeal fashion such as governments erecting a couple of billboards, providing some enforcement and then declaring they have solved the drink-driving problem. As explained by Peden:

There needs to be an holistic approach including effective laws which are well enforced, the drivers need to know the rules and then obey the rules, compulsory blood tests for all accident victims are essential as well as community education, monitoring and evaluation.\textsuperscript{316}

The experts asserted the need for a strategy for police to help build good society norms for road safety. This takes time, concentrated enforcement effort and collaboration with other

\textsuperscript{314} Tsegazeab.  
\textsuperscript{315} Tsegazeab.  
\textsuperscript{316} Peden.
partners. Some drivers only change their mind if they are caught and punished; this risk of being caught must be seen to be high if enforcement is to be credible. The aim of enforcement should be to achieve a change in driver behaviour as a road safety outcome and then, to assess those outcomes so there is a full evaluation process.

4.8 The perceived risk of being intercepted and punished

Allied with the theme of driver attitudes and behaviours is the perception of the risk of being intercepted and punished for traffic violations. The literature described this as a key factor influencing driver behaviours, and the experts provided similar views, promoting this concept as a most important element of any enforcement strategy. Professor Radin of the Malaysian Institute of Road Safety Research, one of the interview participants has developed a ‘perception index’ for Malaysia to identify the correlation between driver attitudes and behaviours. Radin explained that enforcement will achieve the best results when the perception of the risk of being caught is high, which will lead to a higher level of compliance. The challenge is to gain compliance from the majority of drivers, thus providing a compelling practical example that encourages others to comply in a similar manner, eventually achieving self-regulation through cyclic improvement. The assessment tools comprise a reference table of visible officer presence (police personnel) versus kilometres travelled (exposure) and survey instruments. Increasing the visibility of police enforcement and publicity campaigns will generate cyclic improvement. This deterrent model is valuable for discussion of the correlation of themes and ratings in Chapter 7.

Comments on perceptions by other experts were similar, explaining that if drivers think they will be apprehended they will stop drinking and driving; if motorcyclists think they are going to be checked for helmet wearing they will wear their helmet; if drivers think that police will check for seat belts they will wear their seat belts. Conversely, if drivers do not think police will worry about the quality of their helmet, they will not care. These perspectives raise the profile of the driver’s perception of being apprehended over and above the driver’s consideration for safety. These views correspond with previous comments by the experts about the lack of safety awareness among drivers and the failure to appreciate the potential

317 Radin.
risks of their behaviours. Critically, “the perception of being caught is as powerful as being
c caught.” This was supported by another expert in explaining that “The fear of being
c caught and punished for traffic violations is a more powerful motivation for reducing speed
than the fear of being involved in a crash.”

According to the experts, the perception of the likelihood of being intercepted and
prosecuted applies in a similar way with electronic enforcement in place in some countries,
whereby if a driver exceeds the speed limit, the fine is issued within 48 hours and demerit
points are deducted. There is no negotiation apart from a legitimate court challenge. An
example is provided from France where “the certainty of being detected and the certainty of
penalty quickly led to a change of driver behaviour.” However, there is a need to
understand the difference between ‘on-road’ police interceptions and remote enforcement
where the ‘interception’ does not occur and the notification is by mail. The value of the
perception and the deterrence effect is diminished considerably when the elapsed time
between the commission of the offence and the issue and receipt of the infringement takes
as much as several months due to inefficient ‘back-office’ processing.

The experts advised that traffic enforcement is still immature in low to middle-income
countries and subject to many factors such as the lack of priority for road safety, budget
restrictions, the lack of integration of road safety agencies, frequent change of governments,
the lack of policies, and the presence of police corruption. Driver perception of being
apprehended for a traffic offence does not appear as clear as in the high-income nations and
the actual chance of being intercepted for a traffic offence is remote. As explained in the
African environment:

The belief in being caught if you commit a traffic offence is developing gradually and
has some impact on outcomes. A lot of work has to be done including gaining
external support for any marked achievements or optimum level of results in road
safety.

318 Klein.
319 Elsenaar.
320 Mercier-Guyon.
321 Tsegazeab.
To enhance the perception of the likelihood of being apprehended, police need to work on three pillars of deterrence, which are considered critical to road safety reform. These are “the reasonable prospect of being detected, if detected there is no escape from prosecution and the impact should be unpleasant.” The experts asserted that court sanction is a deterrent, enforceable legislation is a deterrent and following up those who choose not to pay is an essential process as well as a deterrent. A strategy of road safety reform is to create the perception among drivers that the risk of apprehension is high thereby acting as a deterrent to both offending and reoffending drivers.

4.9 Police access to and use of technology

Technology and technological aids are important assets in good practice policing jurisdictions, and they emerged strongly in the interviews and are worthy of attention in my research. Technology does not receive as much emphasis in the literature, but the experts considered technology as a beneficial adjunct to enforcement even where enforcement strategies are not matured to a level to achieve maximum benefits. In-vehicle technologies such as alcohol ignition interlocks, seat belt reminders and interlocks as well as over-speed warning devices and reminders are strongly supported as potent safety prompts to assist police enforcement. The experts acknowledged that these devices are not available on the ageing fleets of the low to middle-income countries and commonly are not provided on new vehicles imported to these countries. However, they viewed technology as an emerging issue worthy of consideration now.

The experts strongly supported the use of breathalysers and radar/laser speed guns as countermeasures to the risk factors of speeding and drinking and driving, and asserted that a lack of technology support systems should not be used by these countries as an excuse for not being able to provide enforcement. As Radin concludes: “Technology is not the answer to a lack of enforcement. It is only an aid to enforcement.” Other experts confirm the view that technology does not replace enforcement and nor is it the answer to poor enforcement techniques.

322 Howard.
323 Radin.
A number of cautions were expressed by the experts when police are considering technology as an enforcement tool. Practical implications apply with financial barriers prohibiting the purchase of new technology such as speed cameras, speed guns and breathalysers or if purchased, only small numbers can be obtained. These items are all costly with ever changing models, design and capability and may become obsolete very quickly. This impacts seriously on the training and maintenance required, both of which are often neglected. The solution lies in the effective use of technology. This involves the resources, training, the maintenance and the correct use of the equipment by the police. An over-arching comment by Tingvall was that “The important aspect is that enforcement needs to work with technology rather than the view that once you have technology, you do not need enforcement.”

4.10 Operational capability

An important component of law enforcement is the operational planning with operational capability to achieve road safety outcomes in each country. A comment by Radin represents the experts’ views on operational enforcement: “what is observed in the low to middle-income countries is selective enforcement without any structure in the process.”

All experts provided general comments about the ineffectiveness of traffic law enforcement and the need for enhancing knowledge and skills in enforcement activities in low to middle-income countries. The very characteristics of low to middle-income countries mean that their enforcement strategies are backward compared to the advanced nations. To enhance operational capability to a level of good practice, there is a need to adopt a ‘results based’ model with enforcement to achieve a road safety outcome. The example presented by Tingvall is pertinent:

The objective of speed management is not to fine as many drivers as possible but to reduce the proportion of speeding drivers and therefore reduce crashes – this is the results focus approach. Therefore, police must receive the feedback from their

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324 Tingvall.
325 Radin.
efforts and apply an effective traffic safety strategy to ensure continuous improvement.\textsuperscript{326}

The experts stressed that police must combine enforcement in a close working relationship with the community and other partners, and in a constructive way so that operational capability can be improved and ultimately a cultural change in driver behaviours will result. It was advised that this cultural change does not happen of its own accord and will not be achieved by mediocre enforcement - it needs focus and drive. The experts recommended that police cultivate a media champion of road safety within the country to stimulate road safety reform and present a strong ‘voice’ for road safety. This media exposure, developed on evidence-based initiatives must be accompanied by effective enforcement strategies.

The concept of the ‘visible police presence’ is strongly endorsed as an integral component of operational capability and to reinforce the community perception of enforcement. The experts maintained that visible presence is the foundation upon which good practice is built so that police enforcement is undertaken with real ‘presence’ and real ‘action’. Enforcement must be real, endorsed by the policy makers, aligned with education and for the benefit of the entire community. Drivers must see police undertaking the enforcement and appreciate that the enforcement is for a purpose – the safety of the society. Enforcement visibility needs to be maintained and police need to see the returns on their efforts – and not just as perpetuating systems of fines and associated flows of government income. Strategic enforcement must be based on the need to reduce crashes and should be suitably financed. The Singaporean road policing environment was considered a model for good practice of visible police enforcement where the road safety formula is information, prevention and then sanction.

As a complement to effective police enforcement, there is a need for performance measures that include low level performance indicators and intermediate performance indicators. This was emphasised by the experts as an important component of the assessment of good practice and measuring progress. These indicators need to be applied to police enforcement as a measurement for effectiveness rather than relying on the final result of crash reduction.

\textsuperscript{326} Tingvall.
as a principal measure of success. With the result-oriented model, measurement is a crucial element for success. The experts maintained that performance measures applied before the crashes form the basis of quality systems and strengthen the ‘intelligence’ data-base. These outcomes then need to be monitored, evaluated and inform the next program delivery cycle. The experts maintained that traffic safety should be promoted as a quality measurement for a country. It needs to be a routine similar to checking the temperature of the country. There is a need to follow a results model for benchmarking. In summation: “Low to middle-income countries need to pick up on best practice through the transfer of knowledge and then apply that knowledge.”

A critical point identified by the experts was the lack of involvement by police in policy development. This extended to the lack of consultation and a failure by governments to appreciate or respect the views of police at the national level. Experts reported that the transport sector usually develops the policy and the police are left to enforce it.

The experts considered that good practice arises where police actions are meaningful in achieving results and where the activities are monitored. If initiatives achieve results, these should be put on the government agenda and transferred to policy so they may become sustainable programs complemented by sustainable enforcement. Reference to the expression ‘best practice’ is not a realistic objective; ‘good practice’ or ‘promising good practice’ is the preferred terminology from the experts. One important component of good practice is the gaining of feedback from the public and fostering the commitment of society. The process includes listening to the public and ensuring that the partners listen to the police.

Good practice trends identified in the low to middle-income countries include compulsory helmet wearing and compulsory seat belt wearing programs. According to the experts, speed enforcement and driver impairment programs do not have the same degree of community acceptance. These latter programs achieve positive results with intense, short-term enforcement but then lapse due to inability to maintain the enforcement.

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327 Tingvall.
328 Experts referred to the China seat belt program and helmet wearing programs in Viet Nam, Cambodia, Lao PDR and Thailand.
benefits and sustainable enforcement programs were identified as difficult to achieve in low
to middle-income countries because of piecemeal attention to the problems and limited
funding provided by donors and governments.

Intensive enforcement such as short-term blitzes were considered valuable and need to be appreciated for their contribution to road safety. However, they were not readily appreciated by the community or even the police. An example was provided from China, where in Guangdong Province, less than 1% of drivers have been checked for alcohol use. In other areas of China, only 0.3% of drivers have been checked.\(^{329}\) This level of enforcement is insufficient.

This concept of sustainability was considered by the experts to be the key to success. The police need to understand this and work with warnings, campaigns, examples and awards for those sections of the population where behavioural change can be achieved. Positive outcomes then become the building blocks to develop further build capacity in sustainable enforcement. Further comments by the experts on sustainability are provided in Table 8.

<table>
<thead>
<tr>
<th>Sustainability of law enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability for police enforcement is considered to be dependent on road user behaviour and how well police are able to maintain compliance.</td>
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<tr>
<td>The most important aspect is that it has to be part of the government administration tool and therefore integrated into the existing system. The initiative should not be temporary.</td>
</tr>
<tr>
<td>The momentum of road safety enforcement programs must be maintained for long-term success. Automated enforcement is an important component of sustainability.</td>
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<tr>
<td>The police should enforce with strong government support. The onus is on government to support enforcement and police should not be at odds with government.</td>
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</tbody>
</table>

Table 8. Sustainability of law enforcement

The experts maintained that enforcement needs to be aligned with full government support in order to achieve sustainable results and it needs to be targeted at a majority of the population and those who can be influenced to change negative driving behaviours: “Programs can only be sustained if you have the political commitment to support the police and the traffic agencies.”\(^{330}\) The advice provided by the experts was that the momentum of

\(^{329}\) Zhang

\(^{330}\) Klein.
road safety enforcement programs needs to be actively maintained to ensure long-term success.

4.11 Benchmarking traffic law enforcement

The experts advised that a framework for reform should be based on a scientific methodology that is transparent, accountable and measurable. Police must follow good road safety principles and apply predictable and scientific methods of road safety. Any road policing strategy must be linked to the national road safety plan and with strong enforcement that is widely implemented and is supported by the general public. Negative imagery surrounding enforcement must be reduced through positive road safety education.

The experts advised that the underlying scientific process for road safety also needs to be developed so as to work from one template – that is, addressing the issues as discussed above, within the one framework. Good enforcement practice was considered to be transparent, accountable and to apply a system of governance to achieve effective road safety performance. A test of enforcement was how well the community understands deterrence and its value rather than seeing it as a sport where players succeed by avoiding being caught. To achieve this outcome, there needs to be an embedded process for the authorities to follow, with consistency of data and data collection to drive the complex operational tasks entailed.

Some practices may be adapted or adopted but in many cases there are issues of computer literacy, lack of technology and systems applications which need to be carefully considered. As an example, the UK based Transport Research Laboratory, an independent transport consultancy and research service, developed a database system called MAPPI for crash reporting and made it available to low to middle-income countries. However, it was not adopted due to its high computer literacy requirements and the transition from the manual data collection process to a computerised system proved onerous. Hence, there is a need for caution in transitioning programs, to ensure that they are relevant and usable.

The experts advised of a number of road safety elements that could be considered as suitable for benchmarking. They maintained that comparable responsibilities exist for drivers in each country, as do similar requirements for police enforcement to enable comparative measurement. Some of the specific activities considered suitable by the experts for benchmarking are provided in Table 9.

<table>
<thead>
<tr>
<th>Road safety activities suitable for benchmarking</th>
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<tbody>
<tr>
<td>The level of training in strategic road safety and road safety countermeasures</td>
</tr>
<tr>
<td>Violations for high-risk offences such as non-helmet wearing and non-seat belt wearing</td>
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<tr>
<td>A country’s risk priorities such as speed, red lights, vehicle occupancy and safety</td>
</tr>
<tr>
<td>Technical controls of vehicle roadworthiness such as alcohol ignition interlocks</td>
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<tr>
<td>The absence of negotiation in fines – corruption avoidance</td>
</tr>
<tr>
<td>The correlation between road traffic violations (fines per capita) and road crashes</td>
</tr>
<tr>
<td>The quality/standards of helmets and whether they are worn properly</td>
</tr>
</tbody>
</table>

Table 9. Road safety activities suitable for benchmarking

Notwithstanding the activities referenced in the Table, in line with the literature reviewed, Peden maintained that attaining consistency and standardisation of crash reporting would be a foundational milestone for benchmarking.

Deaths are differently defined from died at the scene, died within one day, within seven days or within 30 days. Injury definitions vary as does the exclusion criteria such as in China where all government vehicles and some agricultural vehicles are excluded from the crash statistics.332

Benchmarking traditionally addresses outputs or outcomes from programs. The experts stressed the importance of considering both input and outputs. If details of the inputs are not available, then it is unfair for enforcement to be reliant solely on the outcomes. To achieve this dual function in benchmarking, there is a need to concentrate efforts on building capacity so that road safety achievements can be generated.

4.12 Strengths and limitations of the interviews and reporting

The information gained through the interviews with this prestigious group of road safety experts provided a powerful foundation of knowledge for my research. The practical perspectives encompass years of experience, research and practical application in low to middle-income countries. Using structured questions with the ability to probe deeper

332 Peden.
allowed the experts to provide independent observations and reflections of the issues confronting law enforcement. The interviews provided an advantageous tool to gather information specifically about the research questions concerning good practice and benchmarking. At the time, my concerns were whether I was asking sufficiently pertinent questions of the experts to elicit the detail necessary to answer the research questions. As each interview progressed, I became more attuned to probing these specific concerns. This resulted in a wealth of knowledge for analysis.

Valuable insight was provided about enforcement in the low to middle income countries compared to good practice countries. This helped to direct further attention to this third research question, particularly my focus through participant observation. A noted limitation of the qualitative research interviews was in only having a small representative sample of experts, there was a need for me to ensure that the depth of data gathered was robust rather than having the breath of data available from a larger sample. The reliability of my approach was confirmed with the corroborative evidence gathered from the survey of the practitioners and from the participant observation. Other limitations included the need to maintain the integrity of the time-consuming process of transcribing and analysing the extensive material gathered from the interviews.

4.13 Summary of the findings from the interviews with the experts

The preceding discussion has presented the perspectives of the experts on how traffic police can best contribute to road safety reform, and elicited advice on what is considered good practice as well as aspects of road policing considered suitable for benchmarking. The themes as discussed by the experts specifically address two of the research questions and are now summarised.

The quality and use of road safety data: Deficiencies in data collection and data quality were identified in low to middle-income countries with emphasis placed on the importance of timely, accurate and reliable data, including the identification of primary and contributory crash causes. A contributory factor database was recommended as well as the need for intermediate performance indicators to provide precursor crash information.
Community road safety education, awareness and engagement: Working together to achieve results is a key message the experts give, and this is to be achieved by combining education with enforcement. Police need to adopt a higher level of engagement in their local communities so that the communities acknowledge ownership of the problem and assist in providing the solutions.

Infrastructure support: Infrastructure support must be holistic so that the laws are workable, the legal system is strong and the driver licensing procedures result in competent drivers. The underlying mechanisms for change to strengthen support in the various categories must be effective.

Partnerships: Police leadership, mutual trust, effective communications and linkages, sharing of information, collaboration, coordination and common objectives are essential components for success. Roles need to be defined with shared responsibilities and specific accountabilities. The commitment of government, with demonstrated political will to support change, alongside action by police is essential for sustainable traffic law enforcement.

The quality of police training: Training as well as a requirement for training to meet operational requirements, and a requirement for operational guidelines in the field are critical to a framework to achieve operational success.

Professionalism of police: There is a need to define the role of traffic police, to review the capability of police against a good practice model and to transfer knowledge from that model to build capacity, thereby enhancing the professional status of police and stimulating higher levels of enforcement. The profile of traffic police nationally and internationally is not well valued and, therefore, ‘in-service’ and professional development training on good practice initiatives is essential. Police corruption is an anti-social police activity and must be eliminated.

The attitude of drivers: Poor driver attitudes and risk behaviours are major factors in road trauma. There is a lack of a consciousness of the risks arising from speed, alcohol use and non-wearing of seat belts. Some drivers only change their mind about these aspects if they
are caught and punished. Solutions to adverse attitudes include police reinforcing road safety through effective communication strategies with drivers.

**The perception of the risk of being intercepted and punished for traffic violations:**
Malaysia’s perception risk index is a template which could be used as a benchmark if the same elements and questions were applied in other countries. This model was designed to determine the correlation between the driver’s belief in being apprehended for an offence with the actual chance of being apprehended. The perception of the risk of being caught (and punished) is as powerful as being caught, and is a more powerful motivation for reducing speed than the fear of being involved in a crash.

**Police use of technology:** Technology is a beneficial adjunct to enforcement. However, it is not the answer to a lack of enforcement. Enforcement needs to work with technology. The view that once technology is introduced the need for traditional law enforcement is no longer necessary is incorrect. Technology must also be appropriate, affordable and within the capabilities and training of the police using it.

**Operational capability:** Selective enforcement is observed in the low to middle-income countries, and without a structure to the process. Visible police presence is strongly endorsed as an integral component of enhancing the community perception of enforcement. Performance indicators and intermediate performance indicators are essential to measure success. Sustainability of enforcement is the key to success.

The findings in this chapter directly inform two of the research questions. Firstly, good practice in traffic law enforcement is identified as: the quality and use of data; high level police engagement with local communities; collaborative partnerships; well-trained, technically resourced and operationally capable professional traffic police officers; and, having strong political, legal, judicial, and infrastructure support. Secondly, a key component of benchmarking emphasised by the experts was to work from one template and for any reform to be based on a scientific methodology that is transparent, accountable and measurable. An all-embracing finding is the **serious gap in strategic knowledge** required for road safety reform in the low to middle-income countries and relatedly, the need to raise
the professionalism of police and to enhance capability for police to transition to a level of good practice.

The interviews with the road safety experts provided a rich information base from which to develop the themes explored via the survey of senior police officers discussed in the next chapter, and through the author’s participant observation in Chapter 6.
This chapter captures the perspective of the police practitioner and specifically addresses the research questions of what is good practice in traffic law enforcement and what aspects of traffic law enforcement are appropriate for benchmarking. The chapter provides an analysis of the 216 responses from the survey distributed to senior traffic police practitioners in Cambodia, China, Ethiopia, Indonesia, Lao PDR, Malaysia, Thailand, Viet Nam, Yemen and Australia. The survey is the third component of the methodology and introduces a practice-based perspective from the field. The survey questions are founded upon the themes identified from the literature and the interviews with the experts and undertaken for the purpose of confirming or challenging those themes by reference to the traffic police officer perspective. The six themes for the survey were: access and use of data, educating the community, infrastructure support, community perception of traffic law enforcement, community partnerships, training and resources as well as whether corrupt police practices adversely affect enforcement and road safety. Results from the international traffic police leaders’ workshop discussions, facilitated by myself in Indonesia and Switzerland are also included in this chapter.

The survey sought the police perspective on road safety, the role of traffic police and representative opinions about enforcement strategies that are likely to be successful in reducing road trauma. Open ended questions with answers requiring listed responses were included as well as questions to be answered with a priority rating. This allowed flexibility and initiative in the responses. This chapter first addresses the consistency between the survey responses and the material already gathered and then discusses the themes individually. Chapter 2 details the connectedness of this approach to the structure of the research. A copy of the survey is included at Appendix D.

5.1 Profile of the respondents

Of the responses, 91.9% of officers had more than five years of operational experience in traffic policing, providing a stable foundation for comment on traffic law enforcement and a significant contribution to the research. Twenty officers (9.1%) had less than five years of
experience in traffic law enforcement, 69 officers (31.5%) between five and ten years, 69 officers (31.5%) between 10-15 years, 38 officers (17.4%) between 15-20 years and 20 officers (9.1%) longer than 20 years of experience.

5.2 Practitioner confirmation of themes from the literature and interviews with experts

The themes identified through the literature review and the interviews with the experts were tested in closed questions within the survey with the officers confirming that these themes were highly relevant to road policing. Within the theme of data availability, analysis and use, 98% of respondents strongly agreed or agreed that crash data is important in determining strategic direction or long term planning (Q.5) and 93.1% of respondents strongly agreed or agreed that analysed crash data is important for deploying resources or determining strategies (Q.6). Educating the community in road safety rated highly with 99.1% of respondents strongly agreeing or agreeing that traffic law enforcement strategies and road safety education programs should be directly linked (Q.7).

The questions concerning infrastructure support for law enforcement were strongly endorsed with 94.1% of the respondents either strongly agreeing or agreeing with the importance of accurate and accessible data being available for driver/rider licensing and registration particulars (Q.10). Additionally, 97.2% of the respondents strongly agreed or agreed with the importance of having effective laws, fines collection and judicial processing systems for traffic law enforcement (Q.11).

Five questions concerned the theme of community perception of traffic law enforcement. In response, 89.4% of the respondents either strongly agreed or agreed that driver perception of the level of law enforcement had an impact on the driver’s compliance with the law (Q15) and 87% of the respondents strongly disagreed or disagreed that enforcement of traffic laws does not achieve any real benefit in improving road safety (Q.16). Further, 84.5% of the respondents strongly agreed or agreed that drivers will continue to break the law if they believe they will not be caught by traffic police (Q.17) and 96.8% of the respondents strongly agreed or agreed that good law enforcement operations and effective campaigns could have a direct influence on driver/rider behaviour in the future (Q.18). 96.8% of respondents either
strongly agreed or agreed on the importance of all police officers setting a good example for road safety (Q.19).

Within the theme of community partnerships, 97.2% of the respondents strongly agreed or agreed that it is essential for police to actively work with the community on road safety (Q.20). Questions regarding training and resources resulted in responses of 96.4% in strong agreement or agreement that the level of training for enforcement officers has a direct relationship on the effectiveness of the road policing capability (Q.22) and 91.7% of the respondents strongly agreed or agreed that there is a direct association between the level of officer numbers and equipment dedicated to road safety and the results that can be obtained (Q.23).

A question on the impact of police corruption resulted in 87.2% of the respondents strongly agreeing or agreeing that corruption or corrupt practices by traffic police will adversely affect traffic law enforcement and road safety (Q.13).

While these high levels of conformity with the themes could well have been expected from police officers, the positive responses are an important affirmation of the importance of the key themes identified in the literature review and interviews.
Table 10 provides a summary of the strength of the support for the themes. Multiple questions apply to some themes in this table.

<table>
<thead>
<tr>
<th>Thematic statement</th>
<th>Strongly agree or agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data availability, analysis and use – strategic direction (Q.5)</td>
<td>98%</td>
</tr>
<tr>
<td>Data availability, analysis and use – resource deployment (Q.6)</td>
<td>93.1%</td>
</tr>
<tr>
<td>Educating the community - enforcement and education linked (Q.7)</td>
<td>99.1%</td>
</tr>
<tr>
<td>Infrastructure support – licensing and registration (Q.10)</td>
<td>94.1%</td>
</tr>
<tr>
<td>Infrastructure support – laws, fines, judicial process (Q.11)</td>
<td>97.2%</td>
</tr>
<tr>
<td>Driver perception – enforcement impact on driver compliance (Q.15)</td>
<td>89.4%</td>
</tr>
<tr>
<td>Driver perception – break the law if chance of not being caught (Q.17)</td>
<td>84.5%</td>
</tr>
<tr>
<td>Community perception – enforcement influence-driver behaviour (Q.18)</td>
<td>96.8%</td>
</tr>
<tr>
<td>Community perception – police setting a good example (Q19)</td>
<td>96.8%</td>
</tr>
<tr>
<td>Community partnerships – essential to work with community (Q.20)</td>
<td>97.2%</td>
</tr>
<tr>
<td>Training and resources – relationship to police capability (Q.22)</td>
<td>96.4%</td>
</tr>
<tr>
<td>Training and resources – relationship to results (Q.23)</td>
<td>91.7%</td>
</tr>
<tr>
<td>Corruption – adverse effect on enforcement and road safety (Q.13)</td>
<td>87.2%</td>
</tr>
</tbody>
</table>

NB: This table consolidates the detail from tables 15-27 in Appendix E.

Table 10. Police practitioners’ support for the identified themes

5.3 Contribution of the practitioners to the themes

Open ended questions inviting an answer or list of answers provided respondents with the opportunity to express their views, knowledge or experience. As the responses were unstructured and varied considerably, the material was coded and collated into broad categories. The results revealed a strong correlation between the survey responses and material from the literature surveyed and the interviews with the experts. The themes addressed within this section are Education – the best ways for traffic police to be involved in educating the community (Q.9); Training and resources – building capacity in law enforcement (Q.12); and Community Partnership – how best to create or develop community partnerships (Q.21). Table 11 incorporates the broad categories identified through the coding process and the contributory aspects provided by the respondents.

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333 See Appendix D for the questionnaire and Appendix E for detail of the responses.
<table>
<thead>
<tr>
<th>Theme</th>
<th>Frequently occurring primary categories</th>
<th>Contributing information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best ways for traffic police to be involved with the community (Q.9)</td>
<td>Education provided through schools (52 responses = 25%)</td>
<td>Give talks on road safety and enforcement activities; provide fun learning environment; educate parents and teachers; Ensure children who ride motorcycles know the law.</td>
</tr>
<tr>
<td></td>
<td>Communication through the media (45 responses = 21%)</td>
<td>Advocacy during enforcement; community radio programs; media campaigns; police discussion forums on radio; involving victims in social media messages; discussing tragic incidents.</td>
</tr>
<tr>
<td></td>
<td>Direct contact with the community (32 responses = 15%)</td>
<td>Establish community policing programs; social enforcement and self-regulation; working through religious groups, the elderly; the village chief, commune leaders and the red cross youth.</td>
</tr>
<tr>
<td>Building capacity in law enforcement (Q.12)</td>
<td>Training of police officers (60 responses = 28%)</td>
<td>Continuous learning; dedicated traffic police; sharing knowledge from neighbouring countries; establishing a school for road policing; exposing police officers to ‘what works’; learning intelligence-led enforcement; improve research and skills</td>
</tr>
<tr>
<td></td>
<td>Using modern technology (51 responses = 24%)</td>
<td>Keeping abreast of technology, methods and equipment; exposure to international enforcement best practices.</td>
</tr>
<tr>
<td></td>
<td>Good co-ordination with the agencies (28 responses = 13%)</td>
<td>Stakeholder consultation and engagement; whole of government approach; regular meetings; strong support from government; police being responsible to the public.</td>
</tr>
<tr>
<td>How the best community partnerships should be created or developed (Q.21)</td>
<td>Ensuring good community interaction (43 responses = 20%)</td>
<td>Education through quality programs; providing an education syllabus throughout country; visit the community often; community based programs with the private sector.</td>
</tr>
<tr>
<td></td>
<td>General collaboration (40 responses = 19%)</td>
<td>Collaboration between community, police and local administration; establishing partnerships with private organisations, corporations, driving schools, NGO’s, learning institutes and the media.</td>
</tr>
<tr>
<td></td>
<td>Involving community in resolving road safety issues (35 responses = 16%)</td>
<td>Giving the community the opportunity to participate in traffic management; asking the community for suggestions; creating a culture of social responsibility; social enforcement and community based programs.</td>
</tr>
</tbody>
</table>

Table 11. Contribution of the practitioners to the themes
5.3.1 Discussion on responses to the open ended questions

These practical comments by the practitioners are a significant contribution to the research as to how the road safety message can best be delivered to the community. Similar communication messages were provided from the different countries. However, the method of recommended delivery varied with the culture. Malaysia and Yemen have a strong religious culture and the recommended priority in message delivery was the religious network whereas the strong family culture in China resulted in recommendations for deliverer via the elderly. In Cambodia and Lao PDR, the recommendations were for the delivery via village chiefs and commune leaders. Additionally, responses from China and Viet Nam advised the availability of dedicated radio and television stations for direct road safety communication to the people.

The theme for building capacity resulted in the three primary response categories as described in Table 11. The opportunity for free expression enabled expansion of comments such as those about training and resources being frequently coupled with a call for increased personnel (25 responses -12%), particularly enough personnel to mobilise each responsibility, and more staff to do the job, and setting human resources for traffic enforcement as a set percentage of the driving population. Other strong responses within this theme were a call for better equipment such as logistic support and equipment to enforce the law (23 responses), and more finance such as better salaries and increased funding to do what is required (20 responses). These calls for personnel, equipment and staff were representative of statements from all countries and not restricted to the poorer nations. Capacity building initiatives included calls for data and systems improvements (five responses) and strengthening of infrastructure (five responses).

5.4. Improving the efficiency and effectiveness of traffic law enforcement

The literature and advice from the experts refer to the inefficiency and ineffectiveness of traffic law enforcement and provide advice on how to ensure that better safety results can be achieved through the method of policing. Opinions were, therefore, sought from the respondents on how to improve the efficiency and effectiveness of traffic law enforcement.
As with the previous open-ended questions, the responses were coded into broad categories
to assist in the comparison with other results.

5.4.1 Key factors to improve efficiency

Respondents were asked to identify key factors that would improve the efficiency of traffic
crime enforcement (Q. 24). The coding process identified three primary categories in the
responses. These were: improved and consistent training (85 responses-40%); visible police
enforcement (34 responses-16%); and better use of equipment, technology and systems (25
responses-12%).

Recommendations within the category of improved and consistent training – addressed by
40% of survey respondents – included train the trainer programs and training in modern
methods of enforcement and advice from good practice countries. These perspectives are an
acknowledgement of the gap in knowledge and operational capability as perceived by the
officers and importantly, are consistent with the views of the experts and the literature.

The second category of visible police enforcement as addressed by 16% of respondents
incorporated recommendations including: the need for offenders to see the enforcement in
action, omnipresence plus community education and efficient evidence-based enforcement.
These responses broaden the perspectives of efficiency raised in the previous chapters and
provide insight into how police efficiency may be transformed into action in the field.

The respondents recommended the better use of equipment, technology and systems,
particularly the modernization of law enforcement, modern methods of policing and using
equipment that works and that the community can trust, such as speed guns and
breathalysers.

Ten respondents (4.6%) recommended improving accountability and responsibility through
working according to the law, solving the traffic police corruption problems and being
accountable to the community. These insightful comments were from a small number of
officers and they provided a different perspective on ways to enhance the efficiency of law
enforcement.
5.4.2 Key factors to improve effectiveness

Question 25 sought the practitioners’ views on the priorities to achieve effective traffic law enforcement. From the literature and the interviews, a list of categories were extracted and framed for ranking by the respondents.

The five categories shown in Table 12, were rated from one through to five with one being the most important. Traffic police officers being effectively trained was ranked first by 32% of respondents.

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Priority 1 response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2#</td>
<td>Having good road safety agency and community based partners to help achieve your objectives</td>
<td>46</td>
<td>21%</td>
</tr>
<tr>
<td>1*</td>
<td>Traffic police officers being effectively trained</td>
<td>68</td>
<td>32%</td>
</tr>
<tr>
<td>4</td>
<td>Having a documented and practical road policing strategic plan</td>
<td>25</td>
<td>12%</td>
</tr>
<tr>
<td>3</td>
<td>Being able to use accurate and timely crash information data</td>
<td>37</td>
<td>17%</td>
</tr>
<tr>
<td>5</td>
<td>Knowledge of driver/rider attitudes and why they drive/ride in an unsafe manner</td>
<td>16</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Traffic police officers being effectively trained was selected as the top rating by 68 respondents = 32%.

The integrity of the overall responses was impacted by the number of respondents who either did not answer the question, entered all categories as priority 1 or entered an invalid sequence according to the format of the question (24 respondents = 11%).

#Having good road safety agency and community based partners to help achieve your objectives was selected as the top priority by 46 = 21%.

Table 12. Priority for effectiveness of traffic enforcement responsibilities

5.5 How best to achieve driver/rider compliance with the law

Comments from the experts and information from the other research identified five key factors in achieving driver/rider compliance with the law. The practitioners’ views were sought to determine a priority of the factors extracted. Respondents were presented with the list of categories in Table 13 and asked to rate their importance on a scale of from one to five, with one being the most important (Q14).
How best to achieve driver/rider compliance with the law (Q.14). n = 216

<table>
<thead>
<tr>
<th>No.</th>
<th>Category</th>
<th>Priority 1 response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Having good campaigns to educate the drivers on road safety</td>
<td>15</td>
<td>7%</td>
</tr>
<tr>
<td>3</td>
<td>Strict enforcement of the law</td>
<td>45</td>
<td>21%</td>
</tr>
<tr>
<td>2</td>
<td>Having traffic police visible but without strong enforcement</td>
<td>37</td>
<td>17%</td>
</tr>
<tr>
<td>1*</td>
<td>A combination of good education and highly active police enforcement</td>
<td>86</td>
<td>40%</td>
</tr>
<tr>
<td>5</td>
<td>Good driver/rider training before qualifying for a licence</td>
<td>4</td>
<td>2%</td>
</tr>
</tbody>
</table>

*A combination of good education and highly active police enforcement* was selected as the top rating by 86 respondents = 40%. The integrity of the overall responses was impacted by the number of respondents who either didn’t answer the question, entered all categories as priority 1 or entered an invalid sequence (29 respondents =13 %).

Table 13. Priority for driver/rider compliance

Responses showed 40% of officers rated a combination of good education and highly active police enforcement as the number one. The practitioners’ priority of education and enforcement confirmed the responses of 99.1% in the closed question (Q7) and strengthened the importance of this category, as discussed in Chapters 3 and 4.

5.6 What the police leaders think – workshop discussions

During 2007 at the Global Road Safety Partnership ASEAN plus China road safety seminar, I led an executive workshop with senior Asian police officers from ten nations. The delegates were asked to identify the key challenges for traffic policing in the region. The following priorities were identified:

1. **Data collection**, emphasising that reliable and accurate information on the causes of crashes was essential;
2. **Infrastructure for enforcement**, which included the legal framework, accurate vehicle and licensing databases and an effective judicial process;
3. **Public acceptance of enforcement**, which included higher public acceptance and compliance rates to reduce the enforcement effort required by police; and
4. **Stability (capacity) of traffic police**, which included a general call to build greater capability within traffic safety divisions.

Other issues identified by the executives included: the need for an effective training infrastructure with manuals; curriculum and training materials; the need for active and consistent enforcement; patrol visibility and an increased police profile to ensure a greater

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334 GRSP ASEAN plus China Road Safety Seminar, Challenges and Opportunities. Bali 6-7 September, 2007. A two-day meeting of traffic police executives was convened by GRSP to identify common problems and opportunities and determine strategies for road trauma reduction in the region.
compliance of the law; clarity of leadership responsibility for road safety; the need for police to take a more active role in initiating inter-agency partnerships; and a requirement to ensure stability within the road safety agencies.

Recommendations to motivate the political will within each country included: transparency of data to raise political awareness; data analysis to highlight the real costs of road crashes; the establishment of a national road safety council in each country; and regional ministerial meetings with a declaration and defined goals and leadership commitment with ministerial agreement. The results from the workshop discussions provided valuable insights into common elements considered by the leaders as road safety problems and remedial actions considered as opportunities.

In March 2012, I facilitated a Global Road Safety Partnership workshop in Geneva, attended by Traffic Police Leaders and trainers from the ten Bloomberg Philanthropy sponsored countries. Key issues identified were: the necessity for integrity of road policing actions; effective training for traffic officers; the need for community acceptance of enforcement actions; the poor attitude of non-traffic police towards road policing; and an acute lack of resources. Other significant issues included: the lack of political will to address road safety; the value of data; the value of partnerships; the lack of driver competence; and interference in road policing by persons with influence. Barriers to effective enforcement included: ineffective data management and analysis; lack of community awareness; the lack of a police voice in road safety activities; and the lack of appropriate and effective legislative and judicial support.

The results of these two workshops from five years apart show consistent themes in the problems and challenges facing traffic police in their responsibility to enforce the law.

5.7 Strengths and limitations of the survey of practitioners

The practical insight gained from this survey and the executive workshop was an invaluable confirmation of the issues identified in the literature and described by the experts. It

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335 Bloomberg Philanthropy provides sponsorship for road safety initiatives in 10 low to middle-income countries (RS 10) for a period of three years. Funding is coordinated through WHO and GRSP. GRSP convened a Police Enforcement workshop in Geneva March 2012 inviting trainers and coordinators from the representative countries to discuss the critical issues in police training for road safety.
provided a tangible link from the theoretical perspective of the literature and the external perspective of police enforcement of the road safety experts, thereby adding rigour to the research and specifically addressing a practical approach in responding to the research questions. The response rate was unusually high and resulted from the approach to personally deliver the survey through country coordinators to ensure the distribution to and return from senior traffic police. This enabled representative sampling from the countries studied.

The limitations identified during this process included:

• The fact that most of the survey questions were presented as positively framed statements about road safety, which would have likely elicited strong socially desirable or acquiescent responses resulting in various potential biases

• The translation of the survey required in a number of countries and the collation of the responses added a further complexity to the process

• The inability to discern any meaningful differential in the responses from high, middle and low income countries. This was not anticipated when the survey was developed and the analysis did not identify any significant detail to report. Seven of the countries selected were low-income, two middle-income and one high-income lessening the ability for a more sophisticated exploration of the survey data for this purpose

• Two questions required a listing of priorities in the response. This resulted in invalid responses with 11% -13% of respondents, who did not answer the question, entered all categories as priority 1 or entered an invalid sequence.

Another potential limitation was that some participants lacked familiarity with written response surveys, this being their first exposure. A further limitation was not having specified a target number of respondents for each country and being reliant on the coordinator in each country to establish the cohort on the availability of reputable senior officers.

5.8 Summary of findings from the survey and the police leaders’ forums

The themes identified through the literature review and the interviews with the experts were tested in the survey and found to be highly relevant to road policing. Importantly, the survey provided a practical contribution to the research questions underpinning this program of research by confirming what was considered by the experts and the literature to
be good practice and additionally clarify aspects of law enforcement appropriate for benchmarking. The key findings which align with these themes are now summarized.

**The quality and use of road safety data:** Importantly within this chapter, survey responses from practitioners have confirmed the value of having and using crash data available for the deployment of resources and determining strategies. The literature describes the significance of data collection, accuracy and reliability and the experts described the problems and consequences as well as the requirements for data quality and the effective use of this data. The practitioners’ confirmation of this theme at 98% endorsement is significant to my study in maintaining data as a prominent theme. The executive forums also confirmed the importance of data collection and analysis.

**Community road safety education, awareness and engagement:** Educating the community in road safety was a major theme within the literature, particularly the linkage between education and enforcement. The holistic views of the experts embraced the entire community as integral to this educational strategy. The practitioners’ endorsement, at 99.1% is supported by their numerous practical examples provided in the open ended questions as to how this theme can be implemented through the schools, in the media and by direct contact with the community.

**Infrastructure support:** Interviews with the experts revealed deficiencies in support infrastructure for police and included advocating the need for system controls for planning, collaboration, and control and evaluation as an all-inclusive approach to interventions. The survey provided confirmation of the theme with 97.2% agreement on the need for police to have the support systems of effective licensing, registration, laws, fines and the judicial process. Importantly, the outcomes of the executive workshops highlighted this theme as a major requirement for successful police operations.

**Partnerships:** The value of community partnerships was rated highly by the practitioners, confirming the importance of this theme; 97.2% of officers were in agreement or strong agreement that it is essential to actively work with the community in road safety. The practicality of creating the partnerships and working with the community was outlined in various categories of ensuring good community interaction, general collaboration and
involving the community in identifying and resolving road safety issues. These views were similar to the experts and the police executives, in the requirement to engage the whole community as a partner in road safety reform; the review of the literature also affirms the necessity for effective partnerships.

**The quality of police training:** The effective training of traffic officers was considered by the practitioners as the most important factor to improve effectiveness. The officers provided practical recommendations as to building the capacity of law enforcement through the training of police officers, using modern technology and good coordination with the agencies. This extended the theme to build capacity as described in the literature, the interviews with the experts and as highlighted at the executive workshops.

**Professionalism of police:** This chapter has assisted in qualifying the roles of police in road safety and confirmed critical law enforcement issues such as: corruption has adverse effects on law enforcement; the need for police to set an example in the community; the integrity of road policing activities; the lack of a police voice in road safety activities; and driver compliance as best achieved by combining effective education with highly visible enforcement.

**The attitude of drivers:** The practitioners’ responses affirmed the findings from the literature and the experts, of the need to significantly impact driver attitudes and create a traffic safety culture as evident with the good practice approach – a combination of good education and highly active police enforcement. The strict enforcement of the law was ranked second by the practitioners in the solution to that challenge of reducing road trauma.

**The perception of the risk of being intercepted and punished for traffic violations:** The perception of the risk of being intercepted corresponding to driver compliance was endorsed by 89.4% of respondents. Further, 84.5% of practitioners agreed that drivers will continue to break the law if they feel justified and believe they will not be caught. These views strongly support the findings from the literature and the experts.

**Police use of technology:** Respondents identified the need for technology as a secondary priority in building capacity and as the third priority to increase enforcement effectiveness.
Comments included the need for technology (where none exists), keeping abreast of technology and using technology to maximum effect.

**Operational capability:** Key factors identified for enhancing efficiency are: improved and consistent training; visible enforcement; and better use of equipment, technology and systems. Key factors for enhancing effectiveness are: the training of traffic police officers and having good road safety agency and community partners.

These comments provided a valuable perspective as to what the operational traffic police officers feel is needed to improve overall capability in enforcement. The responses provided an important contribution to the research, and particularly as a practical input on what is perceived by the officers to be practices and programs to achieve reduced road trauma.

**Confirmation from the leaders’ forums:** The views of the police leaders’ discussions in 2007 and 2012 identified key issues of data collection, infrastructure support, public acceptance for enforcement, the need for capacity building, quality training, increasing the police profile and, increasing the voice of traffic police. All these issues have also been identified in the thematic groupings from the research and the interviews with the experts. This was a significant confirmation of my research. The critical concern is that there is no prescribed solution on how these problems can be overcome or how to provide professional development for traffic police in these countries. The leaders recommended actions to motivate the political will and raise political awareness through regional ministerial meetings and otherwise encouraging the commitment of leadership. To date, further actions have not occurred. This lack of progress is a serious concern in international road policing and traffic law enforcement.

An over-arching finding from the survey and the leaders’ forums is the need for more effective and more efficient traffic law enforcement brought about through training and the use of technology. This reinforced the findings from other sources highlighting the gap between the knowledge and operational capability of police in the good practice jurisdictions compared to those in the low to middle-income countries. The responses to the survey strongly reinforced the themes, adding rigour and practical validation to the research. Clarifying the gap between the needs highlighted by the practitioners and the reality of
systemic daily practices emerged as a critical component for my research. This is addressed in the next chapter.
Participant observation – road policing in low to middle-income countries.

This chapter presents my professional observation specifically addressing the research question to determine how well law enforcement policies and practice in low to middle-income countries align with those in good practice countries. Participant observation as an integral component of my methodology broadened the field of research and provided practical evidence to substantiate the themes identified through the literature review, the interviews with the experts and the perspectives of the police practitioners. Of particular note is the contrast of the low to middle-income countries under investigation to that of the high income countries where good practice road policing is undertaken. Chapter 2 details the inter-relationship of this approach with other components of my methodology.

Over the past six years I have drawn on my professional perspective and experience in observing road user behaviour, road safety and traffic law enforcement and law enforcement systems while working for varied periods in the ten low to middle-income countries addressed in this research.

The framework for reporting my observations was based on the select themes outlined above, and examined in the practical road policing environment. The focus was on publicly observable behaviours of road users and, the inter-relationships between traffic police and road users as well as observable policing activities, policing systems and support functions.

The low to middle-income countries that I observed have diverse populations with different socio-economic, political, historic and cultural backgrounds. Nonetheless, in each of them the primary responsibility of the traffic police is traffic management to maintain traffic flow, clear congestion and attend incidents. These functions differ substantially from the primary responsibility in high-income countries where the focus is on road safety and traffic law enforcement. This important difference underpins the capacity for much-needed reform.

6.1 Background to observations within the countries

I have undertaken the observations in a variety of settings in each country, observing road user behaviours in the capital and major cities, urban, outer-urban and regional locations as
well as small towns and villages. The road networks have included major freeways, divided roads, two-way and one-way traffic locations, single lane highways, bitumen and dirt roads, mountainous, coastal and open terrain. I have given particular attention to areas of high population density and high pedestrian traffic such as around schools, shopping locations and market areas as these are commonly the high-risk locations for vulnerable road users as identified in the literature. A focus has been applied to high-risk behaviours by drivers such as excessive speed and dangerous driving as well as road user right of way at signalized and uncontrolled intersections and at controlled and uncontrolled pedestrian and school crossings.

6.2 The role of traffic police in the countries studied

The literature, the experts and the surveys provide detail of an expectation that the police can and will play a major role in road safety and provide more effective and more intense enforcement. Traffic police in good practice countries have clearly defined roles and statements of responsibilities and accountabilities. Departments are able to determine the percentage breakdown of functions for traffic management, enforcement and administration. For example, in Victoria, Australia, the resourcing capability of the state road policing authority\(^\text{336}\) can ensure that over 90% of traffic police personnel and resources are devoted to operational enforcement and community education.\(^\text{337}\) This capability is extended by the total policing complement of 12,557 sworn police officers who also have a contributory responsibility for traffic enforcement. This is in sharp contrast to my assessment in the countries of my engagement where less than 20%\(^\text{338}\) of traffic police personnel and resources are available for traffic law enforcement and the remaining general police workforce are not required to take a responsibility for traffic enforcement. It is further noted that traffic law enforcement in the low to middle-income countries is not specifically

\(^{336}\) Includes police command HQ, traffic alcohol and drug unit, special motorcycle enforcement, major collision unit, heavy vehicle unit, intelligence and covert support, traffic camera program and 671 highway patrol officers.

\(^{337}\) S. McGregor Inspector, Road Policing Strategy Division, Victoria Police, data provided 23\(^{rd}\) August 2012 indicating Road Policing Resources comprise 6.64% of the total organizational strength of 12,557 sworn police officers.

\(^{338}\) The remaining 80% of duty responsibility includes maintaining traffic flow, traffic control, VIP escorts, identity confirmation, licensing, registration and administration. See also Appendix F, Table 27.
targeted towards high-risk driver behaviours, but more towards offences that are easy to detect and apprehend such as no mirrors on motorcycles and illegal ‘u turns’.

In these low to middle-income countries, traffic police duties vary according to the national or provincial policing structure, which may comprise a separate department or division within a larger police organisation or it may be a separate entity such as a traffic police bureau or highway patrol with sole responsibility for traffic management. Responsibilities may be incorporated into statutory functions, regulations, policy directives or duties accumulated through custom and practice or because no other agency takes on the responsibility. Some responsibilities lack clarity or definition such as to ‘enforce the traffic law’, listed as a statutory function but without performance criteria of any kind.

The role and responsibilities of traffic departments within the countries studied include resource intense activities such as traffic control and traffic management, vehicle and regulatory controls and other extraneous duties.\textsuperscript{339} In these examples, many of the functions treated as routine in the low to middle-income countries were transferred decades ago from police to road authorities and other organisations in the good practice countries. These functions include driver licence testing and vehicle registration. Traffic management in the good practice jurisdictions is controlled by signalized intersections with centralized control room monitoring functions, for road authorities to adjust traffic flow efficiency. In these countries, police will attend accidents or incidents as required and work with the technological services to ease congestion as required.

Traffic officers in countries relatively new to motorization such as Cambodia, Lao PDR and Thailand have not been traditionally tasked with traffic law enforcement. The primary traffic police responsibility is traffic management to reduce or minimize congestion, and this role/responsibility creates additional problems where the police have not been trained in the traffic law, traffic law enforcement, evidence gathering, checkpoint operations and vehicle interception procedures. I have observed that this results in a lack of enthusiasm and vigour from police to embrace traffic law enforcement as a major role when this has not traditionally been a responsibility. Senior police advise that traffic enforcement creates

\textsuperscript{339} See Appendix F, Table 27, Observed traffic police responsibilities.
animosity with drivers and tension in the community. Fining drivers for traffic offences creates a burden on the family income where a fine equivalent to $US1 can equal the bread-winner’s daily income.\textsuperscript{340} The provision of education and awareness programs has been initially viewed by the police in these countries as less confrontational and a somewhat softer option.

### 6.3 Data collection and analysis

#### 6.3.1 Good practice observations of data collection and analysis

Internationally, traffic police have the responsibility to attend crash sites, investigate the cause, record the details and ensure an accurate report is registered as soon as possible. This is recorded centrally and analysed for road user categories, high-risk causes, and trend analysis and provided as analysed data for road safety personnel to develop interventions, strategies and counter-measures. The information provided from the data should be accurate, reliable, credible, timely and of practical use to the recipients. The value is in the productive manner in which the data is produced and used.

I have observed good practice in data collection in Australia, the United Kingdom and Canada where the efficient and effective use of crash data provides a system capable of producing analysed data for use by law enforcement, traffic engineering design and maintenance, research agencies and other road safety partners. The accuracy of the data, the currency of public release, the sharing of information and the ability to analyse and remediate problems locally also assists community awareness and public involvement in road safety solutions.

In Victoria, Australia, road trauma data is publically available on the internet, updated daily and available for road safety professionals and the public.\textsuperscript{341} A partner agency, VicRoads, the responsible road authority, makes available accident statistics spanning five years and a mapping program titled ‘crash-stats’ for professional and public use.\textsuperscript{342} Victoria Police has a dedicated road policing intelligence unit which captures data from road safety and policing

sources to provide tactical, operational and strategic advice for enforcement and education interventions.\textsuperscript{343} The United Kingdom has the National Centre of Police Excellence, using a national intelligence model to support intelligence-led policing for the Association of Chief Police Officers for traffic law enforcement activities.\textsuperscript{344} In these countries crash data is analysed and available to traffic police commanders to guide enforcement and the identification of the timing and location of high-risk road use behaviours.

### 6.3.2 Observations in low to middle-income countries

The difference observed in the low to middle-income countries studied is that data collection and analysis is lacking quality, accuracy and integrity. A major investigative failure is not identifying the root causes of crashes. This results in ineffective remedial treatments and lack of focus on the true causes of crash, as will be discussed by examples in three of the focus countries.

Specific problems with data collection and analysis in Yemen include deficiencies in the processing and investigation systems for accidents, which suggests that road trauma is more significant than the official police data indicates.\textsuperscript{345} Traffic police in Yemen do not have the capability, knowledge or capacity to improve their data collection and analysis and, therefore, the causes of accidents continue to be misrepresented and remedial actions misdirected.

Problems observed with data collection and analysis in Indonesia are the lack of detail in reports, lack of system analysis, under-reporting and the true crash causes not being identified. These problems highlight the need for training, investigation equipment, basic investigation and standard operating procedures as well as the need for greater thoroughness in investigations.\textsuperscript{346}

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\textsuperscript{343} Journal notes, discussion with Assistant Commissioner Ken Lay, Ryan Irwin and observations of the Traffic Intelligence Unit at Victoria Police on 31\textsuperscript{st} May 2011. NB: Victoria Police is a state in Australia with a police force responsible for crime control, social order and road safety. The road policing responsibility spans 201,000 kilometres of road network, 4.8 million registered vehicles, 3.6 million licensed drivers and a population of 5.4 million.

\textsuperscript{344} Journal notes: United Kingdom, London, October 2006.

\textsuperscript{345} See Appendix F, Table 28, Data collection and analysis – Yemen.

\textsuperscript{346} See Appendix F, Table 29, Data collection and analysis – Indonesia.
Problems observed with data collection and analysis in Viet Nam include the high level of under-reporting that has been identified through my cross-referencing of accident data and hospital data, and through the extensive bureaucratic delays in reporting, and a lack of police accident investigation skills. In 2010-2012, the World Bank funded a National computerized database system (NRADS) specifically developed for Viet Nam and centrally housed in Hanoi. It is designed for reporting, recording, storing and managing road accident data together with the legal and organizational frameworks, procedures and training to ensure its full functionality. Daily input is provided from the 63 provinces and subsidiary districts throughout Viet Nam. The technology and training for the NRADS application has been tailored to operational capabilities. However, the bureaucratic style of old remains, with secrecy of data, delayed public release of restricted data, non-sharing of data with other key agencies such as the Ministry of Health, the Ministry of Transport and Road Safety agencies, failing to align with international standards for reporting, recording and classification of crashes, the complexity of injury classification, the continuance of under-reporting and the delays in recording crashes. From my observations over two years the results are a computerized system of extensive inadequacies in the combined data.

Another key failure observed which directly impacts on data analysis is the inappropriate recording by police of ‘driver error’ on the accident form. The expression ‘driver error’ was observed in crash reports in Cambodia, Ethiopia, Indonesia, Lao PDR, Thailand, Viet Nam and Yemen. This is an easy way to finalise an accident investigation without evidence and covers all types of driver behaviours such as drunk driving, speed, inattention or careless and dangerous driving. As there is no legislated offence of driver error in any of the countries studied, the rationale for the expression in accident recording lacks credence. When asked to explain driver error, a Cambodian officer highlighted as a typical example a driver who had just gone through a red light and carried out a ‘u turn’ that impeded the flow of traffic in both directions – these are clearly breaches of traffic laws rather than driver error. This misrepresentation of cause of accidents means that analysis is difficult as breaches of the...
law are described as non-specific driver faults. Similar recordings such as mechanical failure or defective roadway are meaningless classifications.

6.4 Infrastructure support

The term infrastructure applies to the support systems that enable traffic law enforcement to operate effectively and efficiently. This includes the laws, the legal system, the judicial process, driver licensing system and vehicle registration system. In the countries studied, I observed the practical impediments to police enforcement where the support services were not operating effectively or to maximum efficiency.

6.4.1 Good practice observations of infrastructure support

Good practice police jurisdictions have real-time field access to drivers’ licence particulars including a photograph, vehicle registration, alcohol ignition interlock requirements, criminal records, traffic convictions as well as danger ‘flags’, or warnings for prior firearm or drug use and violent behaviour. Mobile police units observed in Australia, the United Kingdom, Europe and the United States are equipped with in-car computers, enabling the availability of this information, as identified through the vehicle’s registration, and prior to any vehicle interception. If the driver is not the owner of the vehicle, then on validation of identity, the information is available about that individual as well. Real-time computer access is not available in the low and middle-income countries. Traffic police in Malaysia and some provinces of China have access to registration and licence particulars through the police two-way radio communication network. Additionally, good practice jurisdictions have laws that can be understood clearly by police and citizens and can be practically applied to achieve road user discipline and road safety outcomes.

Driver licensing systems in the good practice police jurisdictions such as Australia, England, Europe and Canada have 12 month mandatory learner periods that require supervised driving hours with a qualified driver as well as professional lessons from a driving school. Minimum supervision of 100-120 hours is mandated in Australia and a minimum driving distance of 3,000 kilometres is mandated in several European countries. In these countries, graduated licensing systems are important to expose the novice driver to the complexities of driving and to gain experience while unaccompanied on a provisional licence.
6.4.2 Observations in low to middle-income countries

Traffic police in Cambodia, Ethiopia, Indonesia, Lao PDR, Thailand, Viet Nam, and Yemen do not have access to database records in the field. Not all vehicles are registered and not all drivers are licensed, and the recorded ownership particulars for a vehicle may be well out-of-date. In Viet Nam the government duty on vehicle transfer is the same value as that of the new vehicle duty so usually the new owner will not notify the government of the transfer because of the financial costs. Consequently the vehicle may be sold a number of times without any official notification.349

In Yemen and Ethiopia, street address identification is unreliable as many streets are unnamed and house numbers are not common. If an offender does not pay on the spot, police imposing traffic fines will seize the licence or seize the vehicle, or both, until the fine is paid, thereby eliminating the requirement for identity validation. Demerit or black points to increase sanctions have been introduced in United Arab Emirates (UAE), China, Cambodia, Thailand and Ethiopia, however, in each of these countries there is no accurate offence database and no access by field officers to this or other databases. Recidivist offenders thereby escape higher level sanctions.

The driver licensing system in the United Arab Emirates provides a potent example of poor support systems, and notwithstanding the investment in the five training institutes in Dubai and one in Fujairah. The larger institutes have a vehicle fleet of 250-350 light and special purpose vehicles, driving simulators, seat-belt propulsion training equipment, off-road training circuits and control towers with one-way communication to the learner driver. Learner drivers are mandated to have 40 half hour lessons before being provided with a certificate of readiness for their licence. They are not permitted on arterial roads and their first drive in traffic is on their own as a licensed driver. This lack of experiential learning is reflected in the police statistics, which indicate that drivers with less than two years of experience account for 34.2% of accused, at-fault drivers in fatal and injury crashes in 2006. In the same year the death toll for Dubai was 21.9 fatalities per 100,000 people which is approximately 11 times that of Sweden (as represented in Table 4).

349 Journal notes: Viet Nam, July 2012.
In Cambodia, Lao PDR, Viet Nam and Indonesia the testing procedures for obtaining a drivers’ licence require the applicant to have a medical examination and pay a fee on the production of the medical certificate, then complete a written test demonstrating knowledge of the law, and a practical driving test involving a short off-road drive demonstrating parking, reversing and a handbrake start on an incline. The motorcycle tests in Viet Nam require the rider to negotiate a circuit including left and right hand turns and circles without breaching the lines. Licence testing in Thailand, undertaken by the Department of Land Transport was observed to include a written test on road regulations followed by a half-hour off-road driving test, an eyesight and reaction test as well as the production of a medical certificate. While these are important components of driver ability, none of the good practice restrictions such as extended learner driving experience apply in these countries.

The most serious difficulties advised by police in these countries are that the licences can be corruptly obtained without a test; the testing procedures may be circumvented for a price or the driving schools may issue a certificate of competence to an incompetent driver. This applies particularly in Yemen where only 23 licence testing facilities in Sana’a including three of the Governorates are subject to police supervision and audit. The remaining 18 Governorates do not have responsible over-sight of the test procedures.350 Similarly, police in Lao PDR advised me that licences can be bought from the Vientiane Vehicle and Driving Management Division although this is refuted by officials who assert that driving sessions must be undertaken before a full driving test, and that bribes could not occur as the rules forbid this behaviour.351 Police in Viet Nam, Cambodia, Lao PDR, Thailand and Indonesia report percentages of unlicensed drivers and riders ranging from 20% to 40%.352

Some developing good practice procedures and systems were observed. Malaysia has a graduated licence system commencing with the learner driver passing a six-hour safety course at a driving school with ‘L’ plates (signs displayed on the vehicle to designate a learner driver), upgrading to a probationary licence holder with ‘P’ plates (signs designating a

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provisionally licensed driver) after passing the driving lessons and tests to then achieve a competent driver licence after two years. Demerit points apply and licences may be revoked for serious traffic offences. A critical observation is that police in the low to middle-income countries have limited opportunity to develop, control or improve these systems, yet they cannot function effectively and efficiently without them.

6.5 Road user behaviour

Responsible driver behaviours in Australia, England and Europe predominantly follow the rule and discipline of traffic law, by being licensed, complying with the speed limit, driving on the correct side of the roadway, stopping at red traffic lights, giving right of way where signs apply and giving way to children on school crossings and pedestrians on pedestrian crossings. These compliant behaviours create a reasonable expectation for other drivers when traversing an intersection with a green light, that cross traffic will stop at the red light, or if there is right of way entitled by law that right of way will be yielded, or if a pedestrian is crossing a pedestrian or school crossing, drivers will stop and give way. It is law and accepted as good practice that all vehicle occupants will wear seat belts and that motorcycle riders and pillion passengers will wear approved helmets.

Observations in the selected low to middle-income countries differ markedly in both driver behaviour and expectations. Driving against red lights is often observed, speeding is commonplace and pedestrians are rarely afforded right of way on designated crossings. Traffic law enforcement is limited. My principal observation over the six years is that pedestrian safety is a major neglected issue in all the countries studied. As an example, Ethiopia is a pedestrian based nation with a population of 82 million and a relatively small vehicle fleet of 500,000 vehicles. Strict laws apply to the right-of-way for pedestrians, particularly on designated crossings. As both a pedestrian and vehicle occupant in Ethiopia, I have experienced that these laws are not enforced by police and not practiced by drivers, including police drivers.\(^{353}\)

The irony of this lack of respect for pedestrians and lack of enforcement of the safety factors for pedestrians is that if a pedestrian is fatally struck by a vehicle, advice from the police

investigators is that in the majority of cases, the driver will be charged with negligent driving and subject to severe penalty. Pedestrians are rarely considered by the investigators to be at fault even when they jaywalk or cross from between parked cars. However, prosecutions have done little to reduce the risks for pedestrians who are subjected to unenforced high-speed traffic. Pedestrian safety is observed to be exacerbated by the numbers walking on the roadway with their backs to the moving traffic, especially near schools and market places. In Addis Ababa, as a pedestrian, right of way on designated crossings is not expected and the norm is to wait for a break in traffic before attempting to cross or to bunch the pedestrian numbers to force drivers to stop. Pedestrian fatalities in Addis Ababa account for 80% of road deaths, with 20% of those being children under 18 years of age. These percentages are in accord with my observations and experiences as a pedestrian in Ethiopia.\textsuperscript{354} Observation of similar pedestrian-related safety issues in other countries are recorded in Appendix F, Table 31 – Observations of pedestrian related safety issues. The most serious observation is the futility of remedial treatments for pedestrian safety without enforcement and without meaningful sanctions. In each of the countries observed, there are thousands of marked pedestrian crossings which are ignored by drivers and unenforced by police and where the pedestrians are highly exposed to road traffic injury if they do not give way to traffic. This is contrary to the intention of the pedestrian crossing design.

Hanoi and Ho Chi Minh City in Viet Nam are examples of high density traffic and high densities of pedestrians,\textsuperscript{355} mixed with limited road user discipline by drivers, riders and pedestrians, all competing for road space on an outdated road infrastructure. My observations of driver behaviours are consistent with those of the Vietnamese Prime Minister, H.E Mr Phan Van Khai, in the World Report stating that ‘nearly half of the motorcycle riders are not licensed, and three quarters don’t comply with traffic laws’.\textsuperscript{356} Further, my observations include frequent violations by cars, speeding motorcycles and buses, driving against the red lights and vehicles driving contra-flow, or on the incorrect side of the road. Uncontrolled intersections have a mix of cross-traffic, through traffic and turning traffic all negotiating their route along with pedestrians walking through the traffic.

\textsuperscript{354} Journal notes: Ethiopia, April 2010.  
\textsuperscript{355} 36 million motor vehicles (33 million motorcycles) and 83 million people.  
\textsuperscript{356} Peden, World Report on Road Traffic Injury Prevention, x.
In the central business areas, footpaths are blocked with stalls, stock-overflow from the shops, curbside restaurants and parked motorcycles, leaving the roadway as the only option for pedestrians. In the city thoroughfares in peak periods, traffic may take 90% of the whole roadway in one direction forcing oncoming traffic off the road and if congested, the motorcycles will fill any gaps and expand the roadway to include the footpaths where available, to the detriment of pedestrians. On those national highways without centre dividing barriers, passenger buses and trucks constantly overtake, forcing oncoming smaller vehicles and motorcycles to give way or drive off the road to avoid head-on collisions.357

Within the low to middle-income countries, the lack of speed limit, stop, give-way, advisory and warning signage is a serious impediment to road safety. This lack of ‘on-road’ driver education and awareness is compounded by the lack of road user discipline and the inability of the police to provide enforcement. In Yemen, for example, few road signs are erected on rural roads even on downhill mountainous areas with sharp curves. There is no night lighting in these areas and few safety rails or barriers on the outside cliff edge. Governorate officials advise me that there is no point in erecting the signs because, apart from cost, the local villagers will steal the metal signs for cooking plates. In the capital city, Sana’a, many of the stop/give-way/no entry signs were painted over with advertising for local stores. These practices highlight the lack of road safety awareness within the community as well as the lack of commitment of road safety authorities to deal with common safety and community issues.358

In Cambodia, Ethiopia, Lao PDR, Thailand and Viet Nam very few speed limit signs are observed in the major cities or on rural roads. In these countries, police advise that the drivers are expected to know the speed limit for the city limits and the rural roads in accord with the type of vehicle they are driving. Complications occur with different speed limits applying to trucks, buses, dangerous goods transport such as petrol tankers, normal motor vehicles and motorcycles. I found it disconcerting in these countries to ask police the speed limit for a particular road section only to receive an answer of ‘I am not sure’ or a response of ‘maybe 40 kph or 60 kph.’359 If the traffic police cannot definitively advise the speed limit,

then it cannot be expected that the drivers know the limits, especially in areas of transition from city, suburbia, rural and village or around areas of dense pedestrian traffic.

In another example, I was a police training facilitator for a seat belt campaign in Guangzhou, China, undertaken in 2006 over a 12 month period. The initial police attention was on the 20,000 taxi drivers who would lock the retractor belt section in the open position by a bolt, clip or stopper and drape the unsecured belt across their chest so it would appear to observing police that the belt was being worn. The police then issued fines for taxi drivers who did not have the keeper securely buckled. The drivers then buckled the clip to the keeper, but still locked the retractor mechanism and draped the belt loosely across the body. Hence, they complied with the law, although the lack of safety left them highly exposed in an accident. Safety factors were not considered relevant by the taxi drivers. It is noted in other cities in China where police do not consistently enforce the seat belt legislation, that the taxi drivers are not compliant with the law.  

6.6 Driver compliance with traffic laws

In order to appreciate the lack of compliance with the laws by drivers, I recorded my observations of driver behaviours specifically as applied to seat belt and helmet wearing as well as high-risk driver behaviours. Observations included the non-wearing of seat belts by drivers while driving at high speed, lack of concern for non-wearing of seat belts by passengers and compliance only to avoid penalties. Excuses given by the police drivers, taxi drivers and other drivers questioned include ‘I am a good driver’, ‘we are only driving slowly’, ‘we are only driving in the city’, and ‘trust me’. These comments and the observations of the drivers buckling-up and unbuckling at or near police checkpoints, indicate that compliance in these cases concerns perceptions of enforcement rather than safety.

Helmet wearing is legislated for drivers only on motorcycles in all the countries studied and has not been enforced until recently, following helmet-wearing enforcement and education workshops I have facilitated for police and road safety officials in Malaysia, Viet Nam,

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361 See Appendix F, Table 32, Observations of driver behaviours – seat belt wearing.
Cambodia, Lao PDR, Thailand, and Indonesia. Except for Malaysia, where consistent campaigns were undertaken in all states and territories, enforcement in these countries has been intermittent.

Viet Nam has enjoyed the most publicized success following the Prime Minister’s decree that enforcement would be effected from December 2007, when the helmet wearing rate increased from approximately 8% to a claim of 100% across the nation on 15th December.\footnote{Ms. Le Minh Chau, Deputy Director General, Traffic Safety Department, Member of the National Traffic Safety Committee, Viet Nam. Presentation to the Data Workshop and Traffic Records Forum Conference, Phoenix, Arizona, 12-17 July 2009.} Although the wearing rates increased radically, my observations and helmet-wearing counts do not accord with the claim.\footnote{See Appendix F, Table 33, Rider behaviours – helmet wearing in Viet Nam.} These examples of seat belt wearing and helmet wearing are potent indicators of road users complying with the law because of a belief that the law will be enforced rather than for reasons of safety and supports the concept of a lack of a traffic safety culture as reported in Chapter 3.

The correlation between the absence of enforcement and the lack of driver compliance with the laws is demonstrated in Viet Nam where laws apply to high-risk driving behaviours such as speeding, failing to give way, failing to stop at red lights, overloading and dangerous driving. Severe financial penalties apply for these offences including suspension of licence, detention of vehicles and confiscation of papers.\footnote{Decree No: 71/2012/ND-CP, Amendments and supplements to a number of articles of the Decree No 34/2010/ND-CP dated April, 02 2010 by the government defining administrative sanctions on road transport, Hanoi, September 19, 2012.} Dangerous driving, unsafe overtaking and excessive speed is frequently observed especially on many of the two-way national roads, and red-light running is commonplace in the major cities. The published annual road fatalities for 2010 and 2011 are in excess of 10,000 which is 24.7 per 100,000 population as recorded in Table 4. These listed offences are recognised as high risk crash causes included in the 85% driver errors recorded in the two official reports.\footnote{Report on ensuring traffic order and safety in 2010 and the main tasks in 2011, NTSC, Socialist Republic of Vietnam, Hanoi, December 12th 2010; Report traffic safety and order assurance for the first ten months of 2011, NTSC, Socialist Republic of Vietnam, Hanoi, 25th November, 2011.} In a combined 18 month period working on building capacity with police in Viet Nam, I have not observed a single mobile police interception for speeding, dangerous driving or red-light running. To the contrary, these offences have been ignored in my presence at police monitored intersections.
and highway patrol and driving activities.\textsuperscript{366} This lack of attention to high-risk driver behaviours and the lack of capability to operationally or strategically address road trauma, highlights the need for active and visible enforcement as observed to be good practice in jurisdictions such as Australia and United Kingdom. The gap in enforcement capability is notable as is the lack of driver compliance with the law.

\textbf{6.7 Police enforcement practices}

\textbf{6.7.1 Good practice enforcement practices}

Enforcement is a routine aspect of police responsibilities in the high-income nations. This activity consumes the majority of police resources directed to reducing crashes and saving lives. The philosophy applied is intelligence-led, evidence-based and outcome-focused. Principles employed are that the enforcement is highly visible and active, repeated often, fair and consistent and well publicized. A road policing plan is aligned to the jurisdiction’s road safety strategy and documents the policing strategies to achieve objectives and specific outcomes. Strategies target high-risk road-user behaviours and high-risk crash locations and are accompanied by operational plans for the regions and districts involved. Performance measures apply at operational and strategic levels.

Good practice enforcement includes intercepting offending vehicles for the commission of offences such as speeding, drink-driving and careless and dangerous driving. In countries such as Australia and England, police officers undergo an intensive driver-training program, which includes safe vehicle interception procedures and urgent duty driving. These processes become a routine in police enforcement activities and are undertaken 15 to 20 times per shift for each enforcement vehicle. Driver perception of being intercepted for a violation is a strong deterrent against the commission of an offence. Additionally, police drivers are trained in ‘vehicle pursuits’ with the jurisdiction applying strict policy and controls over engaging in and continuing a pursuit. These only become relevant if an offender fails or refuses to stop following a police initiated interception. A safe vehicle interception for a

\textsuperscript{366} See Appendix F, Table 36, Enforcement observations in selected countries – Viet Nam.
routine traffic stop and a police pursuit are two distinct activities, both requiring a continuing risk assessment of the prevailing circumstances.

Good practice speed enforcement methods include: time over distance measurement checks; following while maintaining an even distance behind; stop watch and fixed distance measurement; radar/laser enforcement; and includes ensuring the evidence is sound for presentation in court.

6.7.2 Observations of enforcement in the low to middle-income countries

Enforcement in the focus countries is from stationary vantage points and side-of-the-road checkpoint operations with limited or non-existent mobile enforcement. This contrasts with the predominantly mobile enforcement strategies and controlled road restriction checkpoint operations in the good practice jurisdictions. Observations in the focus countries include the lack of enforcement for flagrant offences such as passing a police vehicle at high speed as well as running red lights and other high-risk driving in the presence of a police vehicle or police officer. The critical observation is the lack of police initiative to strategically, tactically and operationally enforce the law, particularly for high-risk offences. These observations lead to the question – why is it that police do not enforce the law? The explanations include: a lack of resources such as police vehicles, equipment and personnel; lack of incentives and motivation; and the lack of skills and training in safe mobile vehicle interceptions and offender processing. 367

The lack of enforcement combined with the lack of driver compliance to speed restrictions was observed in the UAE where on several occasions in police cars with emergency lights operating and exceeding the 120 kph speed limit, the private vehicle was travelling in excess of 160 kph but without the police reacting. Police in the UAE do not, as a matter of policy, engage in mobile vehicle interceptions or pursuits. Police advise that if prosecution is desired they can just record the number, register an infringement and text the driver advising of the offence. This did not happen during any of my observations. As an excuse for the high speeds, both police and civilian drivers advise that the UAE has the best cars and the best

367 These observations are further explained in Appendix F, Table 35 – Critical observations of the police rationale for lack of enforcement.
roads in the world and that traffic congestion in the cities causes frustration, so, speeding on the highways is not viewed as a serious breach of the law. If the civilians speed past the highly visible fixed-site speed cameras, the fines, which can amount to several thousands of dirhams\textsuperscript{368} accumulate and must be paid annually before registration and licence renewal.\textsuperscript{369} The police and civilian driver attitudes to speeding combined with the lack of speed management and lack of enforcement for blatant traffic offences contribute to the UAE having a high road fatality rate of 17.7 per 100,000 (as detailed in Table 4).

Another example of lack of enforcement and lack of compliance is evident in China. Road policing is in transition from virtually no enforcement on speed controls to high-technology electronic enforcement facilitated through thousands of clearly signed, fixed-site speed cameras. This transition is a difficult enforcement challenge. A critical observation is that high-risk speeding, commonly at 160 kph weaving through four lanes of traffic, is unenforceable with the current technology in China.\textsuperscript{370} The modern ‘in car’ police video with speed measurement capability, as in Australian and United Kingdom traffic police cars, would work but that equipment is not available in China and pursuits as well as moving violation interceptions are forbidden. These speed restriction laws are unenforceable so it begs the question, why have any speed limits if they are unenforceable? The observed irresponsible driver behaviours demonstrate the futility of the law as well as the police failure to prosecute speeding drivers and contribute to China having a high road fatality rate of 20.5 per 100,000 (as in Table 4). In good practice jurisdictions these types of drivers are considered a high-risk to all road users and enforcement strategies would ensure they were apprehended, have their licence suspended and their vehicle immediately impounded.

\textsuperscript{368} Conversion rate 1 dirham = 2.7 $US. \url{http://www.oanda.com/currency/converter/} retrieved 28\textsuperscript{th} August, 2013.
\textsuperscript{370} Journal notes: China, July, 2012. These driver behaviours occur on multi-lane freeways where each lane has a maximum and minimum speed limit such as 120 kph maximum and 100 kph minimum through to the 100 kph maximum and 80 kph minimum in the slower lanes. Frequently observed drivers travelling at 160 kph traversing lanes are travelling at 40 kph above the speed limit in the fast lane through to 60 kph above the limit in the slower lane. These driver actions combined with the speed variation mix is a high risk as well as being illegal. Electronic camera capability only provides a one point infringement; time over distance electronic enforcement is not workable in cross-lane speeding and normal police enforcement does not assist.
The lack of structured enforcement is evident in China, Indonesia, Lao PDR, Thailand, UAE and Yemen where there is no road policing enforcement plan, strategies or counter-measures for the high-risk offenders - especially speeding. This deficiency is reflected in frequent observations of illegal driver activities and serious offences, and the inactivity by police in addressing these behaviours. This open disregard for the law by drivers is accentuated in Indonesia where police vehicles in emergency mode have to contest right of way in traffic. The situation is exacerbated by police disregard for their own speed as observed in the UAE, with police drivers without emergency response justification travelling at 110-120 kph between roundabouts in 80 kph city zones and on other occasions, travelling the entire 120 kms from Dubai to Fujairah with the over-speed visual and audible warnings operating. These travel speeds are an abuse of authority and fail to set an example to other road users to ensure compliance with the laws.

The inadequacy and inefficiency of police enforcement activity for helmet-wearing is observed at checkpoint operations in Viet Nam and Cambodia where many riders without helmets avoid the checkpoints by driving on the opposite side of the road or footpath, drive up laneways or complete a ‘u turn’ or just drive through the checkpoint. Police do not have an enforcement strategy to stop, trap, counter or pursue these offenders. Consequently, irresponsible driver behaviours remain unchecked. Many riders will carry their helmets on the handle-bars and put on their helmet on the approach side of the checkpoint and ride through without challenge. The police actions are not representative of police activities in good practice countries. Further, the rider activities demonstrate that the wearing of helmets is to avoid a penalty rather than for safety reasons.

In dense traffic areas of Jakarta, Beijing, Bangkok, Dubai, Hanoi and Ho Chi Minh City, police assert that enforcement during peak periods will create traffic congestion. This is accepted as a practical problem in good practice jurisdictions as any police intervention, if not executed efficiently, has the potential to create congestion. However, this has been presented by police officials as an excuse for limited enforcement or no enforcement, at all hours of the day in these cities. The observed driver behaviours that are not enforced include driving against red lights, speeding, aggressive vehicle positioning, diverging when

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Cambodia and Ethiopia each have a road policing and enforcement plan although not effectively applied.
unsafe, failing to indicate driver intention, tailgating and not wearing seat belts. Police enforcement of these moving violations is rarely observed in these cities, and consequently the prevalence of offences continues.

6.8 Cross-government partnerships, coordination and community partnerships

Good practice road policing jurisdictions in Australia, England, Sweden, the Netherlands and France have strong collaboration within government agencies, with all partners focused on integrated road safety strategies and outcomes. Political will and government support are integral components for success. Productive partnerships demonstrably involve actively working together and contributing to common road safety outcomes. Good practice policing organisations take a leadership role in establishing, maintaining and sustaining community partnerships. In these jurisdictions road safety is considered a community problem and consequently community engagement and involvement are considered part of the solution.

By example, road safety in Victoria, Australia operates with a Community Road Safety Alliance with multi-agency representation supported by local and statewide community road safety groups. This ensures that the strategy is cohesive, coordinated and results are achieved through multi-organisational effort. Leadership, advice and guidance is provided to build the capacity of local groups to reduce road trauma in local communities. The Transport Accident Commission funds support for all motor vehicle death, injury and rehabilitation cases as well as funding road safety advertising campaigns and proactive initiatives for all collegiate agencies. A bipartisan parliamentary road safety committee deals with matters of road safety reform. The success of the partnership has been the recognition and analysis of the problems, early intervention, support legislation, program coordination, strong enforcement, mass media communication, community acceptance and ownership.

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372 Department of Justice, Department of Transport, Department of Human Services, Department of Health, Department of Planning and Community Development, Department of Education and Early Childhood Development, Seven regional community members, Municipal Association Victoria, Victoria Police, VicRoads, Transport Accident Commission and the Royal Automobile Club of Victoria (driver’s representative). Working groups are engaged as required.
and monitoring and evaluation. The critical link is to engage the community so that all road users share the responsibility for road safety.

Within the countries studied, government agencies are observed to be working in isolation with their own agendas. No one government agency is responsible for, or has ownership of road safety and government financial allocations inhibit cooperative interventions across departments. The Decade of Action, as discussed in Chapter 3, identifies road safety management as a major pillar in institutional reform to ensure there is a lead government agency in each country to be responsible as the pivotal point for coordination, collaboration, program integration, cross-government and community partnerships. Ethiopia, Laos, Cambodia and Viet Nam have established National Road Safety Councils however, the authority and ability of these Councils has not been able to link the responsible agencies in a cohesive manner to achieve coordinated and effective road safety outcomes. In addition, there is a lack of personnel with professional training in road safety. Major issues of road safety mainstream governance are evident in Yemen\(^{373}\) and Indonesia\(^{374}\) where there is a diversification of agencies, a lack of clearly defined objectives, clear role responsibilities and accountabilities, action plans and performance measures. In both examples, because of their commitment to improve road safety outcomes, the traffic police leaders have taken the initiative of lead agency responsibility for co-ordination and management, although without universal government agency acceptance.

In October 2009, the government of Yemen engaged in a second attempt to establish a National Traffic Supreme Council with renewed impetus to address road safety and build a solid coordination and management structure. Previous attempts had been frustrated by a lack of political will and leadership, inadequate visionary direction and focus as well as the absence of a road safety permanent secretariat and technical committees in the key sectors to drive the concept forward and achieve the desired objectives. In the absence of Ministerial meetings, a strategic plan and coordinated partnerships, the Brigadier General of

\(^{373}\) Traffic Police Directorate, Ministry of Transport, Ministry of Interior, Ministry of Public Works and Highways, Ministry of Health, Ministry of Internal Affairs

\(^{374}\) Indonesian National Traffic Police Corps (INTPC), The Directorate General of Highways (DGH) within the Ministry of Public Works (MoPW), The Director General of Land Transport and broader transport agencies of Highway Construction (Bina Marga), National, Provincial and Local Governments (Perhubungan Departments)
the Traffic Police Directorate has continued to provide the direction, drafting strategy and seeking financial support for road safety reform.\textsuperscript{375}

The legislative framework in Indonesia decrees responsibility for road safety and land transportation with the Indonesian National Traffic Police Corps by virtue of law 22/2009. This responsibility includes the establishment of an executive government forum on road safety as well as to develop and organise a secure, safe, orderly and smooth land transportation system, the implementation of traffic management and engineering, traffic education and traffic operational management. The specific terminology has created some disquiet, especially when whole agencies are vested with responsibility for education, traffic management and engineering.\textsuperscript{376} Notwithstanding, there are opportunities of increasing coordination across key agencies including the Department of Highways, Ministry of Transport, National, Provincial and local governments.

Independent to the inter-agency cooperative partnerships, a number of successful community partnerships with the police have been observed in the low to middle-income countries. These include the involvement of the Red Cross youth volunteers in Cambodia educating drivers at police checkpoints demonstrating the harmony between education and enforcement, driver training programs and vehicle testing facilities in Yemen and safe drinking non-driving programs in Suzhou, China.\textsuperscript{377} These programs demonstrate the importance of partnerships and the range and magnitude of partnership programs that can be introduced to support road safety.

\section*{6.9 Training and resources}

\subsection*{6.9.1 Good practice training in the high-income countries}

Good practice road policing jurisdictions train officers in the requirements of performing their duties. Training needs are identified through a systematic and thorough investigation to identify the gaps in operational policing skills, knowledge, practice and service delivery, and to determine the training necessary to overcome those gaps. Widespread consultation

\textsuperscript{375} Journal notes: Yemen, December 2010.
\textsuperscript{376} Journal notes: Indonesia, April 2012.
\textsuperscript{377} See Appendix F, Table 39--Successful partnerships observed in the focus countries.
at all levels is required to establish organizational priorities for traffic law enforcement and strategic road safety reform. The Global Road Safety Partnership provides a seven step process to undertake the training needs assessment, which includes: identify the road safety problem; plan the methodology and analysis techniques; identify operational requirements; review current training curriculum; assess current competence and confidence in core responsibilities; analyse the data and report the findings. A curriculum is then designed, developed and delivered based on the identified training needs.

Good practice training programs for traffic police identified and observed internationally include the 20 courses with academic recognition and ISO accreditation provided by the Road Policing Training at the Scottish Police College in Tulliallan. These courses are provided to officers from the United Kingdom as well as officers from countries such as Saudi Arabia, and they include professional development in road policing, traffic management, the road patrol officer’s Course, trainers’ training program and the road police investigation officers’ course.

The Victoria Police Centre of Road Policing provides specialist competency based training on information and intelligence management, enforcement and prevention, strategic focus, community focus, relationships and partnerships, resource management, highway patrol investigations, and incident and emergency management. Courses in Victoria are designed and developed following a training needs analysis, a road policing job role analysis report and road policing training gap analysis report. Courses are linked to road safety outcomes as well as corporate and state road safety strategic plans. Officers in Victoria are provided with contemporaneous training which meets their operational needs and better enables them to perform the duties required to achieve the principal objective of saving lives.

6.9.2 Training capacity in the low to middle-income countries

In collaboration with a Chinese researcher, as part of my work engagements I conducted a training needs assessment with traffic officers in Dalian and Suzhou. The officers stressed


379 Road policing job role analysis report, People Department, Victoria Police 24th September 2010; Road policing training gap analysis report, People Department, Victoria Police 4th February 2011.
that the legislation does not protect the law enforcer, the people do not respect police officers, community understanding and acceptance of law enforcement is low, no guidance is provided for traffic police officers on self-protection, and it is difficult to obtain evidence of offender behaviours. The level of confidence in strategic planning, knowledge of good practice and the use of data were identified as low. The officers identified their needs as practical enforcement skills. The most important outcome was the clarification of the gap between the training as officially provided for the officers and what is required operationally for effective enforcement of the law.

Training facilities observed include police universities in Indonesia, Ethiopia and China where students graduate with a diploma or degree following two to four years of study. Strategic traffic management is not included in the curriculum. This demonstrates the shortfall in operational training within those countries and highlights the gap between the official provision and requirements for strategic and operational effectiveness in road safety reform.

Similar observations have been made in Viet Nam, Cambodia, Thailand, Lao PDR and Yemen where the training focus is on traffic management, traffic flow and traffic control. In these countries the gap between the traffic officers’ knowledge and experience and the operational requirements to enforce the law is substantial. I have observed checkpoints in operation in these countries manned by officers prior to any external training and with marked deficiencies in effectiveness, efficiency and safety as they process offenders. As an example, the time taken to process one offender for a simple traffic offence may be approximately 15 minutes and a routine breath test resulting in a zero reading will take between five to ten minutes. Good practice jurisdictions will undertake breath test screening in less than one minute per driver.

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380 Strategic planning 16%, knowledge of good practice enforcement 26% and the use of data 16% confidence levels.
381 Preventing drivers evading the checkpoint, safety in stopping moving vehicles, observing and accurately recording offender behaviours, obtaining evidence, understanding crash causes and using technical equipment.
383 See Appendix F, Table 40, Training facilities observed in low to middle-income countries.
I have provided short courses in enforcement of helmet wearing, speed control and drink-driving countermeasures in Viet Nam, China, Cambodia and Lao PDR, and short courses on strategic leadership enforcement in Malaysia 2007 with 200 participants, the United Arab Emirates in 2007 with 30 participants and Cambodia in 2009 with 200 participants. Short courses for police are valuable as an impetus to building capacity within a jurisdiction but they require strong and continuing government resource commitment and continued support through social marketing programs to ensure sustainability. This on-going commitment is not automatic and requires constant reinforcement from donor organisations. Barriers to building enforcement capacity through training is exacerbated in countries such as China because of the geographic size, the population density, the environmental diversity, the numbers of traffic police officers requiring training and the complexity of road safety. Barriers are present on a smaller scale in the other countries studied.

6.10 Police corruption

As identified in the literature, through discussions with the experts and referenced in the Corruption Perception Index, police corruption is a major problem in low to middle-income countries. However, making behaviour of law enforcement officers a target of ethical evaluation may not always be justified. As an example, money changing hands between police and the offender does not necessarily indicate corruption. These often-observed roadside transactions may be legitimate fines imposed according to the laws of the country, as I have experienced in Cambodia, China, Thailand, Lao PDR and Viet Nam. In these countries, all fines must be paid at the scene because if the offender is released without paying the fine, there may be no way to trace the driver or vehicle. On some occasions, if the fine is not paid, the legal process is that the licence or vehicle may be impounded until payment is made. A ministerial sub-decree in Cambodia \(^\text{385}\) prescribes the fine distribution to be 50% for the intercepting officer, 30% to the station headquarters and 20% to the government. The fines distribution is legislated in Thailand with 35% to the officer, often shared with colleagues, and the remaining 65% divided between the central government.

\(^{385}\) Inter-Ministerial sub-decree between the Ministry of Interior and Ministry of Finance and Economy, Article 3 and 4.
and the fine managing authority in the province where the offence was detected. I have been present in these countries where the police have set up a collection point at the intervention site, money is paid by the offender and receipts are issued. This is not corruption. Corruption occurs where the money is collected, the officer retains the total amount and no receipt is issued. However, because there are the limited audit controls imposed over these field transactions, the officers and the systems are exposed to the potential for corruption.\textsuperscript{386}

In Viet Nam, in exploring apparent illegal transactions, I have privately observed traffic police at signalized intersections in Hanoi intercepting young female helmet-wearing motorcyclists and imposing penalties of 100 Yuan (USD $5) for some obscure offence, without receipts and for no obvious road safety reason. At the same time, young men were seen to ride through the intersections without helmets and against the red lights and were not intercepted. In discussion with local women, I am advised that young women are a soft target for collecting money because they own a motorcycle, they will always have money and they will never complain because it is pointless. It is referred to by the citizens as police collecting their lunch money. In the meantime road safety issues such as dangerous driving and non-wearing of helmets go unenforced. No supervisory controls, audits or investigations were known or advised during my engagements over six years in Viet Nam. My experience in internal investigations in Victoria Police and the ease at which I have observed these open transactions in Viet Nam leads to a finding that these policing behaviours are an accepted practice and that no supervisory controls are in place. These are corrupt practices without controls.\textsuperscript{387}

Police are only one component of the public sector in countries where corruption may be systemic. In these situations, all corrupt sections should be dealt with to solve the problem. An argument is presented in the road safety field that corruption is not necessarily bad for road safety because if the individual driver changes their behaviour because of the financial penalty then a road safety benefit has been achieved and it does not matter whether the money goes to an individual or the government.\textsuperscript{388} This argument lacks substance as there is

\textsuperscript{386} Journal notes Cambodia, June 2011 and Thailand, November 2006.
\textsuperscript{387} Journal notes Viet Nam, November 2011.
\textsuperscript{388} Journal notes: discussion with WHO representatives in Geneva, 21\textsuperscript{st} October 2006.
no evidence that the driver will change their behaviour, especially if they know they can ‘buy’ their way out if caught. Additionally, the argument ignores the proper process of law and data collection including the recording of offences, demerit points, prior convictions and licence sanctions.

Serious cases of corruption in Indonesia include the detaining of Inspector General Djoko Susilo, by the Corruption Eradication Commissioner (KPK) as a suspect in the vehicle simulator graft scandal.\textsuperscript{389} Susilo was the head of the national police academy and former head of the Indonesian National Traffic Police Corps and was accused of involvement in a procurement project worth around Rupiah 200 billion (USD $21.2 million). This is the first arrest of a police general in Indonesia and sends a strong message through the ranks that corruption will not be tolerated.

Corruption manifests in various forms. I have experienced the following:

- A round table discussion in India to legislate against second retreads on passenger bus tyres. A senior police traffic officer stated that the lead time for implementation should be five years “otherwise my (bus) company will go broke.”
- In discussion with a chief traffic officer in Viet Nam, I was asked if I knew the best way traffic cameras could be installed so that he as leader gained maximum financial benefit.
- Fees for the hire of a police training venue in Viet Nam were required to be paid into a private bank account. After 18 months the fees were not paid but the request was still being made without an alternative government account being provided.
- Each gold shop in Thailand has an on duty and armed police officer present with payment for services provided to the local commander.
- A road safety professional informed me at a meeting in Malaysia she had just been stopped for speeding and gave the intercepting officer 100 ringgits (USD $33) without a ticket or receipt, for him to pay her fine as she was late for a meeting.

Good practice in corruption avoidance is to ensure adherence to a code of ethics and professional standards as the basis to all operations. An element of the good practice

\textsuperscript{389} http://www.thejakartapost.com/news/2012/12/05/kpk-moves-confiscate-police-general-s-assets.html retrieved 3\textsuperscript{rd} February, 2013).
principles for traffic officers is to provide fair and consistent enforcement with the practical application of no bargaining, no favouritism and no exemptions. Workshops on barriers to effective enforcement that I have facilitated in China raise a similar ethical dilemma of power and influence as a major issue and frustration for law enforcement. This power manifests itself in financial, social, political, military and organizational status and often is accompanied by an expectation of exemption from interception and exemption from fines or processing including serious offences of excessive speed and drunk-driving. I have observed offenders detained at checkpoints who immediately contact a government or police superior with a resulting direction to the intercepting police to release the offender or be prepared for the ‘consequence’. To counteract these pressures, I have observed commanders in Dalian and Suzhou work with a policy of not taking mobile phones to checkpoints to avoid any contact from a superior so that due process can be applied to offenders at the time of interception.

Officers in China advise that on some occasions when process is taken or tickets are issued, the process may be later withdrawn without justification. Checkpoint commanders in other Chinese cities have followed the easier option to allow those with special government or military number-plates, prestige vehicles or with apparent influence to pass unimpeded to avoid the problems. Chinese commanders with whom I discussed financial corruption maintained that it was not a problem, but power and influence is a serious concern for effective enforcement. It was explained that power and social status is very important in China. As a VIP citizen, if you do not have power to influence the natural process of law or do not have contacts at the highest level in police or government, or if the person contacted does nothing, then this is viewed as weak and each person will lose face.\(^{390}\) Regardless of the reason for non-prosecution of offences, whether it is power, influence or financial payment, the rule of law is weakened and justice has not been effected.

I observed unorthodox exemptions in Viet Nam, Cambodia, Thailand and Lao PDR where military officers will ride without helmets on motorcycles, not wear seat belts in vehicles and exceed the speed limits with impunity. In Cambodia I was present at a national road checkpoint where the driver of a large transport vehicle owned by a military general refused

\(^{390}\) Journal notes: China, September 2011.
to supply a breath sample for alcohol analysis. The police refused to allow the driver and vehicle to move while telephone calls went back and forth for over half an hour before the driver was released without testing. As the Cambodian chief of traffic police does not have status over the military general an exemption was applied.\footnote{Journal notes: Cambodia, June 2011.} Similar situations were observed in other countries where the police in the UAE do not intercept any vehicles driven or owned by the ethnic Emirati, which is about 20% of the population. This is because of the lower social status of the lower ranking working police officers who are mostly recruited from Saudi Arabia or Oman.\footnote{Journal notes: UAE, May 2007.} Military and class exemption reduces the effectiveness of enforcement, is an abuse of power and is contrary to good practice.

As a result of these identified unorthodox exemptions, all GRSP and WHO police training programs in these countries now extend the messages of ‘anywhere/anytime’ to include ‘anybody’, with a recommendation that this statement – anywhere/anytime/anybody - is repeated often on television and radio road safety messages. Over time, changes to strengthen the integrity of enforcement have been observed. These changes may be triggered by tragic incidents such as the strengthening of police enforcement on speed in the UAE following the death of the son of a notable Emirati sheik killed in a 200 kph crash\footnote{Journal notes: UAE, May 2007.} or in China where a senior government official was sent to jail for drunk-driving causing multiple deaths.\footnote{Journal notes: China, September 2011.} In Xi’an China, I observed a checkpoint operation deliberately focused on prestige vehicles \footnote{Journal notes: China, September 2011.} and in Phnom Penh, Cambodia I observed military officers on civilian motorcycles who had their motorcycles impounded for not wearing helmets.\footnote{Journal notes: Cambodia, June 2011.}

Other positive changes I observed include the Malaysian traffic police officers who now wear an ethics badge as a visual sign of their high ethical standards and to discourage the accepting of bribes. Cambodian traffic police have instigated licence confiscation at the point of interception and with payments to be made at the provincial headquarters. While this reduces the potential for corruption, it is a time consuming process requiring an audit tracking of the fines and licence return. Codes of ethics and professional standards have
been introduced in Malaysia and China. Further, as identified in the literature, each of the
countries studied has either an integrity commission or an independent commission against
corruption. While this provides a foundation for corruption investigation, control and
eradication, my observations are that the impact of these organisations has not transformed
into action in the field for front-line traffic officers.

6.11 Strengths and limitations of participant observation

Participant observation was a powerful source of first-hand experience to provide practical
reinforcement of the themes identified through other approaches in my study. The six years
of experiential research while opportunistic provided a rare and invaluable contribution to
the methodology and enabled me to particularly address research question two and make
practical and reliable comparisons of law enforcement capability in the good practice
countries to that of the low to middle-income countries. This provided a different viewpoint
to the other approaches with the later integration of the perspectives strengthening the
research.

Limitations apply to this approach in that the observations of road user behaviours and the
experiences are difficult to replicate. This is due to factors including the extensive time of
this research; the varying vantage points; the developing phase of each country’s road safety
program; the privileged association with the traffic police and the changing nature of my
professional work over this period. To ensure robustness, only observations representative
of repetitive road user behaviours or routine traffic police activities were recorded.
Precautions were taken to ensure that no bias or ethical issues occurred.

The scope and scale of my participant observation – in my situation an extensive range of
countries and road policing environments over six years – had the potential to create similar
limitations to those outlined in qualitative research theories.397 This would normally be
time-consuming and a substantial expense as a research project, however, coincided with
my career engagements and was therefore entirely achievable due to a strong practice of
note-taking through my career. Other issues included determining which observations over
that period were significant to report and the value of the data interpretation based on my

397 David Downes, Understanding deviance, op. cit. Sociology Central, Research Methods, op. cit.
personal and extensive experience in road policing and road safety. Whilst time consuming, this has been a valuable process that has lent much depth to this research.

### 6.12 Summary of findings from the participant observation

Participant observation has provided a practical perspective on road user behaviour, road safety and traffic law enforcement in the low to middle-income countries. This has been achieved by a practitioner’s examination of the themes identified in the literature and as evident in the interview data. A critical feature has been to specifically address the research question to determine how well law enforcement policies and practices in low to middle-income countries align with those in good practice policing jurisdictions. Distinct gaps have been identified in all of the themes examined.

**Additionally, a key finding from the participant observation** is the significant difference in the role and responsibility of traffic officers in the high-income countries to those with responsibilities in the countries studied. Police activity in the countries studied is primarily focused on traffic management and traffic control with a range of extraneous duties such as VIP escorts, major public events, public order and security, registration and licensing, all of which consume 80% or more of available time and resources. This severely limits the availability of resources for road safety, community education and enforcement strategies. Criticism in the literature about the lack of traffic law enforcement fails to acknowledge many of these core and routine responsibilities that overshadow the capability of traffic police to provide effective law enforcement.

Findings aligned to the identified themes are:

**The quality and use of data:** The lack of reliable, accurate and current crash data provides limited opportunities for intelligence-led enforcement. The use of analysed data in good practice countries is a key differential. In the focus countries, there is substantial under-reporting of fatalities and injuries, misclassification of crash causes and system deficiencies including the lack of cross-checking of data with the health sector.
Community road safety education, awareness and engagement: The community understanding and acceptance of law enforcement is limited, exacerbated by the limited capacity of law enforcement to deliver this service.

Infrastructure support: Infrastructure support is deficient particularly as it applies to database access to licensing and registration particulars for field officers. Some impractical laws inhibit police enforcement activity.

Partnerships: Community partners are identified as integral to effective road safety although the extent and capability of these partnerships is limited.

The quality of police training: There is a lack of police training particularly operational skills and strategic leadership in traffic law enforcement.

Professionalism of police: Police corruption is a serious issue requiring the raising of professional standards, a code of ethics and anti-corruption strategies. Strategies to counteract the abuse of power need to be included in strategic planning.

The attitude of drivers: The behaviour of road users demonstrates a high level of disregard for pedestrian safety as well as limited road user discipline for high-risk behaviours such as speeding, dangerous driving and driving against red lights.

The perception of the risk of being intercepted and punished for traffic violations: Road user behaviour is responsive to police enforcement and is demonstrated with enforcement strategies to increase seat belt wearing and helmet-wearing.

Police use of technology: There is limited availability and use of technology in the focus countries. This exacerbates the problem of presenting evidence in court where the uncorroborated testimony of police officers is not accepted.

Operational capability: Police enforcement activity is substantially higher in the good practice countries coupled with a higher level of road user discipline in compliance with traffic laws and regulations. In the low to middle-income countries there is no demonstrated deterrence for moving vehicle violations due to the fact that police do not engage in mobile vehicle interceptions. Police do not have the capability to undertake these procedures
safely. Additionally, police enforcement practices at checkpoints need to be more proactive to counteract checkpoint evasions. Police enforcement capability is limited due to the lack of resources and the lack of strategic and operational training in road safety.

An over-arching finding was the confirmation of a serious gap in both knowledge and operational capability to enhance enforcement to a level of good practice. The remedial processes to address this deficiency are discussed in Chapter 7.
Synthesis and analysis of the research

7

This chapter synthesises the key findings from the research. It identifies prominent issues to assist capacity building in road policing and to ensure continuous improvement and sustainability in traffic law enforcement. The review of the key research themes draws together the theoretical and practical perspectives provided through the literature review, the interviews with the experts, analysis of the survey and the author’s participant observation in ten countries. The outcome is the policy ‘toolkit’ that accompanies this dissertation – the International Road Policing Assessment Program – developed as part of this research project to assist policing reforms in low to middle-income countries.

The research examined four core questions, namely:

- What is good practice in traffic law enforcement?
- How well do traffic law enforcement policies and practices in low and middle-income countries align with those in good practice countries?
- What aspects of traffic law enforcement are appropriate for benchmarking?
- How can good practice be translated into policy tools for improving road safety enforcement, particularly in low and middle-income countries?

These questions have directed the research enquiry as documented in detail in the preceding chapters and this chapter ties together the findings which have been informed by the research. Firstly, good practice in law enforcement is refined in the five gradable themes detailed in the key findings in section 7.2 and consolidated in Table 14. Secondly, the deficiencies in current practice in low to middle-income countries are detailed in section 7.1 and highlight the gap required to achieve good practice. Next, the attributes within the themes provide the basis for evaluating efficiency and effectiveness to a standard appropriate for benchmarking. Finally, the research has established that good practice can be translated into policy tools for improving road safety enforcement. The robust mixed method approach of the literature review, interview of the experts, the survey of police practitioners and participant observation has led to the clear identification of good practice, and of the aspects of law enforcement appropriate for benchmarking. The outcome is a manual for evaluation and improvement of road policing and law enforcement.
The research discussion substantiates the imperative for action in a global environment of escalating road trauma, and it establishes the rationale for traffic law enforcement to take a lead role in road safety reform. This is facilitated through benchmarking police performance on a ‘star-rating’ framework and a process of continuous improvement in good practice, to achieve a reduction in road trauma.

7.1 The failure of traffic policing in low to middle-income countries

Within the thematic groupings of this research, the following deficiencies in current practice of traffic law enforcement have been identified in the low to middle-income countries:

**The quality and use of data:** The literature identified a lack of reliable crash data and under-reporting as significant problems. The experts placed emphasis on the importance of timely, accurate and reliable data, including the identification of primary and contributory causes of crashes. The practitioners in the survey confirmed these points, and with 98% endorsement. The findings from the participant observation corroborate the other sources and point to substantial under-reporting as well as misclassification of crash causes and system deficiencies such as the lack of cross-checking of data with the health sector.

**Community road safety education, awareness and engagement:** The literature and the experts highlight the importance of combining education and enforcement where police are working at a higher level of engagement with the community to achieve results. The practitioners confirmed these points, and with 99.1% endorsement; the participant observation found that the problem of limited community understanding and acceptance of law enforcement is exacerbated by the lack of capacity of law enforcement to provide effective education on road trauma and its solutions.

**Infrastructure support:** The experts stressed that the infrastructure support must be holistic so that the laws are workable, the legal system is strong and driver licensing procedures are effective. The survey provided confirmation with 92.7% agreement on the need for police to have effective support systems; the field observations identified some impractical laws which inhibit police enforcement activity as well as deficiencies in database access by field operatives.
Partnerships: The experts pointed out that sharing information, collaboration, coordination and having common objectives are essential components for successful partnerships and these attributes are frequently lacking in the low to middle-income countries. The value of community partnerships was rated highly by the survey respondents and the participant observations although the latter described the extent and capability of these partnerships as limited.

The quality of police training: All research sources identify the value of training and its potential contribution to assisting police in road safety reform, specifically to meet operational requirements and to help enable effective operational guidelines in the field. The field observations specifically identified a lack of strategic leadership and operational skills while the practitioners provided recommendations to build capacity through the training of police officers in the use of modern technology.

Professionalism of police: The experts stressed that the traffic police profile nationally and internationally is not highly valued and, therefore, in-service and professional development training is essential. The survey responses acknowledged that corruption has an adverse impact on law enforcement and that there is a need for police to set an example in their community. The field observations identified police corruption as a serious issue requiring the raising of professional standards, a code of ethics and anti-corruption strategies. Measures to counteract the abuse of power also needed to be included in future planning.

The attitude of drivers: The literature review revealed a clear need for police to understand road user attitudes, especially the key factors influencing behaviours – notably fear of detection and punishment, rather than risk of injury or other road safety factors and appreciating that the traffic safety culture is an emergent risk factor which needs to be addressed in countermeasures. This was reinforced by the experts who described a lack of safety consciousness of drivers, poor driver attitudes and risk behaviours as major factors in road trauma. The participant observation found that the behaviour of road users demonstrates a lack of regard for pedestrian safety as well as limited road user discipline that leads to high-risk behaviours.
The perception of the risk of being intercepted and punished for traffic violations: The experts stressed that the perception of the risk of being caught and punished is as powerful a motivator as being caught, and a more powerful motivation for reducing speed than the fear of being involved in a crash. A critical issue in the literature is that enforcement has a major impact upon driver behaviours. These findings were endorsed by 89.4% of survey respondents with 84.5% acknowledging that drivers will continue to break the law if they feel justified and believe they will not be caught. The field observations corroborated these views that road user behaviour is responsive to police enforcement.

Police use of technology: The experts identified technology as a beneficial adjunct to enforcement although not the answer to the lack of enforcement. The survey respondents confirmed the need for technology, as a secondary priority to building capacity while the field observations found a lack of the availability and use of technology in the focus countries.

Operational capability: The experts describe selective enforcement in the low to middle-income countries as not having any structure in the execution of this responsibility. The field observations identify that police enforcement activity is substantially higher in the good practice countries coupled with a higher level of road user discipline in compliance with the traffic laws and regulations. In the low to middle-income countries, there is no demonstrated deterrence for moving vehicle violations by high-risk offenders due to the lack of officer training, policy restrictions and police not having the capability to undertake procedures safely. The capacity of police to provide effective enforcement is limited by the lack of resources and the lack of strategic and operational road safety training.

The need for systematic reform: The combined sources provide compelling evidence of deficiencies in current practice in traffic law enforcement in low to middle-income countries. The identified gap is the lack of specific guidance for road policing on how to improve their law enforcement capability to a position of sustainability, self-development and continuous improvement. This deficiency is as fundamental as where to start the process, how to improve enforcement practices and how to progress to a higher level of competence so as to significantly impact road trauma. The solution lies with a policy response to guide police enforcement and to assist in the transition from deficiencies to good practice.
My research has adopted the methodology to systematically identify these deficiencies within the select themes, and it has mapped ways of the challenges arising for each theme. The International Road Policing Assessment Program bridges the gaps by developing a good practice model that includes systematic examination of road policing activity to achieve clear measures for governance, accountability, evaluation and improvement. This framework for reform applies a logic in its methodology that is easy to understand and is transparent, accountable and measurable, with competency ratings to guide the development of police enforcement in low to middle-income countries.

7.2 Key findings for traffic policing policy

The section reviews the positive and practical contributions examined in the research that can be included in a policing policy framework. The insights in each of the thematic groupings display high levels of consistency although sourced from different perspectives. In the framework, the themes are further consolidated to provide a logical structure and to simplify the implementation of the activities the framework lays out. This can be seen in Table 14 which aligns and consolidates the themes from the four sources used in this research. This synthesis reveals five over-arching themes that can be further sub-divided into categories and attributes to be used as descriptors. Most importantly the categories are gradable, from common police practice through to good police practice, and the descriptors are readily understood, practical and identifiable in common police language. This forms the basis for the IRPAP manual and its measurable indications of achievement or goals for improvement.

The five gradable themes are:

1. Quality of data and analysis for evidence-based policing
2. The community relationship
3. Road policing support infrastructure
4. Professionalism of the traffic police
5. Operational capability

The data theme includes the identification of primary and contributory causes in crash investigation and the development of a contributory factor database as well as intermediate
performance indicators as precursor crash information. Importantly, the cross-validation of injury data through health services is not undertaken in all high-income country police databases. Additionally, as the enhancement and comprehensiveness of the data available from all contributing sources, provide the foundation to guide countermeasure development and evaluation, these standards should be an aspiration for all jurisdiction. As an example, IRPAP has addressed this level of achievement as at the high end of the scale.

The relationship with the community is a broad-based theme encompassing the previously identified themes of education and engagement, driver attitude, education and awareness and the development of partnerships. Active and harmonious cross-government partnerships are the exemplary and pivotal foundation for road safety reform. Supporting this infrastructure, the positive findings from the research are for police to engage the whole community to identify road safety problems and contribute to the development of solutions. This engagement can be integrated through the schools, the media and the local community. Partnerships are strongly aligned with community relationships and require police leadership, mutual trust, effective communications and linkages, sharing of information, collaboration, coordination and common objectives. Role definition for each partner, and with shared responsibilities and specific accountabilities are integral to success. IRPAP addresses the elements which comprise graded characteristics in the relationship with the community.

Infrastructure support is a substantive theme because the quality of the support for traffic law enforcement directly impacts upon the effectiveness and efficiency of enforcement outcomes even though police do not have control over these support systems. The theme is a necessary inclusion in the framework because police need to recognise deficiencies, document and monitor negative impacts and influence remedial action. The adoption of a holistic approach as documented in this research will assist. The experts advised the need for system controls for planning, collaboration, control and evaluation, and as an all-inclusive approach to intervention. This includes ensuring that the laws are in place and enforceable, the support systems of registration, licensing and judicial are established and effective, police training has been implemented, police equipment is provided and community awareness programs have been initiated.
Police professionalism as a theme is extended to encompass the quality of training and resources as well as the inclusion of anti-corruption strategies, professional ethics, raising the status of police and enhancing the police voice and police profile in road safety forums. The clear advice from the research is to ensure that a training needs analysis applies to all operational services. This includes the development of operational guidelines in the field (Standard Operational Procedures) and the application of performance indicators and intermediate performance indicators for field operations. These issues are included as elements upon which an IRPAP rating can be determined.

Operational capability as a theme is enhanced through increasing enforcement activity and importantly, providing active and visible enforcement, improved and consistent training, better use of equipment and using technology to maximum effect. Sustainable programs require targeted operations, performance indicators and intermediate performance indicators. A strategic focus must be applied to enhance the community perception of enforcement and develop a safety consciousness among drivers, brought about through education and awareness of the dangers of high-risk driving behaviours.

The attributes within these five themes are gradable into assessable elements within IRPAP and are discussed in the following section.
<table>
<thead>
<tr>
<th>Summary of critical themes#</th>
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<tbody>
<tr>
<td><strong>Literature Review</strong></td>
</tr>
<tr>
<td>Accurate road safety data Evidence-based enforcement</td>
</tr>
<tr>
<td>Education and enforcement</td>
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<tr>
<td>Partnerships in the broadest sense</td>
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<tr>
<td>Driver attitude and behaviours</td>
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<td>Infrastructure support</td>
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<td>Training</td>
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<tr>
<td>Corruption has a serious negative impact on policing</td>
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<tr>
<td>Good Practice</td>
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<tr>
<td>High Visibility General deterrence</td>
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<tr>
<td>Driver perception of being caught</td>
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<tr>
<td>Police use of technology</td>
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<tr>
<td>Operational capability</td>
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<td>Role of police</td>
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# Emphasis of the themes from the research sources and consolidation into five major themes for IRPAP

Table 14. Collation matrix of the critical themes
7.3 Strengths and limitations of the research

The research has progressed through a rigorous methodology to explore opportunities to improve road safety by building capacity and benchmarking law enforcement. The multiple data sources of statistics, trends, expert opinion and observations have provided a deeper understanding of enforcement practices and the challenges experienced in low to middle-income countries. Interviews with road safety experts provided independent and external perspectives and the survey of senior police practitioners resulted in invaluable confirmation of these perspectives while adding to the real world application and challenges. My participant observation was a rare opportunity to examine the practicality of law enforcement in these countries and provide a qualified comparison with good practice countries. The integration of these sources is reflected in the strength of the outcome.

Limitations to the study included the complexity of dealing with the views of the experts through content analysis and the related coding framework as well as acknowledging the need to refer quotations for verification. A reflection on the survey of practitioners included a recognition that the positive framing of the questions may encourage a biased response. While some response comparisons between jurisdictions were possible, a higher level of data analysis may have achieved better inter-jurisdictional comparisons. Some invalid responses were provided when priorities were requested which may have been the result of the framing of the question. The survey was pre-tested with Australian officers with previous experience in low to middle-income countries however, pre-testing with native officers in a representative country where a translation was required is more desirable. This aspect was appreciated during the course of the study and pre-testing in Cambodia of sample components within the IRPAP model was undertaken. The limitations of participant observation are the difficulty to replicate observations because of changing vantage points of locations and periods, the close and privileged association with the traffic police and the changing nature of my professional work over this period.

Notwithstanding the acknowledged limitations, this integrated approach was a powerful methodology to challenge and verify the critical issues adding rigour to the findings and defining the ultimate direction to develop the IRPAP model.
7.4 A policy response – International Road Policing Assessment Program

7.4.1 Evaluating police enforcement

There is currently no audit, benchmark or road safety index for traffic police in either high income or low to middle-income countries. The five major themes, emerging from this extensive research, comprise the evidence base for the development of a star-rated benchmarking model for an international road policing assessment program.

The application of benchmarking to traffic law enforcement allows the establishment of comparative standards for continuous improvement in efficiency, effectiveness and safety and may typically measure quality, time and cost. This can then be used to determine what and where improvements can be made, to assess how other police organisations achieve better performance levels and to use the information to improve their own organisational performance. The foundation for assistance is to clarify how to begin performance improvement strategies and how to focus on achieving results.

Evaluation of effectiveness and efficiency of road policing allows clear measurement of both performance and improvement. This benchmarking tool provides a basis for evaluating and improving traffic policing. Specifically, it facilitates development of a performance index to ensure continuous improvement by first undertaking analysis of the ‘gap’ between the organisation and good practice, and completing a score card or report card audit of the organisation’s measured status. It facilitates comparison of the same services across different organisations, or different services within the same organisation, and it provides the foundation for basic auditing checklists, and may be used in seeking increased funding.

Another significant benefit is in encouraging practitioners to accept ownership of their circumstances and embrace ongoing monitoring and evaluation as a foundation for capacity building and organisational self-development. The development of skills within their own police services and particularly to build alliances with government and non-government agencies and research groups is an important intangible outcome of capacity building.

All these functions are components of improving traffic policing and safety and, therefore, this manual makes a significant contribution to the improvement of traffic policing in low
and middle-income countries, which in turn can contribute directly to saving lives and reducing crash trauma.

Each road safety jurisdiction must have a thorough understanding of the true cause and effect of road trauma. Therefore, the manual incorporates collision data, causation factors, trend-analysis and benchmarking performance. It allows police organisations to measure success and clearly identify next steps to achievable and sustainable improvement based on the evidence provided in this research. Other important data requirements include speed analysis surveys and public attitude surveys, to identify the propensity of drivers to commit offences or ignore traffic laws. Of significance here is the relevance of those transgressions to road trauma and the need to determine a cause for, and effect of every road crash.

There is a substantial drain on police resources in the performance of extraneous duties that would not be considered as core responsibilities in a good practice jurisdiction. Each police organisation needs to critically examine if it needs to perform these functions as it extends the primary responsibilities in enforcement and road safety. The steps in this reform process are to refine the core responsibilities, divest extraneous duties, understand the current capability in traffic law enforcement and then transition to self-development and continuous improvement. This is a strong recommendation from this thesis, and is facilitated by the step-by-step guidance available through the assessment tool.

7.4.2 A policy tool – the International Road Policing Assessment Program

Accompanying this dissertation is a fully developed manual that provides road safety and traffic law enforcement practitioners with a ‘toolkit’ for jurisdictional self-assessment and pathways to organisational self-improvement. Entitled the ‘International Road Policing Assessment Program’ (IRPAP) the manual directly responds to this research and is developed as a user guide to benchmark enforcement activities and capability. It provides a jurisdiction with the ability to assess its current enforcement capability and use the pathways available to move to the next level of competence. Star-ratings are used as an effective means of comparative analysis for longitudinal assessment as well as affording jurisdictions the capability to compare and contrast neighbouring districts, provinces and regions. The
assessment may be undertaken internally by the jurisdiction as a self-assessment or externally by a research body or reviewer.

The manual provides stakeholders with the ability to:

- Undertake a review of current enforcement standards and capability
- Undertake the gap analysis needed to take their road policing to the next or higher level of competence
- Provide documented, structured and strategic advice for policy makers
- Guide future enforcement strategies within the jurisdiction
- Enhance the professionalism of road policing and traffic law enforcement.

The framework will assist government bodies, police and road safety authorities analyse and determine their own future policing strategies in law enforcement, training requirements and community education programs for sustainable road trauma reduction. The development of the manual was founded on the findings of my research enquiry.

This research demonstrates that the simple ‘star-rating’ classification used in iRAP and NCAP is a worthwhile model for traffic law enforcement to emulate. The development of star-ratings for police enforcement – like those for cars and roads – has the potential to help advance road safety reform globally through a framework with universal application. Within IRPAP each theme is sub-divided into categories and each category is identified by quality attributes determined through a refinement of this research in developing IRPAP including the observed status of policing activities and driver behaviours in low to middle-income countries. Ratings are sequentially scaled from poor to international good practice. The defined elements are banded into star-rating categories with upgrade pathways to higher ratings. IRPAP addresses the research findings and as a practical model to guide road policing and traffic law enforcement, it directly responds to the identified needs of low to middle-income countries.

### 7.5 Future research, actions and development priorities – next steps

The thesis has identified gaps in road safety research with particular application to provide practical solutions to strengthen traffic law enforcement and road policing. The police voice
as described in section 4.6 is lacking influence in road policing research and currently offers limited contribution to assist low to middle-income countries achieve good practice. Infinite research opportunities exist for police scholars and practitioners to provide their perspective in the exploration of these fields.

The development of the IRPAP model has been a fundamental step in filling the gap in the international road policing contribution to road safety reform. Integrated with the road safety benchmarking initiatives of iRAP and NCAP, the concept of having drivers in five-star cars on five-star roads being monitored by five-star road policing is an appealing proposition as an international objective. The development of five-star policing will foster and encourage the concept of five-star drivers and support the decade of action towards reducing road trauma by 50% by the year 2020.

The next step is the international promotion of the IRPAP model as a self-assessment policy tool and major initiative to stimulate and inspire capacity building for road policing in the low to middle-income countries. The relationships developed in the World Health Organisation, the Global Road Safety Partnership, the Asian Development Bank, the World Bank, the International Road Assessment Program, the New Car Assessment Program, the experts interviewed and other contacts internationally provide a potent source for promoting the concept. The common objectives to improve road safety, enhance road policing and reduce road trauma are a motivating stimulus to achieve practical support.

A limitation in promoting the IRPAP may be external resistance, particularly of socialist governments not wishing their police organisations to be seen internationally as being rated poorly. These sensitivities may be overcome by an approach to central government, using the above support agencies to promote the program as a ‘blueprint’ for professional development and especially if the initiative can achieve opportunities for financial and consultancy support for building capacity in the traffic police.

A comprehensive implementation strategy will require broad scoping including the assessment of promotional opportunities, detail planning, the development of time-frames and milestones, constant monitoring, project scheduling and the development of evaluation criteria to refine the IRPAP model in its practical application. A pilot project is
recommended, preferably in a small country or jurisdiction such as Myanmar which is being newly supported by the World Bank in its road safety endeavours. The critical issues in the pilot program will be the classification of the initial star-rating and more importantly, identifying, organizing and financing the capacity building framework for improvements as advised in the IRPAP manual.

A further support function is the development of an IRPAP website, accessible for police and road safety professionals so the self-assessment program can be downloaded electronically and the results uploaded for international comparative analysis. Coaching advice would be an essential criteria to support the assessment, assist in validation of the outcomes and encourage the road policing reform process. This function will streamline the process through electronic data capture and the dissemination of case studies enabling avenues of continuous improvement to occur. Encouragement awards with sponsorship support for pipe-line projects are other opportunities worthy of exploring. The concept of continuous improvement may be perpetuated through evaluation and further refinement by research bodies ideally in collaboration with serving or former traffic police officers and road safety professionals.

7.6 Conclusion

This research program was commenced on the basis that documenting the distinctive styles of, and challenges facing traffic policing in low to medium income countries, and providing an effective manual was imperative for any major improvement to the capability of road policing and traffic enforcement internationally, especially in the low to middle-income countries.

This research by project has drawn together a concept similar to that developed in the road assessment and vehicle classification ratings (ANCAP/iRAP). It has classified and benchmarked road policing and traffic law enforcement to identify index ratings of good practice. These are presented in the companion IRPAP manual, designed for use in improving policing and enforcement. It is highly relevant to policing in low to middle-income countries, and has a particular focus on those aspects or programs that can provide sustainable results. This serves as a ‘toolkit’ for traffic law enforcement and road safety professionals in that it can be used to evaluate discrete areas or whole-of-country
performance, and it clearly sets out the steps required to work towards good practice in this field.

The research established that funding, resourcing and efficient resource systems underpin police enforcement, and confirmed that traffic law enforcement is very important in reducing road crashes. Enforcement is a key contributor to driver behavioural change, and more so that the approach of education, though the combination of both is considered the most appropriate strategy. To be effective, police need to understand the reasons drivers commit offences so that remedial action can be instigated. The research has highlighted distinctive shortcomings in the standards of governance and accountability for the police role, and a lack of ability to undertake any systematic examination of road policing activities. These findings point to the important contribution that international road policing and traffic law enforcement benchmarking for low to middle-income countries could make.

The research has examined the international focus on road trauma and the progress of remediation and counter-measures, and with the aim of to develop practical solutions for law enforcement, as well as documenting the problem. This examination has included the role of enforcement and how remedial interventions can be structured to build capacity in low to middle-income countries and especially to achieve sustainable outcomes for road safety. The concepts outlined in Vision Zero and the Safe Systems approach provide acceptable foundation models that can be embraced to ensure that the companion law enforcement model is effective in its approach and systematic in its application. The research has taken these influences into consideration.

The complexities of the global road safety environment have been thoroughly examined, including such issues as the lack of political will within low to middle-income countries, government prioritisation of perceived economic or health emergencies, lack of finance allocated to road safety, inadequate training of traffic police, inadequate equipment and the low levels of driver respect for traffic law and road safety. The sensitivities of corruption and the unorthodox exemptions for politically influential offenders were identified as another dimension of road policing.
This research has effectively answered the important research questions of what constitutes good practice in law enforcement, the differential between good practice and what occurs in low to middle-income countries, what aspects of enforcement are appropriate for benchmarking and then clearly identified that good practice can be translated into policy tools for road safety improvement.

The outcome from this research is an International Road Policing Assessment Program documented as a star-rating good practice, benchmarking assessment model, and that accompanies this dissertation. The interconnection of the academic discipline of learning and practical observations has, therefore, translated into a usable road policing and traffic law enforcement document. This dynamic document is an observable and durable record processed through a systematic methodology of academic rigour to provide a framework for international good practice in traffic law enforcement. The self-assessment index provides a measure for road policing standards through efficiency and effectiveness ratings. On completion of the assessment, graduated pathways are provided to enable continuous improvement and assist the road safety strategic direction as a practical and informed basis for policy makers and enforcement strategists. This innovative approach provides an original and substantial contribution to the recorded professional knowledge in this field and a concrete step towards building the capacity of traffic law enforcement in the low to middle-income countries.
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Appendices

Appendix A - Background of the road safety experts

**Director General Professor Datuk Dr Radin Umar Radin Sohadi (Malaysia),**

Professor Radin was appointed as Vice-Chancellor of University Putra Malaysia, January 1 2011 until December 31 2013. Over the past 24 years, he has had extensive experience in the academic field including a PhD in Road Traffic Engineering from Birmingham (1996). He was the Dean of Faculty, Engineering (1999-2004) and Road Safety Engineering, University of Putra, Malaysia. Prof Radin has headed 14 research projects, has over 100 journal publications of high impact and received 22 awards and recognitions, both locally and overseas. He was the Director General of the Malaysian Institute of Road Safety Research (Miros) and received the Prince Michael International Road Safety Award from the UK in 2005 for his contribution to the advancement of road safety.

**Professor Claes Tingvall, Dr Med Sc. (Sweden)**

Professor Tingvall is the Director of Traffic Safety at the Swedish Road Administration and Chairman of European New Car Assessment Programme (EuroNCAP). He is a statistician with a PhD from Karoliske Institute in injury epidemiology. Claus Tingvall was the Head of Traffic Safety Research at Folksam Insurance Group until 1994, when he was appointed as Director of Traffic Safety at the Swedish National Road Administration. Previously, he was a professor and director at Monash University Accident Research Centre in Victoria, Australia (from 1998-2001). Professor Tingvall has authored some 100 scientific articles in journals and books, mainly in injury epidemiology and car occupant protection/car safety rating, and safety policy. He was involved in road safety while employed at the Folksam traffic Safety Research, the Swedish Traffic Safety Office, the Monash University Accident Research Centre and the Swedish National Road Administration. He was the instigator of Vision Zero, a new principle for road safety and planning adopted by the Swedish Parliament.
Dr Rohit Baluja (India)

Dr Baluja is President of the Institute for Road Traffic Education (IRTE) in India. He is renowned for his training of drivers, engineers, traffic police and those who use the Indian roads to develop a positive road culture. His institute leads the way in reform education and innovation in all areas related to road use. Its members include police, doctors, engineers and journalists. This non-profit organisation was the first recipient of the National Award for Road Safety by the Government of India. IRTE undertakes accident investigation and promotes road safety education in schools as well as organising an annual road safety film festival, annual road safety awards and advocates for road safety to be a higher government priority in India.

Dr Junhua Zhang (China)

Dr Junhua Zhang is the Chair of the Steering Committee for the Asia-Pacific Action Alliance on Human Resources for Health, a 16 country alliance to strengthen regional and country planning, knowledge and technical coordination of health systems. He has extensive experience in road safety and health especially on the risk factors in helmet use and non-use amongst motorcyclists. He was a recipient of an International Postgraduate Research Scholarship (IPRS) from the Australian Government Department of Education, Science and Training and an International Postgraduate Award (IPA) from the University of Sydney.

Dr Charles Mercier-Guyon, MD (France)

Dr Charles Mercier-Guyon is the Secretary of the Medical Council of the French Road Safety Association. He is a forensic practitioner and works in emergency medicine at the Hospital of Annecy, France. In the working group, Charles serves as an expert on alcohol and Drugs in Traffic Safety for the European Union Directorate-General of Energy and Transports. In 2004, he was responsible for France’s alcoclock program for drink drivers and its national implementation. He is renowned for his presentation at the 14th International Conference on Alcohol, Drugs and Traffic Safety, Annecy, France September 1997. He has worked in many African countries and conducted many road safety training programs in France and overseas.

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Dr Tsegazeab Kebede Kassaye, MD (Ethiopia)

Dr Kebede is a Consultant Surgeon in Medical Emergency Services and is currently Chief of the Medical Program for MONUSCO, the United Nations Organisation Stabilisation Mission in Entebbe, Uganda. From January 2003 to March 2005 Dr Kebede led a team of experts in injury surveillance and assessment of the emergency room setting in six Addis Ababa hospitals, providing minimum standards for equipment, data entry and training. He was involved in the road safety program training of 460 traffic police on traffic safety awareness, traffic injury awareness, data entry, analysis and reporting and methods to prevent road traffic related injuries. He developed guidelines for data entry and analysis, road traffic monitoring and training in Ethiopia. Dr Kebede advised the WHO Violence and Injury Prevention program coordinator and the Ministry of Health on the minimum setting required to establish standard emergency room procedures. He participated in the WHO workshop for preparing “guidelines for essential trauma care”, The Benchmarking World Road Safety Conference in New Delhi, India, The World Road Safety Experts’ meeting, Apeldoorn, Netherlands, 2004 and organised World Road Safety Day with stakeholders in 2004.

Mr Eric Howard, International Road Safety Consultant (Australia)

Mr Eric Howard is a strategic road safety advisor and former General Manager, Road Safety for VicRoads (Australia). He holds a Bachelor of Engineering and Company Directors Diploma. He has undertaken reviews of road safety management capacity in Bosnia, Herzegovina, Serbia, Bangladesh, Argentina, Indonesia, Montenegro, Armenia, the Ukraine and Western Australia. Eric has undertaken a Traffic Enforcement Study in Botswana, an evaluation of road safety activities in Dong Nai Viet Nam and in Cambodia and developed road safety action plans for Kerala, India. He has developed the Safe Systems Strategies for Federal and State Governments of Australia, delivered Safe Systems courses in New Zealand and the UAE, and speed management courses in Suzhou, China. Literature reviews have been undertaken for PIARC, World Road Association on international road safety policies and strategies and the iRAP risk assessment model for the UK. He was chair of the working group for the development of the OECD/ITF Report – “Towards Zero: Ambitious targets and the Safe Systems Approach”, 2008.
Mr Robert Klein, Global Development Director of the Global Helmet Vaccine Initiative.

Mr Robert Klein has extensive experience in leading APEC, World Bank and ADB projects. Prior to the position of Global Development Director of the Global Helmet Vaccine Initiative, he held senior road safety positions with Australian government agencies such as VicRoads and the Australian Road Research Board and more recently as the Asian Regional Director of the Global Road Safety Partnership. In this position he led a team to build the road safety capability of the ten ASEAN countries plus China. He has overseen the development and implementation of professional development enforcement and public education programs to support the implementation of the Good Practice Guides. He conceptualised the mechanism for building the road safety capacity in the region. His extensive management experience in road safety over twenty years in Australia encompassed policy and strategy, product and program design and development, program monitoring and performance management. Robert’s focus has been on the practical implementation of programs using an holistic approach to traffic management, data, education, engineering and enforcement. Practical programs have been implemented under his leadership in China, Thailand, India and Eritrea.

Mr Peter Elsenaar, Director SWOV, Netherlands

Mr Peter Elsenaar is a transportation safety professional who has provided keynote presentations in many international forums. He is the senior advisor to the Global Road Safety Partnership and Chairman of the Dutch Road Victims Association. He has forty years of experience in road safety in the Dutch Department of Transport, Netherlands. His previous roles include Director of Road Safety, Netherlands, Chairman of the PIARC, World Road Association Technical Committee, GRSP advisor in South Africa, member of the Durban Committee of Road Safety, Director of Special Projects, Ministry of Transport, Netherlands, Vice-Chairman of the OECD Steering committee, Board member European Society of Transport Institutes, Director of the Traffic Safety and Vehicle Directorate, Ministry of Transport, and Director of the Transport Research Institute in Rotterdam.

Dr Margaret Peden, BSc (Nurs), BScMed (Epi)), PhD. Co-ordinator, Department of Injury and Violence Prevention, World Health Organisation, Geneva.

Dr Peden was educated at the Universities of Cape Town and Stellenbosch in South Africa, her native country. She holds degrees in nursing and epidemiology and obtained her PhD in
1997. She was a senior scientist at the Medical Research Council in Cape Town for seven years where she was involved with the development of a mortuary injury surveillance system and the redesign of the police accident form work. This assisted in the transformation of information systems for a number of the SA provinces. She has extensive experience in road safety, child and alcohol-related injuries in countries including Ethiopia, Mozambique and China. Since 2000, she has been the Coordinator of the Unintentional Injury Prevention Team with the Department of Violence and Injury Prevention and Disability for the World Health Organisation. Dr Peden was the executive editor of both the World Report on Road Traffic Injury Prevention (2004) and the World Report on Child Injury Prevention (2008). She is the global coordinator of the Road Safety in 10 Countries (RS10), project funded by Bloomberg Philanthropies.
Appendix B - Sample letter of introduction to the road safety experts

Professor Radin UMAR, PhD, P.Eng.
Director
Road Safety Research Centre,
Faculty of Engineering
Universiti Putra Malaysia
43400 UPM Serdang, Selangor Darul Ehsan,
Malaysia.

Dear Professor Radin,

I am undertaking a Doctor of Philosophy, Research by Project at the School of International and Community Studies, RMIT University, Melbourne Australia. The title of my research is “Benchmarking international road safety training and enforcement for developing countries”. My supervisors are Adjunct Professor John Van Groningen john.vangroningen@rmit.edu.au and Associate Professor Julian Bondy bondy@rmit.edu.au

The aim of my study is to research international best practice in road safety traffic law enforcement and provide an evidence-based framework for the most productive and cost-effective countermeasures to enhance enforcement and reduce road trauma. One of the objectives is to provide a manual against which developing countries can measure, rate and enhance the standard of their enforcement practices.

I intend to interview ten people - experts with international credibility in road trauma reduction - to assess their views on the benchmarking criteria and the practical application of such a concept. I have chosen to approach you because of your knowledge and experience in this field and I seek your views on this subject.

I would appreciate the opportunity to conduct an interview with you and anticipate that this would take approximately one hour. Any information that you are able to provide would be a valuable contribution to my research and would further the interests of international road safety.
My research has three phases:

1. Personal interview of ten participants with international expertise to identify best-practice concepts, models or experiences in road safety. (Some of the material gathered from your knowledge and experience together with that of the other international participants will be used to formulate a questionnaire referenced in phase 2).
2. The development of a questionnaire to be circulated to thirty international traffic police and road safety practitioners for comment
3. The development of a benchmarking model to be reviewed and assessed by a Board of Reference.

I would consider it a privilege to have your contribution in phase one of my studies. Of course, your participation is voluntary and may be withdrawn at any stage. Privacy issues put forward by you will be respected. If you are willing to participate and in order for me to proceed before the RMIT University Ethics Committee, I would appreciate a short note of acceptance on your official letterhead indicating there are no foreseen ethical issues from your perspective. Following this, I will contact you to arrange a convenient time to conduct the interview during my international travels.

Thank you in anticipation.

Yours sincerely

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Appendix C - Interview guide for the experts

“Benchmarking international road safety training and enforcement for developing countries”

One paragraph summary of research

Developing countries, by their very nature, present huge challenges to enforcement agencies. These challenges include widespread social, economic and political instability coupled with archaic traffic laws, limited traffic enforcement, poor enforcement, equipment and training, poor quality driver training and licence testing as well as rudimentary data bases for registration, licensing and collision recording. The aim of this study is to research international best practice in road safety law enforcement and provide an evidence-based framework for the most productive and cost-effective countermeasures to enhance enforcement and reduce road trauma in these countries.

During the interview and discussion I propose to explore your views and expertise in road safety in the following context. Your views will be most beneficial because of your experience outside of the law enforcement field.

By way of introduction, I would seek to understand your general experience in road safety with particular focus on the international environment.

1. In your experience, how would you define best or good practice in traffic law enforcement?
2. From your perspective in low to middle income earning countries are there good practice trends or initiatives emerging?
3. Which aspects of traffic law enforcement would you consider to be suitable for benchmarking across different countries or different jurisdictions?
4. What effect do you consider that agency partnerships have in the outcomes of Road Safety?
5. In your experience, how do driver attitudes affect Road Safety?
6. Have you found that there are any generic enforcement solutions to road trauma which can be applied across all jurisdictions?
7. To what degree do you believe that road traffic enforcement initiatives can be sustained?
8. How do you see enforcement as being complementary to engineering and education solutions in the reduction of road trauma?
9. In your opinion, does the level of perceived enforcement impact upon driver behaviour and therefore road safety?

Ray Shuey
PhD Research Study
(Doctor of Philosophy – Research by Project)
School of International and Community Studies.
Appendix D - Questionnaire to the practitioners

Name: ____________________________ Position or Title: ____________________________
Country: __________________________ Police Jurisdiction: __________________________
Date: ____________________________

Preamble:
I am undertaking a Doctor of Philosophy, Research by Project at the School of Global Studies,
Social Science and Planning, RMIT University, Melbourne Australia. The title of my research is
“Benchmarking international road safety training and enforcement for developing countries.”

The aim of my study is to research international best practice in road safety traffic law
enforcement and provide an evidence-based framework for the most productive and cost-

effective measures to enhance enforcement and reduce road trauma. One of the objectives is
to provide a manual against which developing countries can measure, rate and enhance the
standard of their law enforcement practices.

Through the following questionnaire, I am seeking the views of senior and experienced traffic
enforcement officers to assist in this process. Your views are therefore very important to the
study and intended purpose of the manual.

Q.1 How many years’ experience do you have in Traffic Law Enforcement?
   ☐ 0-5 years ☐ 5-10 years ☐ 10-15 years ☐ 15-20 years ☐ Longer

Q.2. Does your country have a National Road Safety Strategic Plan?
   ☐ Yes ☐ No

Q.3. If yes, what is the time frame of your Strategic Plan?
   ☐ One year ☐ Three years ☐ Five years ☐ Other – Period _____ years
Q.4. Does your police organization have a separate “Road Policing” or “Traffic Law Enforcement” Strategic Plan?

Yes  No  

Theme: Data availability, data use, accuracy, timeliness, trends and analysis to determine the primary cause of crashes. Record your views on the following statements.

Q.5. Crash data is important in determining your road policing strategic direction or long term planning.

☐ Strongly Agree  ☐ Agree  Undecided  ☐ Disagree  ☐ Strongly Disagree

Q.6. Crash data which has been analysed for trends and crash causes and which really assists your law enforcement decision-making is important for deploying resources or determining strategies?

☐ Strongly Agree  ☐ Agree  Undecided  ☐ Disagree  ☐ Strongly Disagree

Theme: Educating the Community in Road Safety. Record your view

Q.7. Traffic law enforcement strategies and road safety education programs should be directly linked

☐ Strongly Agree  ☐ Agree  Undecided  ☐ Disagree  ☐ Strongly Disagree

Q.8 Road safety education and driver/rider awareness of safety on our roads is the responsibility of organisations other than traffic police

☐ Strongly Agree  ☐ Agree  Undecided  ☐ Disagree  ☐ Strongly Disagree
Q.9. What are the best ways for traffic police to be involved in educating the community?

1. 

2. 

3. 

Theme: Infrastructure Support for Traffic Law Enforcement. Record your views.

Q.10. It is important to have an accurate and accessible* data base for driver/rider licensing and vehicle registration particulars.

*Accessible by operational traffic police.

Q.11. It is important to have effective laws, fines collection and judicial processing systems for traffic law enforcement.

Q.12. What do you feel are the best ways to build the capability of traffic law enforcement within your country?

1. 

2. 

3. 

Q.13. Corruption or corrupt practices by traffic police officers will adversely affect traffic law enforcement and road safety
Theme: Community perception of traffic law enforcement. Record your views

Q.14. Rate which of the following can best achieve driver/rider compliance with traffic laws and road safety. Rate 1 through to 5 with 1 being the most successful.

- Having good campaigns to educate the drivers on road safety
- Strict enforcement of the law
- Having traffic police visible but without strong enforcement
- A combination of good education and highly active police enforcement
- Good driver/rider training before qualifying for a licence

Q.15. Driver/rider perceptions on the level of police enforcement and whether there is a likelihood of being caught is relevant to how well they comply with the law

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Q.16. Enforcement of the traffic laws does not achieve any real benefits in improving road safety

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Q.17. If they feel justified, drivers/riders will continue to break the law on the chance that they will not be caught by traffic police.

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree

Q.18. Good law enforcement operations and effective campaigns can have a direct influence on driver/rider behavior in the future

- Strongly Agree
- Agree
- Undecided
- Disagree
- Strongly Disagree
Q.19. It is important for General Police Officers as well as Traffic Enforcement Officers to set a good road safety example e.g. Obeying the laws – not speeding, wearing helmets and seat belts

☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree

Theme: Community Partnerships. Record your view

Q20. It is essential for police to actively work with the community on road safety

☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree

Q.21. What are the best community partnerships that should be created or developed so that better road safety results can be achieved?

1. ____________________________________________

2. ____________________________________________

3. ____________________________________________

Theme: Training and Resources. Record your view

Q. 22. Does the level of training for traffic patrol and enforcement officers have a direct relationship on the effectiveness of your overall road policing capability?

☐ Strongly Agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly Disagree

Q.23. There is a direct association with the amount of officers and equipment dedicated to road safety and the results that can be achieved
Q24. What three key factors would help you improve the efficiency of your traffic law enforcement?

1. ____________________________________________________________
2. ____________________________________________________________
3. ____________________________________________________________

Q25. Rate the importance of the following to assist you to be more effective in your traffic enforcement responsibilities. Rate 1 through to 5 with 1 being the most important.

Having good road safety agency and community based partners to help achieve your objectives

Traffic Police Officers being effectively trained

Having a documented and practical road policing strategic plan

Being able to use accurate and timely crash information data

Knowledge of driver/rider attitudes and why they drive/ride in an unsafe manner

Thank you for taking the time to assist in this very important survey. The results will be collated and used to increase the effectiveness of road policing traffic law enforcement in your country.
Appendix E - Survey results

This appendix provides detail of the survey results of the questionnaire provided to senior practitioners. The results from the survey are discussed in Chapter 5. Information within this appendix provides valuable material on the views of experts as well as information that contributes directly to the content of the International Police Assessment Program and the star-rated manual accompanying this thesis.

Theme: Data availability, data use, accuracy, timeliness, trends and analysis to determine the primary cause of crashes.

Question 5 sought an opinion on the importance of crash data to determine the road policing strategy and planning. The results in Table 15 show that this statement was agreed or strongly agreed with by 98% of respondents. A result with such high level of acceptance was expected and strongly supports the research from the literature and the advice of the experts.

<table>
<thead>
<tr>
<th>Q. 5. Crash data is important in determining your road policing strategic direction or long term planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents n= 216</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>152</td>
</tr>
<tr>
<td>% Respondents</td>
</tr>
<tr>
<td><strong>97.8%</strong></td>
</tr>
</tbody>
</table>

Table 15. The importance of crash data

Table 16 reports the findings to question six on the importance of analysed crash data where 93.1% of the responses strongly agreed or agreed with this statement. These responses are as anticipated and reinforced the research from the literature and the advice from the experts. The undecided, disagree or no answer are considered to be insignificant to the outcome of the research. The reason for the 11 no answers is not able to be determined.

<table>
<thead>
<tr>
<th>Q. 6. Crash data which has been analysed for trends and crash causes and which really assists your law enforcement decision making is important for deploying resources or determining strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents n = 216</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>142</td>
</tr>
<tr>
<td>% Respondents</td>
</tr>
<tr>
<td><strong>93.1%</strong></td>
</tr>
</tbody>
</table>

Table 16. Analysed crash data
**Theme: Educating the community in road safety**

Community education, driver awareness and driver attitudes are identified in the literature review as integral to road safety. The findings from the studies highlight the necessity to directly link education and enforcement for maximum road safety success. Similarly, the experts advised on the imperative for education and awareness to be provided to the community. According to expert views, the entire community needs to be working towards a common road safety goal with everyone taking responsibility for safer behaviours. Education and awareness are, therefore, fundamental.

Table 17 records the responses on the direct linkage of traffic enforcement strategies and road safety education programs. Of the respondents 99.2% strongly agreed or agreed with this statement. The acceptance of this statement to such a high level is to be expected and directly confirmed the research from the literature, comments from the experts and information sourced through participant observation.

<table>
<thead>
<tr>
<th>Q. 7. Traffic law enforcement strategies and road safety education programs should be directly linked.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly</td>
</tr>
<tr>
<td>Respondents N = 216</td>
</tr>
<tr>
<td>146</td>
</tr>
<tr>
<td>% Respondents 68% 31.2% .5% .5%</td>
</tr>
</tbody>
</table>

99.2%

**Theme: Infrastructure support for traffic law enforcement**

Good practice for operational policing in the advanced nations includes real-time access to driver and registration particulars for identity validation as well as check of criminal and traffic offence histories. Good practice in judicial support systems is: operating with effective and practical laws; offender processing through the judicial system; fines collection; and legal process of appeal. These ideals were reinforced with comments from the experts advising the importance of practically enforceable laws, robust judicial systems and legislative processes as a foundation for effect law enforcement. Access to records of registration, licensing, prior convictions and demerits is considered important to ensure the efficiency of law enforcement. Two questions canvassed the law enforcement officers’ views on these issues.
Table 18 provides the respondents’ views on accurate and accessible data. Strong agreement or agreement was recorded for 94.1% of the respondents. This expected response demonstrates the operational importance of accessibility to real-time data to validate or dispute driver and rider information provided on interception. This aspect of road policing is discussed further in Chapter 7.

| Q. 10. It is important to have an accurate and accessible data base for driver/rider licensing and vehicle registration particulars. *Accessible by operational traffic police. |
|---|---|---|---|---|---|
| Respondents n = 216 | Strongly Agree | Agree | Undecided | Disagree | Strongly disagree |
| % Respondents | 63.8% | 30.3% | 3.7% | .5% | .9% |

Table 18. Importance of accurate and accessible data

Table 19 reports responses on the importance of having effective laws, fines collection and judicial processing systems. Of the respondents 97.2% strongly agreed or agreed with this statement. The high percentage of responses in these categories was to be expected as the lack of support systems seriously impinges upon the ability of traffic police to carry out their primary responsibility in traffic law enforcement. The high positive response rate provides strong corroboration of information from the literature, advice from the experts and the participant observation.

| Q. 11. It is important to have effective laws, fines collection and Judicial processing systems for traffic law enforcement. |
|---|---|---|---|---|
| Respondents n = 216 | Strongly Agree | Agree | Undecided | Disagree |
| % Respondents | 65.1% | 32.1% | 1.4% | .5% |

Table 19. Effective laws, fines collection and judicial process

**Theme: Driver perception of traffic law enforcement**

The perception of the risk of being intercepted by police for traffic offences and how this perception influences driver behaviour was identified in the literature and strongly emphasised by the experts as a key factor in road safety. Police views were sought to clarify whether or not their views aligned with the findings of the research and opinions of the experts.
Table 20 records the responses to question 15 which sought views concerning the importance of perceptions of the level of police enforcement and the likelihood of being caught as compared to the offenders’ compliance with the law. Of the respondents, 89.4% strongly agreed or agreed with this statement. The question was intended to prompt an assessment of cause and effect. The high number of positive responses (195) corroborates the observations from the literature review, the view of the experts and the findings from the participant observations. Those four not answering (1.8%) or the 14 undecided (6.4%) may be due to the complexity of the question or a lack of previous experience in thinking through the issues; this cannot be determined.

### Q. 15. Driver/rider perceptions on the level of police enforcement and whether there is a likelihood of being caught is relevant to how well they comply with the law.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents n = 216</td>
<td>91</td>
<td>104</td>
<td>14</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>% Respondents</td>
<td>41.7%</td>
<td>47.7%</td>
<td>6.4%</td>
<td>1.4%</td>
<td>1.8%</td>
<td>89.4%</td>
</tr>
</tbody>
</table>

Table 20. Perception of the level of police enforcement

Question 16 was phrased in the negative and structured so that the expected response is at the opposite end of the scale to that of the flow of other questions. This was intentional, to check participant attention to the detail of the question and invoke a thoughtful response. In the absence of other information, it may explain the small percentage of those responding with a contrary view.

### Q.16. Enforcement of the traffic laws does not achieve any real benefit in improving road safety.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents n = 216</td>
<td>3</td>
<td>8</td>
<td>10</td>
<td>93</td>
<td>101</td>
<td>1</td>
</tr>
<tr>
<td>% Respondents</td>
<td>1.4%</td>
<td>3.7%</td>
<td>4.6%</td>
<td>42.7%</td>
<td>46.6%</td>
<td>87%</td>
</tr>
</tbody>
</table>

Table 21. Enforcement of traffic laws

Table 21 records the responses to question 16, which sought views on the benefits of the enforcement of traffic laws. Of the respondents, 87% strongly disagreed or disagreed with the statement. This strongly supports the general discussion within this research about the benefits of law enforcement, particularly the views of the experts and the findings from the
participant observations. It is noted that 4.6% of respondents were undecided and 5.1% provided responses that were contrary to the norm, of strongly agreement or agreement.

Testing the same concept of the driver perception of the level of police enforcement was presented with a different format to question 15, and this time, focusing on self-justification by the driver.

Q. 17. If they feel justified, drivers/riders will continue to break the law on the chance that they will not be caught by traffic police.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents n = 216</td>
<td>88</td>
<td>94</td>
<td>13</td>
<td>14</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>% Respondents</td>
<td>40.4%</td>
<td>43.1%</td>
<td>6%</td>
<td>6.4%</td>
<td>2.3%</td>
<td>.9%</td>
</tr>
</tbody>
</table>

Table 22. Drivers will continue to break the law if they feel justified

Table 22 records the responses to question 17 which canvassed the officers’ opinions of drivers who continue to break the law on the chance that they will not be caught by police. Of the respondents, 84.5% strongly agreed or agreed with this statement. The question was intended to invoke thoughtful consideration and is directly relevant to driver/riding perception. The number of positive responses (182) strongly corroborates the views of the experts and the findings from the participant observation. The responses to question 17 showed an insignificant variation of a 5% lower positive response than question 15 – 89.4% dropping to 84.5%. This was valuable to check of the correspondence of responses across similar questions expressed in different ways.

Those 6% who were undecided may be a reflection on the complexity of the question or the requirement for the respondents to think through the issues. It is noted that 8.7% strongly disagreed or disagreed with the statement. Perhaps those respondents considered there were other factors involved for drivers/riders who continue to break the law. This cannot be determined on the information available.

Question 18 was a positively expressed counter statement to question 16 and sought opinion on the combination of enforcement and effective campaigns. It was anticipated that this would return a highly positive result.
Q. 18. Good law enforcement operations and effective campaigns can have a direct influence on driver/rider behaviour in the future.

<table>
<thead>
<tr>
<th>Respondents n = 216</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Respondents</td>
<td>67.4%</td>
<td>29.4%</td>
<td>.5%</td>
<td>.5%</td>
<td>1.4%</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 23. Law enforcement and effective campaigns

Table 23 recorded the responses to ‘good law enforcement operations and effective campaigns can have a direct influence on driver/rider behaviour in the future’. Overall, 96.8% of the respondents strongly agreed or agreed with this statement. The responses reinforced all other findings of the research on the quality of enforcement combined with education and awareness campaigns to directly influence driver/rider behaviours. The responses in the undecided, disagree and no answer categories have little impact (2.4%) on the overall results.

Question 19 was included to clarify the perspective of police on the notion of ‘example setting by police’ as important to other road users. This is identified as important from the literature and from the expert views. Importantly it provides a basis upon which to assess what happens in practice, as was discussed in Chapter 6.

Q. 19. It is important for General Police Officers as well as Traffic Enforcement Officers to set a good road safety example e.g. Obeying the laws – not speeding, wearing helmets and seat belts.

<table>
<thead>
<tr>
<th>Respondents n = 216</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Respondents</td>
<td>76.6%</td>
<td>20.2%</td>
<td>.5%</td>
<td>1.4%</td>
<td>.5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 24. Example setting by police

Table 24 records the responses to this question of example setting by police. Of the respondents 96.8% strongly agreed or agreed with this statement. The responses are positive as was anticipated. In practice, these results in some respects are contrary to the findings from the participant observation where police have been observed committing the same offences for which infringements have been issued. A similar range of responses apply to the each of the countries surveyed. The responses to the question in undecided, disagree and no answer categories are insignificant, (2.4%) to the overall results.
**Theme: Community partnerships**

Community partnerships have been emphasised in both the literature and the comments from the experts as an integral component of successful traffic enforcement programs. The partnerships described by the experts are extensive, involving government, commercial and private organisations, extending to partners outside the country. Table 25 records the responses to question 20 which sought the views on police actively working with the community on road safety.

| Q. 20. It is essential for police to actively work with the community on road safety. |
|---------------------------------|---------------------------------|---------------------------------|-----------|-----------|----------------|-------------|
| Respondents n = 216             | Strongly Agree                  | Agree                           | Undecided | Disagree  | Strongly disagree | No answer   |
| % Respondents                  | 65.1%                           | 32.1%                           | .5%       | .5%       | .9%            | 97.2%       |

Table 25. Police to work actively with the community

Of the respondents 97.2% strongly agreed or agreed with the statement. The high level of positive responses to this question strongly reinforced the research from the literature and the comments from the experts.

The responses to the question as undecided, disagree and no answer categories had little impact (1.9%) on the overall results.

**Training and resources**

The experts considered training as a key aspect of police professionalism and therefore police should be equipped first to educate the public and then implement the law. The following questions provided focus on this theme by seeking the views of police on the correlation between training and road policing capability as well as the relationship between the resources dedicated to road safety and the outcomes achieved.

| Q. 22 Does the level of training for traffic patrol and enforcement officers have a direct relationship on the effectiveness of your overall road policing capability? |
|---------------------------------|---------------------------------|---------------------------------|-----------|-----------|----------------|-------------|
| Respondents n = 216             | Strongly Agree                  | Agree                           | Undecided | Disagree  | Strongly disagree | No answer   |
| % Respondents                  | 61.5%                           | 34.9%                           | 1.4%      |           | 1.4%           | 96.4%       |

Table 26. Relationship between police training and effectiveness
Table 26 records the responses from the officers as to the relationship between police training and the effectiveness overall of the road policing capability. Of the respondents 96.4% strongly agreed or agreed with this statement. The strong positive response to this question reinforced the comments from the experts and the findings of the participant observation. The undecided and no answer categories had little impact (2.8%) on the overall results.

Table 27 records the responses to Question 23 which sought to identify the officers’ views on the association between resources and results. Of the respondents 91.7% strongly agreed or agreed with this statement. These results are consistent with many of the responses returned for question 12 and question 24 where comments frequently referred to a need for increased resources and staffing and better equipment.

The nine respondents who were undecided represent 4.1% of the overall responses. It is noted that four officers disagreed with the proposition in the question and one officer strongly disagreed. These responses are contrary to the majority and no explanation for these responses is identifiable from the survey. The numbers are insignificant to the overall results.

<table>
<thead>
<tr>
<th>Q. 23. There is a direct association with the amount of officers and equipment dedicated to road safety and the results that can be achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Respondents n = 216</td>
</tr>
<tr>
<td>% Respondents</td>
</tr>
</tbody>
</table>

Table 27. Association between resources and results
### Table 28. Observed traffic police responsibilities

<table>
<thead>
<tr>
<th>Function</th>
<th>Example</th>
<th>Good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIP escorts</td>
<td><strong>Indonesia</strong>: 8 police cars escort the Prime Minister to and from parliament house daily. Lower status ministers have fewer resources. <strong>Viet Nam/China</strong>: Light and siren convoys of up to a dozen police and government vehicles a daily occurrence.</td>
<td>VIP escorts reserved for very special occasions or visiting presidential dignitaries.</td>
</tr>
<tr>
<td>Traffic control, traffic management reduce congestion</td>
<td><strong>UAE</strong>: Up to 5 police at peak periods at each of the major roundabouts to observe traffic and react to incidents. Attend crashes. Control driver disputes. <strong>Yemen</strong>: Antiquated traffic signal system. Not coordinated. Faulty. Police turn off signals during peak period to avoid crashes. 2-3 officers at each major intersection. <strong>Indonesia</strong>: Signalised intersections manned by traffic police. Up to 50% of police time in Indonesia is consumed reducing traffic congestion.</td>
<td>Traffic lights coordinated from central control. No police involved in directing traffic. Red light/speed cameras operate at major intersections. Police attend crashes as required.</td>
</tr>
<tr>
<td>Vehicle controls</td>
<td><strong>Yemen</strong>: Responsible for imported vehicles – compliance to standards, customs regulations, certification of new vehicles, control of the used car market.</td>
<td>Functions performed by other government agencies.</td>
</tr>
<tr>
<td>Regulatory controls</td>
<td><strong>China</strong>: Vehicle registration, driver licensing, taxi licensing, transport regulatory controls.</td>
<td>Responsibility of other government agencies.</td>
</tr>
<tr>
<td>Social order and major events</td>
<td><strong>Ethiopia</strong>: Crime control, social order. Weekly responsibilities may be allocated three days to crime control, two days traffic duties. May then be diverted from traffic duties to crime control or major events.</td>
<td>Responsibility of general police. Traffic officers will assist, if critical.</td>
</tr>
<tr>
<td>Engineering works defined in legislation</td>
<td><strong>Yemen/Indonesia</strong>: Signage, speed limits, speed humps, roundabout and intersection modifications. Functions also undertaken by the Roads Authorities.</td>
<td>Authority vested in the Road traffic authority. Police may collaborate.</td>
</tr>
<tr>
<td>Observations</td>
<td>Consequences</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td><strong>System process:</strong> Manually record accident details at scene, transfer to accident book at local police post, summary details mailed to governorate, collated and faxed to HQ at Sana’a and entered into computer. Monthly records of driving licences and vehicle licences issued recorded in database. Collated monthly, published in annual report (within 12 months).</td>
<td>Delay in data availability. Reports lack detail. No systematic analysis. Limited practical value for enforcement priorities and strategies.</td>
<td></td>
</tr>
<tr>
<td><strong>Investigation:</strong> Basic police crash investigation skills and equipment lacking. Inaccurate causes recorded. Police have no scene reconstruction equipment or speed calculations following a crash so may record crash cause as defective road because they cannot prove speed. Some crashes not reported to police.</td>
<td>True crash causes not identified.</td>
<td></td>
</tr>
<tr>
<td><strong>System deficiencies:</strong> Some fatal and serious injury crashes not recorded in the system. No cross checking of police data with health sector. Data collection forms lack detail to enable analysis for ‘black spot’ remediation or identification of high-risk offender groups. Data recorded as crash type rather than casualty type. Recorded crash ratios (fatality, serious injuries, minor injuries 1:15:70) not consistent with international epidemiological evidence from national studies(^{401}). Calculation of 1.76 million injuries unreported over ten years. Recording, reporting and definitions not aligned to international standards.</td>
<td>Substantial under-reporting - acknowledged by police leaders. No timely reports. No trend analysis. Forecasting not possible for interventions and road safety improvements.</td>
<td></td>
</tr>
</tbody>
</table>

Table 29. Data collection and analysis – Yemen

\(^{400}\) Journal notes Yemen, December 2010.

<table>
<thead>
<tr>
<th>Observations</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System process:</strong></td>
<td>System process:</td>
</tr>
<tr>
<td>Defined reporting and computerised system.</td>
<td>Defined reporting and computerised system.</td>
</tr>
<tr>
<td>System not well integrated. Under-reporting identified.</td>
<td>System not well integrated. Under-reporting identified.</td>
</tr>
<tr>
<td>Highway patrol have global positioning satellite (GPS) for location</td>
<td>Highway patrol have global positioning satellite (GPS) for location</td>
</tr>
<tr>
<td>identification yet crash locations not accurately recorded.</td>
<td>identification yet crash locations not accurately recorded.</td>
</tr>
<tr>
<td><strong>Investigation:</strong></td>
<td>Investigation:</td>
</tr>
<tr>
<td>Some officers trained in crash investigation (1:10 of the traffic</td>
<td>Some officers trained in crash investigation (1:10 of the traffic</td>
</tr>
<tr>
<td>accident response unit).</td>
<td>accident response unit).</td>
</tr>
<tr>
<td>Basic crash investigation equipment of measurement, marking, recording</td>
<td>Basic crash investigation equipment of measurement, marking, recording</td>
</tr>
<tr>
<td>facilities for highway patrol units – not well used even though units attend</td>
<td>facilities for highway patrol units – not well used even though units attend</td>
</tr>
<tr>
<td>2-3 crashes per day.</td>
<td>2-3 crashes per day.</td>
</tr>
<tr>
<td>Not all fatal and serious crashes reported.</td>
<td>Not all fatal and serious crashes reported.</td>
</tr>
<tr>
<td>Officers advise ‘drunk-driver’ may be recorded as fatigue or mechanical</td>
<td>Officers advise ‘drunk-driver’ may be recorded as fatigue or mechanical</td>
</tr>
<tr>
<td>failure because they have no methods of testing deceased, no autopsy, and</td>
<td>failure because they have no methods of testing deceased, no autopsy, and</td>
</tr>
<tr>
<td>no testing equipment in hospitals for injured drivers.</td>
<td>no testing equipment in hospitals for injured drivers.</td>
</tr>
<tr>
<td><strong>System deficiencies:</strong></td>
<td>System deficiencies:</td>
</tr>
<tr>
<td>Officers lack training in crash analysis and crash investigation.</td>
<td>Officers lack training in crash analysis and crash investigation.</td>
</tr>
<tr>
<td>Lack of standard operating procedures for system control. Lack of qualified</td>
<td>Lack of standard operating procedures for system control. Lack of qualified</td>
</tr>
<tr>
<td>staff.</td>
<td>staff.</td>
</tr>
<tr>
<td>Example: 1. Bali 700 crashes resulting in 100 fatalities annually – no</td>
<td>Example: 1. Bali 700 crashes resulting in 100 fatalities annually – no</td>
</tr>
<tr>
<td>officer trained in crash/data analysis.</td>
<td>officer trained in crash/data analysis.</td>
</tr>
<tr>
<td>2. Denpasar October 2010 - out of control, overloaded quarry truck resulted</td>
<td>2. Denpasar October 2010 - out of control, overloaded quarry truck</td>
</tr>
<tr>
<td>in six deaths. Investigated and classified as driver ‘error’. No autopsy,</td>
<td>resulted in six deaths. Investigated and classified as driver ‘error’. No</td>
</tr>
<tr>
<td>no ‘chain of responsibility’ investigation. Entered on database in</td>
<td>no ‘chain of responsibility’ investigation. Entered on database in</td>
</tr>
</tbody>
</table>

Table 30. Data collection and analysis – Indonesia

---

402 Journal notes Indonesia, October 2010.
### Data collection and analysis - Socialist Republic of Viet Nam

<table>
<thead>
<tr>
<th>Observations</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statistics:</strong> Undisclosed by police until official release annually. Only police statistics regarded as official. Annual fatality statistics (11,094 deaths, 7,550 injuries for 2009) grossly inconsistent with Ministry of Health data (4,965 deaths, 441,890 injuries from 84 of 100 hospitals in 2009). Senior police claim hospital data is inaccurate, misclassified and duplicated. Grossly inconsistent with international statistical ratio of 1:15:70 (i.e. a ratio of approximately 1 death, 15 serious injuries and 70 minor injuries). Substantial under-reporting identified and corroborated by number of independent reports.</td>
<td></td>
</tr>
<tr>
<td>Substantial under-reporting perpetuates the divide between police and Ministry of Health. No coordination or collaboration. Does not assist effective countermeasures.</td>
<td></td>
</tr>
</tbody>
</table>

| Time consuming for officers. Delays in data recording. No practical value in disability ratings on crash reports. |

| Accountability: The 63 provincial commanders are subject to annual review and hierarchical pressure to reduce fatalities. |
| Artificial reduction in fatalities. |

| Under-reporting includes: Some single vehicle fatalities or injuries where the family takes possession of the body or looks after the injured, some crashes involving military transferred for investigation, some incidents involving VIP leaders and foreigners not recorded as well as fatalities after admission to hospital and crashes where there is no incentive for police to attend or report. |
| Substantial under-reporting. |

| Investigation: Officers have only basic investigation skills. Fatalities recorded and injuries aligned with those fatalities. Injury only crashes not likely to be recorded even if police attend. Police only record crashes when notified officially. Fifty finalised reports checked – none recorded location coordinates. Many categories incomplete. |
| Substantial under-reporting. Inaccuracy of data. Lack of integrity in data analysis. |

**Table 31. Data collection and analysis – Viet Nam**

---

403 Journal notes Viet Nam November 2012.
407 Disability ratings, as required by inter-ministerial circular 12/TTLB dated 26/7/1995.
408 Total number of victims: 183,058 of which 5,075 (accounting for 2.8%) either died or were taken home by families as they got too severe injuries and that there was little or no hope to survive, Ministry of Health, Preventative Medicine and Environment Hanoi, February 2009, 4.
409 Report on ensuing traffic order: 65 accidents involving military vehicles resulting in 37 deaths and 56 injuries were recorded in the 2009 official report, p.2. Those transferred and not recorded are undisclosed.
<table>
<thead>
<tr>
<th>Country</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yemen</td>
<td>Women in traditional full black abaya clothing walking in groups on the roadway with backs to the traffic at night in areas of poor lighting. No right of way expected for pedestrians on designated crossings. No enforcement. New roads built as thoroughfares dividing villages from schools requiring 200-300 children to cross twice daily (four locations observed). Vehicles travel faster because of new roads. Local citizens and police organising to retrofit underground crossings.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Where funding available, school traffic wardens engaged to assist children cross. Cars generally stop, motorcyclists ride straight through, dodging the warden and children. Wardens have no authority and police do not provide support/enforcement. New school road treatments, clearway zones, heavily congested with street traders selling food to children on the crossing curb and roadway. No enforcement. Dozens of parents drop off and pick up children on the actual crossing. School crossings are often the designated driveway entrance to the school.</td>
</tr>
<tr>
<td>China</td>
<td>Motorists drive straight through pedestrian crossings and sound horn continuously at any pedestrians on the crossing even when pedestrians crossing with the green light walking display. No enforcement. Crossing the road is a high-risk activity. Enforcement and disciplined controls as a risk reduction strategy rarely observed. Traffic wardens admonish pedestrians but take no action against dangerous driving.</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>Causing the death of a pedestrian in a motor vehicle crash requires the payment of dhiffa (blood money) of 200,000 dirhams (US $70,000) to the victim’s family. This has little consequence to change driver behaviours as it is usually covered by insurance. Many pedestrian underpasses built in the UAE. Pedestrians, especially women, treat these as a security risk and cross the roadway. Overpasses are considered too long on the approach and departure sides. Pedestrian safety is not actively supported by road authorities. Pedestrians, particularly children are the highest risk vulnerable road users in UAE. Pedestrians prosecuted for jumping the dividing centre-road fence mid-block, notwithstanding no crossing point for 500 metres either way. Pedestrian offences and parking offences count as ‘traffic offences’ for police.</td>
</tr>
</tbody>
</table>

Table 32. Observations of pedestrian related safety issues

410 Journal notes: Yemen, December 2010
411 Journal notes: Indonesia, April 2012
412 Journal notes: China, July 2012
413 Journal notes: UAE, May 2007
<table>
<thead>
<tr>
<th>Country</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>China(^{414})</td>
<td>Front seat belt wearing compulsory since 1993. In Dalian and Suzhou wearing rates observed to be 40%-50% at urban intersections. In the central business districts (CBD) the wearing rates increased dramatically to approximately 60% in both cities. As a passenger I observed drivers fasten their seat belts when entering the CBD and unclip their seat belts on leaving the area. The driver’s explanation is that the police might fine them. Non-wearing observations include drivers travelling at excessive speeds of up to 140 kph on the motorways and putting their seat belts on to go through the toll-points because police may check them. Taxis in the major Chinese cities are equipped with recorded English and Chinese language messages for the front-seat passenger to fasten their seat belt although the driver will not be wearing a seat belt.</td>
</tr>
<tr>
<td>Yemen(^{415})</td>
<td>Drivers observed to belt-up as they go through a police or military check point and then unbuckle.</td>
</tr>
<tr>
<td>UAE</td>
<td>Drivers observed to belt-up to go past or through police checkpoints and then unbuckle.</td>
</tr>
</tbody>
</table>

Table 33. Observations of driver behaviours - seat belt wearing

\(^{414}\) Journal notes: China, September 2011
\(^{415}\) Journal notes: Yemen, December 2010
<table>
<thead>
<tr>
<th>Table 34. Rider behaviours - helmet wearing in Viet Nam</th>
</tr>
</thead>
<tbody>
<tr>
<td>With widespread advertising of prospective enforcement, the number of riders wearing helmets rose dramatically to approximately 90% after the declared date but dropped to approximately 70% when the enforcement was not seen to be maintained as declared.(^{416}) Night-time helmet wearing is substantially less as no night time enforcement of helmet wearing is practiced.</td>
</tr>
<tr>
<td>The legislation was introduced without standards. Police did not penalise riders who had some form of a helmet. A majority of riders opted for a 200,000 dong, USD $2 fake helmet - plastic shell including construction helmets, bicycle helmets, racing caps or safari hats. This indicated that personal safety was not a consideration, only the fear of being fined.</td>
</tr>
<tr>
<td>Few riders chose a quality helmet - 1.2 m dong to 2 m dong, USD $12-$20 and safety compliant.</td>
</tr>
<tr>
<td>Law enforcement was initially intensive, then intermittent and lapsed.</td>
</tr>
<tr>
<td>On a checkpoint where there was only one exit from the city, helmets were hired at a stall prior to the checkpoint for USD $1 and then collected after the offender had ridden through the checkpoint thus avoiding prosecution.</td>
</tr>
<tr>
<td>It is a common daily observation to see a helmet dislodge from a rider’s head and land on the roadway because the wearing of chin-straps has not been enforced.</td>
</tr>
<tr>
<td>Passengers on motorcycles including children were not required to wear protective helmets until 2012. This has not been enforced.(^ {417})</td>
</tr>
<tr>
<td>Vietnamese road safety officials advise me that the non-wearing of helmets has been addressed and their attention is now focused on drunk driving and speeding as the key risk factors.</td>
</tr>
</tbody>
</table>

\(^{417}\) Journal notes Viet Nam July 2011.
Critical observations of the police rationale for lack of enforcement

<table>
<thead>
<tr>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educating and community awareness of road safety issues is a softer option to imposing sanctions in the poorer countries.</td>
</tr>
<tr>
<td>Police officers do not have the skill and knowledge to develop strategic enforcement programs. Police lack training. In some countries the traffic police do not know the law.</td>
</tr>
<tr>
<td>Police do not have the driving skills necessary to conduct moving vehicle interceptions. It is considered a dangerous manoeuvre requiring specialised training and practice.</td>
</tr>
<tr>
<td>Any enforcement is dangerous – stopping vehicles. Many vehicles simply will not stop.</td>
</tr>
<tr>
<td>Uncorroborated testimony of police officers is not accepted by courts – independent evidence is required from video, tape recordings, technology or civilian witness.</td>
</tr>
<tr>
<td>Imposing sanctions on drivers invokes an aggressive response or imposes a hardship.</td>
</tr>
<tr>
<td>Insufficient resources, equipment to devote to enforcement.</td>
</tr>
<tr>
<td>Lack of equipment – no technology.</td>
</tr>
<tr>
<td>The bulk of police time is committed to responsibilities such as traffic flow/traffic management to ease congestion – this is considered as a primary function of police.</td>
</tr>
<tr>
<td>The numbers of offenders are so great that the responsibility appears as an impossible task, such is the impact required on community culture - of not wearing helmets to helmet wearing, not wearing seat belts to everyone wearing seat belts and preventing the proliferation of speeding and dangerous drivers. The problem is considered too great to provide any meaningful impact and, therefore, nothing is commenced.</td>
</tr>
<tr>
<td>Police are not convinced that strategic enforcement can have an impact on reducing road trauma. Enforcement is mainly prosecuting surviving offenders in a crash as punishment. The process involves rather more punitive rather than preventative or deterrent strategies.</td>
</tr>
</tbody>
</table>

Table 35. Critical observations of the police rationale for lack of enforcement

---

418 Journal notes: Viet Nam, July 2011, Indonesia, April 2012, China July 2012
Police have little or no experience in any of the traditional methods of speed enforcement.

China public security bureau (police) has a ‘no pursuit’ policy and no interceptions for moving violations policy. Covert enforcement operations are prohibited.

Government policy decrees that all speed cameras in stationary marked police cars with flashing lights are to be accompanied by a speed enforcement warning sign 200-300 metres before the camera site. This makes the enforcement functionality insignificant.

Thousands of fixed site speed cameras have been installed across China.

Many cameras do not operate. They are highly visible to the alert driver. Vehicles are noted to slow or brake before the cameras and speed up afterwards.

Many offenders are never prosecuted, and for a variety of reasons.

The threshold enforcement level is advised by police as zero, 10% and 20%. This threshold is the point above the posted speed limit at which police enforce the law and issue an infringement.

Speeds of 140-160 kph are observed on the 120 kph speed limited highways.

The speed differential between the highest speed and lower speed is a high risk to road safety. No police interceptions occur on the highways.

Three and four lane one-way freeways have high and low speed limits within each lane and different speeds apply in each lane.

Table 36. Speed enforcement observations – China

---

419 Journal notes: China, September 2011.
Enforcement observations in selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yemen 420</td>
<td>Police vehicles equipped with loudspeakers frequently instruct and chastise drivers for poor driving behaviours. There is limited mobile enforcement. Checkpoints are undertaken with three or four police officers blocking the roadway to select a driver for checking and to issue an infringement. On occasions vehicles drive straight through without consequence. A majority of the police traffic patrol fleet is un-roadworthy and mainly used for transport. No moving vehicle interceptions are undertaken. Police have a major responsibility to ensure roadworthiness of civilian vehicles.</td>
</tr>
<tr>
<td>Indonesia 421</td>
<td>Police vehicles in emergency mode have to manoeuvre in contest with other traffic for road space – right of way is frequently not afforded. Police in emergency mode are frequently passed by speeding motorists – no sanction is applied. Police in non-emergency mode are frequently passed by speeding motorists – no interceptions or sanctions are applied. Numerous serious offences are observed in the presence of police and no interception is undertaken.</td>
</tr>
<tr>
<td>Viet Nam 422</td>
<td>No police enforcement for moving violations such as speeding, careless driving and dangerous driving. This includes when the police cars have been passed or when oncoming overtaking buses and trucks have forced the police drivers to take evasive actions. Electronic speed enforcement with speed cameras is undertaken at vantage points where the driver is stopped at a checkpoint a distance from the photo-point following electronic transfer and shown a photo with the recorded speed and then fined. No police mobile interceptions undertaken. Other legitimate police enforcement checkpoints are established for proof of identification and proof of licence and then focus on a minor infringement while ignoring the high-risk road user behaviours. Lack of driver compliance and lack of police action during police presence. Example 1: Observations at Hoan Kiem, old quarter, Hanoi at three signalised intersections demonstrate the prevalence of red light running during police presence and intercepting motorcyclists for trivial offences (not risk related). Intersection 1 = 15 red light offences observed during a period of 10 minutes; Intersection 2 = 12 offences during 10 minutes; Intersection 3 = 10 red light offences observed during a period of ten minutes. No interception actions were attempted nor any whistles blown or sanctions applied. Lack of driver compliance and lack of police action during police presence. Example 2: Observations made as a passenger in a police vehicle on National Highway 5 where an 80 kph speed limit applies between Hanoi and Quang Ninh Province. Cars and buses overtook the police car travelling well in excess of 80 kph without interception or sanction. Oncoming vehicles – cars, buses and trucks overtaking and causing police vehicle to take evasive action. No interception or sanction applied. Police complain about the erratic driving of motorists but do nothing to remedy the situation.</td>
</tr>
</tbody>
</table>

Table 37. Enforcement observations in selected countries

---

420 Journal notes: Yemen, December 2010
421 Journal notes: Indonesia, April 2012
Checkpoint observations – Viet Nam\textsuperscript{423} and Cambodia\textsuperscript{424}

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checkpoints are easily identifiable 200-300 metres from the entry.</td>
</tr>
<tr>
<td>Many non-helmet-wearing riders do a ‘u turn’ before the checkpoint, drive on the opposite side of the road, bypass the checkpoint or turn up lanes. Police do not have an enforcement strategy to counter these moves.</td>
</tr>
<tr>
<td>Many riders carrying a helmet on the handle bar and will put the helmet on as they approach and then ride through without challenge. No enforcement strategy is used to counter these moves.</td>
</tr>
<tr>
<td>Police do not have the capacity to stop, trap, or pursue these offenders, consequently, irresponsible behaviours remain unchecked. This sets a poor example of police enforcement for other road users.</td>
</tr>
</tbody>
</table>

\textbf{Table 38. Checkpoint observations - Viet Nam and Cambodia}

\textsuperscript{423} Journal notes: Viet Nam July 2011

\textsuperscript{424} Journal notes: Cambodia October 2012
<table>
<thead>
<tr>
<th>Country</th>
<th>Partnership observed</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>Red cross youth safety project in all provinces, to address the risks young adults face on motorcycles. Volunteer youths work at police checkpoints educating drivers/riders on good road safety practices. 13 youths on one checkpoint in Siem Reap.</td>
<td>Humanises police enforcement. Display of education and enforcement working in harmony. Interface between the offending public and the educators. Media coverage broadens the message.</td>
</tr>
<tr>
<td>Yemen</td>
<td>Driver training and vehicle testing facilities in partnership with police. Revenue generated finances school road safety programs and community radio road safety broadcasts.</td>
<td>Funding and equipment provided by the partner. Qualified licenced drivers. Certified vehicles. Broad education programs.</td>
</tr>
<tr>
<td>Yemen</td>
<td>Police in local governorates established community committees with stakeholders to develop road safety strategies consistent with national direction. Involvement of the religious leaders.</td>
<td>Strategies developed for multi-action road safety programs for bicyclists, pedestrians, motorcyclists, heavy vehicle drivers, youth and older drivers. Additional support canvassed from the private sector.</td>
</tr>
<tr>
<td>China</td>
<td>Development of software to monitor the injuries in hospital to compare with police statistics.</td>
<td>Providing the foundation for an effective data management system.</td>
</tr>
<tr>
<td>Dalian:</td>
<td>Established a Road Safety Expert Committee. A police partnership with Bus companies targeted 2,000 bus drivers educating them on the risks of drinking and driving. Social marketing on Dalian TV and radio. 15-second road safety advertisement in lifts in 100 buildings explaining the hazards of speeding.</td>
<td>Quarterly meetings to assess progress and set future activities. Increase public awareness of road safety. Police and private companies working together.</td>
</tr>
</tbody>
</table>

Table 39. Successful partnerships observed in the focus countries

---

### Training facilities observed in low to middle-income countries

<table>
<thead>
<tr>
<th>Facilities: Indonesian National Traffic Police Corps (INTPC)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilities:</strong> 1. National Police Training Academy at Semarang.</td>
<td>Officers graduate with degree after 3 ½ years. No strategic traffic management.</td>
</tr>
<tr>
<td><strong>Facilities:</strong> 2. Traffic Education Centre, Serpong. Accommodates 370 students. Five of the seven instructors trained in the Netherlands.</td>
<td>Five day to two month short courses on operational skills, traffic management and crash investigation. Competency based standards, objectives, curriculum design, and support documentation.</td>
</tr>
<tr>
<td><strong>Inadequacies observed</strong></td>
<td>Lack of training in practical law enforcement on high-risk driver behaviours, strategic law enforcement, leadership and management in traffic law for reducing road trauma. Numbers able to be trained limited by the capacity of the Academy and Training Institute.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities: Ethiopian Federal Police</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilities:</strong> Police University College – Sendafa</td>
<td>Diploma crime/accident scene investigation, 102 hours tuition, w/shops and examination. Research syndicates Diploma program 270 hours. Crime prevention and road traffic safety. Rules, regulations, signs, signals</td>
</tr>
<tr>
<td><strong>Inadequacies observed:</strong></td>
<td>Information is of elementary value to traffic police officers (30 hours on traffic signs, signals) Instructors have limited experience in traffic law enforcement Need strategic intervention programs and contemporary training on road safety</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facilities: China Public Security Bureau (Police)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facilities:</strong> Four Police Universities</td>
<td>Degree qualification after four years Qualifying entry scores required – July intakes Part of the National education system Management of traffic control is one of 67 courses</td>
</tr>
<tr>
<td>Provincial police academies</td>
<td>3 month skill based traffic courses for recruits entering the traffic police. Officers separately trained on new equipment. Enforcement certificate maintained through 1,000 credits by ‘e’ learning program annually</td>
</tr>
<tr>
<td><strong>Inadequacies observed:</strong></td>
<td>Comprehensive enforcement skills lacking Strategic road safety leadership programs required.</td>
</tr>
</tbody>
</table>

Table 40. Training facilities observed in low to middle-income countries

---

428 Journal notes: Indonesia April 2011.
430 Journal notes: China April 2012.
431 Ray Shuey, Evaluation report, strategic leadership training, Traffic Management Research Institute, Wuxi, China, June 2012.
International Road Policing Assessment Program (IRPAP)

A star-rating, good practice, benchmarking assessment model

A road safety manual for police practitioners and decision makers to identify efficiency, effectiveness and competence in road policing and traffic law enforcement and thereby build capacity to reduce road trauma.

Author: Ray Shuey, A.P.M.
September 2013
Road Policing and Traffic Law Enforcement Assessment

This is a road policing tool-kit designed for use by traffic police using local knowledge, experience and up-to-date data within the jurisdiction or police records. The aim is to achieve a quality-based self-assessment of police law enforcement performance, activities and current practices. Simple, useful and affordable measures are provided as pathways towards improvement. The outcomes of the assessment will enable:

- Benchmarking within a jurisdiction or country and between countries
- Monitoring of traffic police performance before and after enhancements and over time
- An assessment of the capability and quality of road policing
- An assessment of common police practices, policies, training and operations against a star-rating model for good practice
- Capacity building in traffic law enforcement and improvements in police professionalism

The assessment process

**Five steps for identifying and improving road policing and traffic law enforcement performance**

1. Step 1. Establish a jurisdiction road safety profile including the core policing responsibilities
2. Step 2. Rate your road policing and traffic law enforcement capability against each of the five key performance areas
3. Step 3. Complete the rating matrix self-assessment to determine the level of organisational competence
4. Step 4. Identify your strengths, challenges and opportunities
5. Step 5. Accept the challenge and move forward using good practice from the identified key performance areas
How to use this manual

The manual provides a concise outline of road trauma internationally and the police role in traffic law enforcement and road safety. It identifies five common key performance areas around which to undertake a critical assessment of traffic law enforcement. These performance areas are: 1. Data and analysis capability; 2. Community relationship; 3. Road policing support infrastructure; 4. Professionalism of the Traffic Police; and 5. Operational capability and capacity. A star-rating system is employed to indicate the rating against benchmarks developed for each theme.

The first step in the organisational self-assessment is to conduct a jurisdiction road safety profile, for use in comparisons with international statistics and for year to year comparisons within the jurisdiction. Preparing the profile involves clarification of the core traffic police responsibilities, in order that the current road safety activities can be quantified as a percentage of all the traffic police responsibilities.

The next step is to rate the jurisdiction’s traffic policing and law enforcement capability against the five key performance areas. The assessments obtained are then transferred into the star-rating matrix so that current capability can be rated. Completion of the star-rating matrix provides a visual picture of the ratings, which are the basis to the benchmarking that highlights what is required to improve operational effectiveness. The benchmarking provides a firm basis for continuous improvement and future development. A major focus in this assessment process is traffic law enforcement.

The next step is the identification of potential barriers, challenges and opportunities. This is an important stage of the process. Each barrier is a challenge in its own right and determination to move forward is paramount. Each barrier must be considered on its merits, for its potential impact on progress and for avenues that may be used to overcome it. A table is provided to help identify the challenges and to focus attention on actions required to remove or minimise their impact, and to move forward through taking advantage of the opportunities.

Advice is then provided on clarifying good practice within each of the five key performance areas. The descriptions provided include recommendations for processes, actions and activities that will be required to achieve good practice outcomes. Reference materials are included to assist in further assessments.

It is recommended that users of the manual take these first steps as summarised above, and then initiate the planning phase, set the targets, implement the actions, and subsequently monitor and evaluate the progress on the pathway to continuous improvement.

This star-rating system provides a simple and objective means of self-assessment across all sectors of traffic law enforcement. Five stars indicates good practice; one star indicates a need for substantial reforms. The assessment within this framework can be completed without complicated analysis. The star-rating system provides a straightforward opportunity to develop improvement and investment plans for enhancements in areas such as training, technology and support for partnerships to build capacity, and for sustainable enforcement strategies overall, which can monitor efficiency and effectiveness in performance and continually work towards higher levels of professionalism.
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1

The need for a road policing and traffic enforcement assessment program
1.1. International road trauma

Globally, road fatalities claim 1.3 million lives annually with an additional 20 to 50 million people seriously injured.\(^1\) Over 90% of these deaths occur in low income and middle-income countries\(^2\) with almost half of those involving vulnerable road users such as pedestrians, cyclists and motorcyclists.\(^3\) In these countries road policing, traffic law enforcement strategies and education on traffic safety have generally been given low priority by governments and police authorities.\(^4\)

The international road policing and traffic law enforcement community\(^5\) is lacking in generically adaptable solutions to deal with road trauma, as well as lacking a framework or any form of benchmark upon which to judge and measure success.\(^6\)

On 11\(^{th}\) May 2011 the United Nations Global Plan for the Decade of Action for Road Safety 2011-2020 was launched in 110 Countries and marked the start of a world-wide initiative. The overall goal over the decade is to halt or reverse the increasing trend in road trauma. Five pillars of action were identified namely: road safety management; safer vehicles; safer roads and mobility; safer road users; and post-crash response.\(^7\) The plan emphasised the potential for traffic law enforcement to influence and achieve safer road use through community education and driver compliance, and this would prove particularly influential in reducing road trauma in all countries.

This manual focusses on the practicality of building capacity and knowledge transfer in traffic law enforcement, in order, to identify good practice in road policing and provide an evidence-based framework for self-assessment and road safety reform. The aim is to turn knowledge into practice and promote a more professional police enforcement capability that will ensure compliance of road users with safety-related laws and ultimately, the saving of lives.

1.2 Purpose of the manual

The manual provides a tool-kit for traffic police command in low to middle-income countries. It can be used to assess current law enforcement capability and to help in building organisational capacity and the professional development of traffic officers within the organisation. The manual addresses five critical performance areas in road policing and takes into account commonplace barriers to improvement. Each theme has categories and attributes that provide the rating for an assessment.


\(^{3}\) Ibid


\(^{5}\) Organisations have membership-specific focus such as, (a) TISPOL European Traffic Police Network which is working together to make European roads safer, (b) The International Association of Chiefs of Police provides members with networking facilities, research capability and advice on policies, procedures and training, though it focuses mainly on U.S.A. and other western country requirements. (c) The International Policing Association is a world-wide friendship organisation for serving and retired police officers.

\(^{6}\) Police organisations in Australia, Europe, Canada and U.S.A. have for decades been working with internal performance measures as matters of common practice. These measures have been developed as organisation specific. The research has not identified any cross-jurisdictional performance measures for low to middle-income countries.

Once identified, these ratings are intended to help with progress towards consistency in performance and to enable tracking over time, both within the country or between countries. Assessments can be undertaken both before and after organisational improvements or strategic changes. In addition to self-improvement for traffic organisations, the results can be integrated into plans for strategic investments and other initiatives.

For a complete rating, the assessment must be applied across all the key performance areas, which together encompass good practice in road policing and law enforcement internationally. The attributes within each category of the key performance areas are graded on a scale using stars as an indicator level. This style of performance assessment and identification of capability provides the assessor with a simple and objective measure of the quality of enforcement within the particular country or jurisdiction.

Traffic police duties will vary according to the national or provincial organisational structures. Traffic police may constitute a department or division within a larger police organisation that provides uniform police delivery for public order, anti-social behaviour and traffic enforcement; it may be a stand-alone entity such as a traffic police bureau or highway patrol with the sole responsibility for traffic management and enforcement.

Responsibilities may be incorporated into statutory functions, regulations, policy directives or duties accumulated through custom and practice, or because no other agency takes on the roles. Various responsibilities may lack definition and require clarification. Information on developing a mission statement, a strategic plan and advice on good practice in road safety responsibility are included in this manual.

The manual has been developed as a practical outcome that accompanied a PhD thesis on ‘Benchmarking International Road Policing in Low to Middle-income Countries’. The author is a traffic law enforcement practitioner with over 40 years policing experience and ten years as an international road policing specialist. The key performance areas, categories and attributes explored in the PhD thesis arise from a combination of research methods and including the considered opinions of international road safety experts, contributions to a survey of over 200 senior traffic police officers from ten countries and observations of driver behaviours and police practices and procedures in those countries.

### 1.3 Star-ratings design for traffic policing

Star-ratings are a demonstrably useful method for assessing and benchmarking performance in road safety programs. They were adopted, for example, in the New Car Assessment Program (NCAP and country derivatives), for rating the standards, quality and safety features of new vehicles, and in the International Road Assessment Program[^8] (IRAP and country derivatives), in rating the road quality, standards, safety and serviceability of the road network. Other multi-national organisations such as hotels apply star-ratings as a reliable means of measuring the quality and value of accommodation and amenities. So, too, some business and commercial enterprises choose to benchmark.

performance within a country and internationally to achieve more productive and competitive outcomes.

Star-ratings have a direct application in road policing and traffic law enforcement. The rating enable self-assessment of key performance areas, categories and attributes on a graduated benchmark scale, where five stars indicates best practice and one star indicates extremely poor performance and capability. In this road policing and traffic law enforcement program, five star-ratings are achieved in traffic police organisations where good practice is demonstrated consistently across all key performance areas and indicated by green colour coding. The one star-rating is applied to organisations that lack efficiency and effectiveness in enforcement, and these stars are colour coded black.

Each attribute within the self-assessment categories has a direct link to a road safety benefit or outcome. To achieve a high rating, attributes must be consistently present and practiced by the organisation. Organisational features that can positively influence ratings include published or documented strategic and operational plans, training documentation, equipment and technology, targeted enforcement operations and dynamic inter-agency partnerships. However, all must be combined with highly visible and active police enforcement and operational competence, as well as efficiency, effectiveness and safety in the policing operations.

Further to the usefulness of the tool-kit for self-assessment, the manual offers pathways to building capacity through activities that will lead to sustainability in enforcement and road policing and enhanced professionalism. Recommendations are framed simply as a step-by-step process towards achieving results.

Star-ratings are also valuable as an indicator to assess the investment levels that may be needed by governments to achieve increased enforcement capability and an ensuing measurable reduction in road trauma. The acceptance and active use of star-ratings will demonstrate that there is no organisational fear of ongoing evaluation and scrutiny of strategies, activities and outcomes.

### 1.4 Benchmarking

Benchmarking within this manual is synonymous with a star-rating assessment. Benchmarking is a measurement of the quality of an organisation’s policies, products, programs, strategies and in comparison with standard measurements or similar measurements of its peers. The concepts apply directly to policing. Here, the benchmarking for traffic law enforcement is to establish comparative standards for continuous improvement in efficiency, effectiveness and safety, and may typically cover quality, time, processes and cost. This measurement can then be used to determine what and where improvements can be made, to assess how other police organisations achieve better performance levels and to use the information to improve one’s own organisational performance.
1.5 What is good practice in road policing and traffic law enforcement?

Traffic law enforcement has been defined as controlling road user behaviour by preventative, persuasive and punitive measures to effect the safe and efficient movement of traffic. To achieve this outcome, police need to visibly and actively ensure driver compliance and actively provide a deterrence against high-risk road user behaviours. Enforcement is about reducing the numbers and consequences of road crashes.

Improving police professionalism can be achieved through increasing knowledge of the law and good enforcement practices, ensuring ethical behaviours, expanding practical experience in road trauma countermeasures, and increasing police awareness and education on outcome-focused road safety strategies.

The reference ‘best practice’ is not a tangible objective and ‘good practice’ or the practices that work in that particular environment are the preferred terms. Also, good practice in one jurisdiction does not automatically imply that those practices can be copied or imported to achieve the same results. Good practice must be seen as dynamic in a constantly changing road user and road safety environment.

Caution is needed with the introduction or upgrade of technology in law enforcement. Technology in itself does not necessarily result in good practice enforcement; the technology must be accompanied by effective planning, training, evidence-based strategies, effective operational implementation, and with targeted outcomes and cyclical maintenance and replacement programs.

1.6 Why a star-rating assessment and who should do it?

An initial assessment will provide a baseline report or ‘snapshot’ of road policing within your jurisdiction. In order to improve the quality of the service, it is essential to understand the current capability of your road policing and traffic law enforcement, and in particular the limitations of the data underpinning that snapshot. This self-assessment will provide a consolidation of facts, statistics and documents that then becomes the foundation to the work that follows within a standard benchmarking framework. Only when the framework is completed does it become your own jurisdiction’s police enforcement benchmark.

The accuracy and reliability of information are important in this assessment. The different levels within each of the attributes are designed to signify improvements in quality and professionalism. The assessment process should be facilitated by a senior and experienced traffic police officer, as an organisational self-assessment for the purpose of achieving organisational self-improvement. There is no point in claiming credit for non-attained characteristics or attributes as this can only give a false sense of achievement. However, initiatives that lead to progress are a legitimate claim to achievement, provided that strict monitoring and evaluation of outcomes form part of the implementation strategy.

The assessment can also be undertaken through assistance from a research body or experienced external consultancy, to maintain independence. Source information would still be required through interviews of senior traffic officers and substantiated through observations or documentation as

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reliability and validity of inputs must be considered within the review. The outcomes may then be used to support applications for additional funding, human resources or equipment from government as well as assistance from commercial or donor agencies.

It is important to recognise that building capacity and professionalism for traffic police officers is a complex process requiring commitment, cooperation and coordination in a structured and purposeful manner. By adopting a step-by-step approach and monitoring and evaluating progress through the various actions, productive results can be achieved.

1.7 Identified key performance areas to be applied to the road policing and law enforcement assessment

The five consolidated key performance areas with which to assess and compare road policing and traffic law enforcement are:

1. **Data and analysis capability**: This includes the quality of collision data and other source information such as from community road safety attitude surveys. The intelligence data (data with value) provides the foundation for evidence-based traffic law enforcement strategies.

2. **Community relationship**: The quality of the police relationship with the community contributes in important ways to the success of road safety programs. This encompasses driver education and awareness of road safety risks, driver attitudes and behaviours, community attitudes to police enforcement, drivers respect for the law and other road users, perceptions around being caught and the development of integrated and active road safety partnerships.

3. **Road policing support infrastructure**: The quality and reliability of infrastructure support systems, including those for vehicle registration, driver licensing, traffic laws, the judicial system and importantly, field access to the databases, provide the foundation for efficiency and effectiveness in enforcement.

4. **Professionalism of the Traffic Police**: The quality, status and respect afforded traffic police and individual officers are essential to achieve good practice. Professionalism can be enhanced by improved training as well as a firm focus on ethics, accountability and anti-corruption strategies.

5. **Operational capability and capacity**: This theme includes the capability to provide evidence-based, highly visible, active and sustainable road safety enforcement programs so that they deliver effective and efficient safety-oriented outcomes. Capability includes the effective use of traffic enforcement equipment and technology.

These key performance areas provide the framework for a systematic approach to building capacity across all sectors of traffic law enforcement. The performance areas have been sub-divided into the most practical categories with each category assigned an attribute that is graded towards good practice. The thresholds within the scaled attributes are intended as simple descriptors that are easily identifiable within traffic law enforcement as statements of commonplace activities or achievements.
1.8 Five steps to identify and improve road policing and traffic law enforcement performance

The recommended actions following a commitment to undertake the assessment is to nominate an assessor to coordinate the process and then follow through with these five steps. The status of your organisation should be considered as dynamic rather than static and, therefore, the process should be repeated at least annually as part of a continuous improvement program.

- **Step 1.** Establish a jurisdiction road safety profile including core road policing responsibilities
- **Step 2.** Rate your road policing and traffic law enforcement capability against each of the five key performance areas
- **Step 3.** Complete the rating matrix self assessment and determine the level of organisational competence according to the star-rating system
- **Step 4.** Identify your strengths, challenges and opportunities
- **Step 5.** Accept the challenge and move forward using good practice from the identified key performance areas
2

Conducting the assessment
Step 1. Establish a jurisdiction road safety profile including core road policing responsibilities

**Situational assessment:** To accurately and honestly assess the road policing and traffic law enforcement situation, it is essential to understand the true magnitude of road trauma within your jurisdiction. Information within Part A of this table is considered essential. It identifies and highlights the basis for police plans, actions and activities while information contained within Part B is useful information for more detailed analysis. Actual numbers from the most recent year are required to ensure an accurate assessment. If official statistics are unavailable, then estimates may be used.

**Action No 1: Collect, collate and know your national statistics.**

<table>
<thead>
<tr>
<th>Part A: Essential data</th>
<th>Actual</th>
<th>Estimated</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road related fatalities – latest year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trend – increase, decrease, stable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road related injuries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trend – increase, decrease, stable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road related crashes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trend – increase, decrease, stable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registered vehicles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trend – increase, decrease, stable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licensed drivers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trend – increase, decrease, stable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corruption perception Index * 1 = best</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See <a href="http://cpi.transparency.org/cpi2011/">http://cpi.transparency.org/cpi2011/</a></td>
<td></td>
<td>Rankings are 1 to 182</td>
<td></td>
</tr>
<tr>
<td>United Nations Human Development Index. Education Index * 1 = best (also includes GDP and Life Expectancy index). See <a href="http://hdr.undp.org/en/media/HDR_2011_EN_Table1.pdf">http://hdr.undp.org/en/media/HDR_2011_EN_Table1.pdf</a></td>
<td></td>
<td>Rankings are 1 to 187</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part B: Non-essential but useful data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rate</td>
<td></td>
</tr>
<tr>
<td>Death rate</td>
<td></td>
</tr>
<tr>
<td>Population growth</td>
<td></td>
</tr>
<tr>
<td>Road network – kilometres/miles</td>
<td></td>
</tr>
<tr>
<td>• Road network – paved</td>
<td></td>
</tr>
<tr>
<td>• Road network – unpaved</td>
<td></td>
</tr>
</tbody>
</table>

* Colour coding indicates information to transfer to Action No. 2

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10 WHO, *Global Report on Road Safety*, Geneva, World Health Organisation 2013. 8. Explanation: A road traffic fatality should be defined as any person killed immediately or dying within 30 days as a result of a road traffic accident. The choice of 30 days is based on research that shows that most people who die as a result of a crash succumb to their injuries within 30 days of sustaining them, and while extension of this 30-day period results in a marginal increase in numbers, it requires disproportionately large increases in surveillance efforts.
**Action No 2: Be able to compare your statistics internationally.**

The following ratios are the most commonly used for international comparison.

<table>
<thead>
<tr>
<th>*Calculations for international comparisons</th>
<th>Ratio</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>Population</td>
<td>Deaths per 100,000 population</td>
</tr>
<tr>
<td>Registered vehicles</td>
<td></td>
<td>Deaths per 10,000 registered vehicles</td>
</tr>
<tr>
<td>Licensed drivers</td>
<td></td>
<td>Deaths per 10,000 licensed drivers</td>
</tr>
</tbody>
</table>

Colour coding indicates transferred information from Action No 1.

*Higher income countries may also include deaths per 1 million kilometres/miles travelled. However, this data on level of usage is not readily available for many countries.

These statistics provide the basis for internationally accepted comparisons between countries. Some jurisdictional impediments may apply such as (a) not all vehicles may be registered, (b) not all drivers may be licensed and (c) the population data may not be up to date. These are common. However, it is important to start with a clear baseline.

**Action No 3: Be able to compare your road trauma statistics year on year.**

Single year statistics provide a snapshot of road trauma. A more accurate assessment is obtained by identifying the trend of increase or decrease over a five-year period which may be progressively moved with a new year included and dropping of the last year, to give a rolling five year average.

<table>
<thead>
<tr>
<th>Five year average for road fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1. 2008</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Injuries are an important component of foundation documentation as the numbers are always larger than fatalities and, therefore, provide a broader base for road trauma analysis. Injuries may be recorded in two categories – serious and minor and two tables may be required.

<table>
<thead>
<tr>
<th>Five year average for road trauma injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1. 2008</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

92 countries (51%) now use this 30 day fatality definition. Note: If your country uses a different definition such as 7 days, this information should be identified.
**Action No 4: Know and understand your traffic police resource capability.**

<table>
<thead>
<tr>
<th>Road Policing and Traffic Law Enforcement Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total number</strong> of road policing and traffic law enforcement officers.</td>
</tr>
<tr>
<td><strong>Number of operational traffic police unit</strong> bases located throughout the jurisdiction.</td>
</tr>
<tr>
<td><strong>% of traffic police</strong> compared with overall general police.</td>
</tr>
<tr>
<td><strong>Number of traffic police vehicles</strong> – cars, motorcycles, other.</td>
</tr>
<tr>
<td>• Road policing vehicles or those available for enforcement activities.</td>
</tr>
<tr>
<td>• Road policing motorcycles or those available for enforcement activities.</td>
</tr>
<tr>
<td>• Caravan, trailer units for education and awareness programs.</td>
</tr>
<tr>
<td>• Other vehicles that may be used as resources – transport vehicles etc.</td>
</tr>
<tr>
<td><strong>Number of complaints</strong> against traffic police officers per annum – abuse or corruption.</td>
</tr>
</tbody>
</table>

**Note:** Some jurisdictions may wish to keep police resource numbers confidential for national security reasons. These figures and table are not intended for publication. Therefore, the information may be kept as internal working documents or as a separate file. It is still very important to know your organisational strength and capability, to respond actively and proactively to road safety reform.

**Traffic police to population ratio**
(While this figure may be calculated on available statistics without supporting evidence, the result does not add value to any debate for additional traffic police resources. These ratios do not give any indication of workload, work processes, productivity, effectiveness, efficiency, the availability of technology or particularly, the compliance of the driving community with the existing road safety legislation.)  

1: xxxx

**Technology capability** – type and quantity, projected life cycle, hours of use.  
This list should include equipment such as radar/laser speed guns, speed cameras, breathalysers – field and office based – and tape recorders and cameras.
Action No 5: Assess your core traffic police responsibilities.

The main purpose within this segment is to identify and acknowledge core traffic police responsibilities and determine the percentage or organisational time committed to achieving those functions. Priorities may then be able to be rearranged so that the amount of time that can be devoted to traffic enforcement and road safety may be increased.

<table>
<thead>
<tr>
<th>Core traffic police responsibility</th>
<th>Percentage* of total police time involved (Estimated)</th>
<th>Example: High profile enforcement jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Safety: Enforcement of traffic laws</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td>Road Safety: Providing road safety community education</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Road Safety: Patrolling without enforcement</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Road Safety: Attending road crashes</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Administration and planning</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Maintaining traffic flow and minimizing congestion</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>VIP Escorts</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Contribution to engineering solutions for traffic flow and road safety</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Registering vehicle and/or vehicle inspections#</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Driver licensing supervision or issuing licenses#</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Determination of civil liability in crash investigation#</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Major public events, public order and security</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Additional category – (name or describe, if applicable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional category – (name or describe, if applicable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional category - (name or describe, if applicable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong> extraneous duties (ensure this is less than 5%, otherwise it deserves a separate category)</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL core traffic police responsibilities</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Note: Some organisations may be able to strictly define the percentage of these core responsibilities; others may need to rely on estimates.

#Note: Other government agency responsibility
An example of a good practice enforcement jurisdiction is depicted in the right hand column of the above table and further represented for clarity in the following chart.

As the focus of this review is to benchmark your road safety capacity and law enforcement, it is beneficial to graph the most important categories and percentages in a Microsoft XL spread sheet or similar and then represent these as your current core responsibilities.

Displaying this information as a pie chart as shown in Figure 1 provides a simple representation of your resource activities against 100% of your available resources. The higher the percentage levels of enforcement and community education, the higher the capability to deliver road safety reform.
Good practice jurisdictions will have combined results for education and enforcement commitments above 50% of the total resources available for operational duties.

It may be that your core duty responsibilities create severe impediments to your ability to provide effective enforcement. This may be independent of any other attributes identified in this review. Once this is understood, modifications to core responsibilities can then be undertaken to change the balance in available time and commitment to focus on those activities that will directly impact on road safety outcomes.

Decisions to change the core responsibility or the mix of responsibilities may lie with government, the community or police command. Changes may require more detailed appraisal of all the circumstances, extensive consultation, and possible task assignment to other organisations. However, this initial assessment of core responsibilities will give a clear indication of the percentage of resources that may be devoted to law enforcement and the percentage that is required to achieve good practice for road safety reform.

![Core traffic police responsibility - good practice enforcement jurisdiction](image)
Key performance area No 1 - The quality of data and analysis capability for evidence-based policing

In each category choose the statement that best matches your organisational capability.

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Crash location identifier</td>
<td>Rely on police input records for location. Police rely on common referencing systems – markings on roads or highways. Accuracy not validated.</td>
<td>Locations measured accurately by police. Recorded on input forms but not recorded in detail in district, provincial or national databases.</td>
<td>Hazardous locations, black-spot and black-length identified by pin maps or similar. Results passed to road authorities for remedial action. High-risk locations circulated to police for enforcement interventions.</td>
<td>Latitude/longitude readings used as mandatory identifiers. Computer generated reports identify hazardous locations. Black-spot definition published. Hazardous locations passed to all stakeholders for action – health, education, engineering, research and police.</td>
<td>Geo referencing or GPS identified crash locations, and verified. GIS compatibility. Link to Google maps or similar sources. Systems integrated.</td>
</tr>
<tr>
<td>1.2 Crash incident recording – Reliability of data entry – Validation of data</td>
<td>Crash data collection forms used. Officers lack training in completing forms and forms lack essential elements and information. Large gaps in the scope of data collected. Data checked by supervisor for accuracy before filing.</td>
<td>Most crashes recorded. Crash and injury data collected daily and recorded at district level. Summary provided to a central location regularly. Under-reporting recognised but not accurately assessed.</td>
<td>Police compile basic traffic safety statistics and circulate periodically. Under-reporting actively pursued through written policy, guidelines or directives. Hospitals have data collection forms. Comparative assessment made with hospital data but not reconciled.</td>
<td>Reliability and accuracy of data entry in all categories checked. Hospital health surveillance systems and other agency statistical records checked for validation. Policy and guidelines apply for validation checks. International standard definitions apply for deaths, injuries and crashes.</td>
<td>Data mapped to source, system and end user. E.g. Death certificate, hospital records, coronial findings. Statistics validated before release.</td>
</tr>
</tbody>
</table>
## 1. The quality of data and analysis capability for evidence-based policing. Crash data as a primary source

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 Crash investigation – Identification of collision causes Cross reference 4.4 &amp; 5.9</td>
<td>Officers lack training on crash investigation and data collection. Provide basic assessment of collision cause. E.g. speed, driver error, drink driving.</td>
<td>All injury crashes attended by police and recorded. Serious crashes investigated more thoroughly. Civil claim determination considered a police responsibility.</td>
<td>All traffic police officers trained in crash investigation. All fatal and injury crashes comprehensively investigated and recorded. Offenders prosecuted following investigation.</td>
<td>Specialist trained crash investigation teams attend the more serious crashes. Crash reconstruction undertaken on all major crashes. Detailed investigation cases prepared for the Coroner or for legal process. Police do not determine civil liability (an insurance company or private responsibility).</td>
<td>Every fatal crash investigated to the same level of rigour, competence and community accountability as for a homicide. (Complete and thorough investigation by specialists)</td>
</tr>
<tr>
<td>1.5 Data sharing – Publication and distribution of statistics</td>
<td>Data collected and retained by police. Not available for sharing. Protected as private, confidential or secret. Official figures for deaths and injuries available annually.</td>
<td>Crash Information provided to road safety partner agencies and government departments on a regular basis. No direct access by agencies.</td>
<td>Integrated data systems. Data shared across all stakeholder agencies.</td>
<td>Stakeholder interests are regularly sought. Stakeholder analysis regularly undertaken. Privacy issues addressed. Weekly statistics analysed and published. Data consistently used for road safety planning, education interventions and black-spot treatments. Average cost of crashes available and published.</td>
<td>Statistics published daily – internet, newspapers, social media. Stakeholders have access to a database to analyse statistics for their area of interest. Systems electronically integrated with key stakeholders. Stakeholder engagement strategies are active. Average costs of crashes available and published.</td>
</tr>
</tbody>
</table>
1. The quality of data and analysis capability for evidence-based policing. Crash data as a primary source

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 Police use of statistics – data analysis</td>
<td>Information available but not used. Not respected as accurate, reliable or current.</td>
<td>Monthly and quarterly reports are produced but not sufficiently detailed to support anything but generic enforcement strategies.</td>
<td>Statistics that are accurate and apply to recent data (last 1 to 3 months), regularly used as the basis for operational enforcement activity. Targeted enforcement activity is regular and based on timely data.</td>
<td>Regularly analysed and used by police command to focus enforcement activity on high-risk road user behaviours. Countermeasures actively introduced and pursued. Intelligence (data with value) used at national, provincial and local level. Grid analysis, interactive analysis and interactive mapping.</td>
<td>Used as the foundation for evidence-based, outcome-focused enforcement planning and strategies. Interface with other road safety databases.</td>
</tr>
</tbody>
</table>

Action: Assessing the attributes of data and analysis for star-rating

Three or more attributes at or above one level are needed for a star-rating at that level.
Example: if the assessment is as per the ticks, then the rating would be two stars for this performance area. This is then entered into the **Star rating matrix** table in Section 3 of the manual.

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1 = 1 star</th>
<th>Level 2 = 2 stars</th>
<th>Level 3 = 3 stars</th>
<th>Level 4 = 4 stars</th>
<th>Level 5 = 5 stars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Crash location identifier</td>
<td></td>
<td>✓</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2 Crash Incident Recording. Reliability of</td>
<td></td>
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<tr>
<td>data entry. Validation of data</td>
<td></td>
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</tr>
<tr>
<td>3 Crash investigation. Identification of</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>collision causes.</td>
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<tr>
<td>4 Data base</td>
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<tr>
<td>Fatalities/ Injuries/ crashes</td>
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<tr>
<td>5 Data sharing. Pubication of statistics</td>
<td>✓</td>
<td></td>
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<tr>
<td>6 Police use of statistics</td>
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</tr>
</tbody>
</table>
**Key performance area No 2. The community relationship**

Driver education and awareness of road safety risks, driver attitudes and behaviours, community attitude towards police enforcement, drivers respect for the law and other road users. **Focus on partnership and collaboration.**

In each category, choose a statement that best matches your organisational capability or that of your support agency (such as driver licensing or research surveys).

<table>
<thead>
<tr>
<th>2. The community relationship – driver awareness of road safety risks, community attitude towards police enforcement.</th>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Education &amp; Awareness (by police or using police to promote)</td>
<td>Police provide minimal public road safety information. Consider that this is the responsibility of other road safety agencies.</td>
<td>Road safety in schools provided by police. Community road safety education programs initiated by police. Brochures or information developed and provided with support agency assistance. Promotion of civility and respect between road users.</td>
<td>Police have mobile road safety education vans, trucks or units. Static education displays developed. Police directly involved with community road safety education. Regular road safety messages broadcast with police participation. Police website includes road safety messages &amp; advice.</td>
<td>Sequential and integrated school road safety curriculum Police have written strategies identified to gain public acceptance. Regular media promotions - TV, Newspaper, Radio dedicated road safety radio channel. Police engaged in talkback or media discussions on road safety issues. Police use social media – Twitter, Facebook, Police Blotter, Blogs site.</td>
<td>Planned, integrated and strategically designed media exposure. Partnerships established in public awareness and enforcement strategies. Regular media campaigns on high-risk road user behaviours. Police media strategies monitored and evaluated.</td>
<td></td>
</tr>
</tbody>
</table>

| 2.2 Support focus – Driver licensing and testing system. Education through driver licensing. Cross-reference licence system under the ‘infrastructure’ theme | Licence issued to drivers on payment of fee. Qualification, drive and knowledge test not standardised or audited. No offence history recorded against licence holder. Police access to database difficult. | Licence qualification requires knowledge test of road law plus driver skills test for cars and motorcycles. Special licence for heavy vehicle, commercial and professional drivers. Driving schools accredited. Guidelines apply to driving tests/standards. | Attitude and behavioural assessment. Hazard perception tests for drivers. Commercial and professional drivers work with special codes of conduct. Driving instructors qualified, certified and subject to rigorous assessment and controls. Police have field access to licence data base (radio/phone). | Professional standards apply for consistency in driver licensing and testing. Testing centres subject to audit controls and accountability. Security of driver licence – biometrics – including safeguards against fraud. | Graduated driver licensing programs apply to all new drivers. Police have direct entry field access to driver licence database including photo identification display on computer access screen in police car. |
2. The community relationship – driver awareness of road safety risks, community attitude towards police enforcement.

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community attitude towards police enforcement</td>
<td>Police provide enforcement under the rule of law. Public resistance towards enforcement expressed. Only anecdotal information available about public attitudes. Limited surveys undertaken.</td>
<td>Police promote road safety messages – rationale for enforcement to save lives. Focus towards obtaining community support. Partial support from community.</td>
<td>Community engagement. Police involved in community road safety councils and support groups. Community partnerships established. Cultural and social responsibility emphasised including respect for fellow drivers and vulnerable road users.</td>
<td>Police enforcement undertaken with consistency in the balance between education and enforcement. Road safety considered a shared responsibility. Public support for police enforcement openly expressed as road safety for the good of all. Community groups initiate road safety.</td>
<td>Fully integrated consultative process. Community feedback sought on partnership programs.</td>
</tr>
<tr>
<td>Support focus – public attitude surveys</td>
<td>Public attitude surveys have been undertaken but not to any scale or credibility.</td>
<td>Focused driver attitude surveys on road safety issues regularly undertaken. Attitude to enforcement and compliance included. Baseline surveys undertaken.</td>
<td>Partnerships established with universities and/or research institutes to undertake surveys. Police consistently use survey results to enhance education and enforcement interventions.</td>
<td>Annual public attitude surveys undertaken on road user behaviours and attitude to enforcement as an effective road trauma counter-measure. Included is the driver perception of enforcement activities.</td>
<td>Fully developed road user perception index aligned with police enforcement activities. Index assists in planning enforcement interventions.</td>
</tr>
<tr>
<td>Partnerships and collaboration – government agencies</td>
<td>Basic relationship between traffic police and other ministries on road safety. No coordinated road safety outcomes established. Each department has different objectives.</td>
<td>A national road safety plan exists with each government agency having a defined road safety role to achieve common road safety outcomes. Regular planning meetings and progress reports provided.</td>
<td>Police work extensively with active government ministries to provide a coordinated and collaborative approach to road safety reform.</td>
<td>Political will includes strong commitment from all government agencies to pro-active road safety outcomes and road trauma reduction.</td>
<td>Full government collaboration focused on integrated strategies and outcomes.</td>
</tr>
</tbody>
</table>
## 2. The community relationship – driver awareness of road safety risks, community attitude towards police enforcement.

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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</thead>
<tbody>
<tr>
<td>2.6 Partnerships and collaboration – community based</td>
<td>Core partnerships with government departments only. NGO’s provide some assistance</td>
<td>National road safety council or similar organisation established with coordination function for road safety actions.</td>
<td>Tiered community road safety partnerships established. Road safety councils at National, Provincial and local level. Specific objectives set and common outcomes sought. Domestic partners developed.</td>
<td>Local communities involved extensively in road safety programs to assist both education and enforcement objectives. Cross-department and cross-sector collaboration. Special interest road safety groups actively working with strong police support. Linked interventions.</td>
<td>Fully integrated and coordinated community groups. Common objectives and specific targets. Shared vision, clear strategy and common outcomes. Partnership focus given high priority in the strategy.</td>
</tr>
<tr>
<td>2.7 Media support and relationship</td>
<td>Media reports on serious crashes as human interest reports.</td>
<td>Public interest road safety activity reported – special campaigns, road safety messages, education and awareness programs. Use of high profile public figures for communication as role models.</td>
<td>Targeted media road safety strategies developed by police (or agency assist), for periodic publication and directly aligned with enforcement strategies. Traffic police open days, road safety ‘day of remembrance’.</td>
<td>Media campaigns structured, coordinated across different mediums. Consistent messages apply. Media strategies designed towards high-risk individual/groups and high-risk road user behaviours.</td>
<td>High level of collaboration with all media outlets. Extensive road safety publicity as a public interest and community service.</td>
</tr>
</tbody>
</table>
**Action: Assessing the attributes of community relationships for star rating**

Three or more attributes at or above one level are needed for a star-rating at that level. This is then entered into the Star rating matrix table in Section 3 of the manual.

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1 = 1 star</th>
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<th>Level 3 = 3 stars</th>
<th>Level 4 = 4 stars</th>
<th>Level 5 = 5 stars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Education &amp; Awareness (by police or using police to promote)</td>
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<tr>
<td>2 Support focus – Driving licensing system</td>
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<tr>
<td>3 Community attitude towards police enforcement</td>
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<tr>
<td>4 Support focus – public attitude surveys</td>
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<tr>
<td>5 Partnerships and collaboration – government agencies</td>
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<tr>
<td>6 Partnerships and collaboration – community based</td>
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<tr>
<td>7 Media support and relationship</td>
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</tbody>
</table>
### Key performance area No 3. Road policing support infrastructure.

Quality and reliability of support systems – registration, licensing, offender history, laws and judicial system.

In each category, choose a statement that best matches your organisational capability.

<table>
<thead>
<tr>
<th>Category</th>
<th>3.1 Vehicle registration database</th>
<th>3.2 Driver licensing database</th>
<th>3.3 Offender history for driving and criminal offences</th>
<th>3.4 Legislation – traffic laws</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Vehicle registration database is maintained – police provided with access to records on request.</td>
<td>Driver licensing database maintained – police provided with access to records on request.</td>
<td>Offender history not recorded or not retrievable for operational police.</td>
<td>Basic road safety traffic laws apply. Discretionary penalties apply. Most traffic laws not enforced. Legislation difficult to enforce because of cumbersome processes.</td>
</tr>
<tr>
<td>Level 1</td>
<td>Police have operational access to database by telephone or radio request. Vehicle owners obliged to notify change of ownership to registration agency within prescribed period (7 days).</td>
<td>Operational police access via telephone or radio request or document request for licence validation. Drivers required to notify change of address to licensing agency within prescribed period (7 days).</td>
<td>Offender history recorded – not all offences recorded – reliability not guaranteed.</td>
<td>Legislation framework established for traffic offences. Traffic laws specific to high-risk road safety behaviours.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Computerised registration database. Information can be retrieved from field communications. ‘E-registration’ with audits in place.</td>
<td>Computerised driver licence database. Information can be retrieved from field communications ‘E-licensing’ with audits in place.</td>
<td>Offender history linked to driver records. Demerit or black points apply – information can be retrieved through field communications.</td>
<td>Traffic laws designed with a road safety focus. Streamlined processes. Appeal process provided.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Integrated database systems with ownership history, owner licence demerits and owner criminal history. Database is subject to best-practice management for accuracy, accessibility and fraud control.</td>
<td>Integrated database systems with registration, demerits and offence history. Database is subject to best-practice management for accuracy, completeness, accessibility and fraud control.</td>
<td>Criminal history available with warning flags - violence, firearms, drugs, etc. Access to drink driving, speed convictions and special conditions – medical, alcohol testing interlocks.</td>
<td>Structured framework for road safety laws and regulations. Amendments can be achieved by regulations. Community input sought on amendments through Regulatory Impact Statements or similar.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Police field access through mobile ‘in-car’ or mobile computer systems.</td>
<td>Field access through mobile ‘in-car’ or mobile computer systems. Police have mobile access to photo and signature of licence holder (or other biometrics).</td>
<td>Field access through police mobile ‘in-car’ or mobile computer systems to all databases.</td>
<td>Owner-onus applies to electronic enforcement. Standard accepted practices are certified in law as evidentially compliant (prima facie).</td>
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<tr>
<td>Level 5</td>
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</tbody>
</table>
3. Road policing support infrastructure – registration, licensing, offender history, laws, judicial system

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
</table>

Action: Assessing the attributes of Road policing support infrastructure for star rating

Three or more attributes at or above one level are needed for a star-rating at that level. This is then entered into the Star rating matrix table in Section 3 of the manual.
**Key performance area No 4. Professionalism of the Traffic Police**

Training of traffic police including ethics, accountability and anti-corruption strategies

In each category, choose a statement that best matches your organisational capability.

| 4. Police professionalism – Training of traffic police including ethics and accountability |
|---|---|---|---|---|---|
| **Category** | **Level one** | **Level two** | **Level three** | **Level four** | **Level five** |
| 4.1 Training Curriculum and training facilities | General police academy training only. Short induction sessions to traffic law enforcement. | Specific courses developed as needed – provided by police academy. | Training developed as per training needs analysis (TNA) meeting the operational requirements of traffic police officers at all levels. | Full written traffic police training curriculum and course notes provided. Qualified trainers. Train the trainer system. Officers trained to competence. Refresher training provided periodically. | Dedicated centre of traffic police leadership and training. Centre of excellence. Sequential training curriculum. Training externally recognised as tertiary level. Strategic focus emphasised in training. |
| 4.3 Police driver training and facilities | Police require standard civilian licence to drive police cars. | Special police licence to drive police cars & motor cycles. Course curriculum and qualifying competence tests apply. | Structured police driving skills courses. Attitude and behavioural content. Curriculum framework. | Pursuit driving courses. Interception procedures. Dedicated off-road/on road training. Drivers trained and tested for competence. | Gold, silver, bronze standards or equivalent apply to police driver licensing. Driving skills aligned with class of vehicles. |
4. Police professionalism – Training of traffic police including ethics and accountability

<table>
<thead>
<tr>
<th>Category</th>
<th>Level one</th>
<th>Level two</th>
<th>Level three</th>
<th>Level four</th>
<th>Level five</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4 Collision investigation</td>
<td>Basic training only for identification and detention of offender, collision cause and completion of forms.</td>
<td>Special training provided in collision scene preservation, collection of evidence and interviewing offender/suspects. All traffic police officers required to complete.</td>
<td>Specialist investigators trained in Forensic procedures. Basic mechanical inspections. Criminal investigation procedures.</td>
<td>Crash Investigator’s Course. Scene reconstruction. Chain of responsibility investigation. Crash investigation computer programs e.g. PC Crash.</td>
<td>High level expertise in collision investigation graded at all levels from first at the scene to qualified operatives in crash reconstruction, investigation and presentation of evidence.</td>
</tr>
</tbody>
</table>

Action: Assessing the attributes of Professionalism of traffic police for star rating

Three or more attributes at or above one level are needed for a star-rating at that level. This is then entered into the Star rating matrix table in Section 3 of the manual.
Key performance area No 5. Operational capability and capacity
The ability to provide evidence-based highly visible, active and sustainable road safety enforcement programs to deliver effective and efficient safety-oriented outcomes. Capacity includes the effective use of traffic law enforcement equipment and technology.

In each category, choose a statement that best matches your organisational capability.

<table>
<thead>
<tr>
<th>5. Operational capability and capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>5.1 Core responsibility</td>
</tr>
<tr>
<td>5.2 Strategic Planning (including operational planning and ongoing monitoring and evaluation)</td>
</tr>
</tbody>
</table>
### 5. Operational capability and capacity

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.3 Operational activities (including checkpoints for drink-driving and drug-driving)</strong></td>
<td>Main responsibility is traffic flow and traffic management. Occasional static interceptions for non-safety related offences. Mobile interceptions rarely undertaken.</td>
<td>Some enforcement undertaken from static locations. Performance measured by tickets issued and fines collected. Limited mobile enforcement capability.</td>
<td>Enforcement targeted for specific road safety offences – No helmets, no seat-belts. High-risk behaviours such as drink driving and speed control targeted in specific operations and campaigns.</td>
<td>Specialist units or task forces operate for high-risk road user behaviours. Targeted interventions and countermeasures regularly scheduled. Efficiency, effectiveness and safety measured in all operational duties. Recidivists specifically targeted. Check-points well-disciplined and highly effective.</td>
<td>Outcome-focus with all operations targeted to prevent offences and save lives. High visibility checkpoint operations for high-risk user behaviours such as drink-driving, drug driving. General traffic officers are tasked for specific offences.</td>
</tr>
<tr>
<td><strong>5.5 Evidence-based enforcement</strong></td>
<td>Limited enforcement capability</td>
<td>Enforcement operations undertaken in convenient locations for prevalent or easily enforceable offences. No documented strategy applies. Success measured by offences detected and tickets issued.</td>
<td>Targeted enforcement – time, day, location, high-risk offence type. Checkpoints or operations focused on these targets. Success measured by injury reduction and crash prevention.</td>
<td>Special units targeting high-risk recidivist offenders. General enforcement targets for high-risk driver behaviours.</td>
<td>Research precedes activities or in parallel with operations. Evaluations address road safety outcomes for continuous improvement.</td>
</tr>
</tbody>
</table>
### 5. Operational capability and capacity

<table>
<thead>
<tr>
<th>Category</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.6 Police equipment, speed management, drink driving impairment, Overloaded vehicles Access to computer data bases.</strong></td>
<td>Traffic police have limited standard police equipment – traffic batons &amp; radios. No speed control or alcohol testing equipment available or authorised. Access to station computer using individual password. No technical capability or equipment for checking overloaded vehicles.</td>
<td>Basic speed measuring equipment – speedometer checks, stop watch and standard distance measurement. Field alcohol testing equipment - breathalysers. Computer access to registration and licensing information. Weighbridge facilities at fixed sites throughout the jurisdiction.</td>
<td>Amphometers, digitectors. Portable, hand-held or tripod radar/laser. Random roadside breath testing capability. Roadside sobriety tests. Evidential breath testing capability at station. Field computer access to all data records. Portable weighing devices for heavy vehicles – hoses, cables or capacity mats to weigh each wheel or axle group.</td>
<td>Portable tape recorders, cellphone, video recorders, digital cameras, moving mode radar. Tripod or hand held speed cameras. Vehicle mounted speed cameras. Screening breath test equipment in every traffic police car. On site preliminary and evidential breath-testing equipment. Field impairment tests for drug drivers. Workforce fully equipped.</td>
<td>Use of personal body videos and In-car video, automated number-plate recognition, automated video speed enforcement. Field access to data records. Roadside drug testing in all units. Weigh in motion computerised measuring facilities using video or still cameras – screening devices for use with evidential weigh machines.</td>
</tr>
<tr>
<td><strong>5.8 Patrol vehicle/motorcycle equipment</strong></td>
<td>Limited use of police vehicles available for enforcement. Main use of vehicles is for transportation or VIP escorts.</td>
<td>Dedicated traffic police cars and motorcycles equipped with lights and siren. Road policing signage on police vehicles.</td>
<td>LED messaging available from vehicles. Overt and covert police vehicle mix. Ratio usually 3 marked to 1 unmarked vehicle.</td>
<td>GPS locators in vehicle. Mobile data terminals in vehicles.</td>
<td>Video “In car” equipment, front and rear cameras (security &amp; enforcement). Automated number plate recognition available in police car.</td>
</tr>
</tbody>
</table>
**Action:** Assessing the attributes of Operational capability and capacity for star rating

Three or more attributes at or above one level are needed for a star-rating at that level. This is then entered into the Star rating matrix table in Section 3 of the manual.

<table>
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<tr>
<th>Category</th>
<th>Level 1 = 1 star</th>
<th>Level 2 = 2 stars</th>
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<th>Level 5 = 5 stars</th>
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</thead>
<tbody>
<tr>
<td>1  Core responsibility</td>
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<td>2  Strategic Planning</td>
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<td>3  Operational activities</td>
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<td>4  Speed enforcement</td>
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<td>5  Evidence-based enforcement</td>
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<tr>
<td>6  Police equipment, speed management, drink driving impairment, Overloaded vehicles, Access to computer data bases.</td>
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<tr>
<td>7  Infrastructure support for speed management &amp; red light compliance</td>
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<td>8  Car/motorcycle equipment</td>
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<td>9  Measurement for crash investigation</td>
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3

Completing the star-rating matrix
Completion is achieved by transposing the ratings from the individual key performance areas from Section 2 to the table below.

The star-rating matrix provides a visual picture of the rating scale determined by the self-assessment. This assessment has a major focus on traffic law enforcement and provides a basis for continuous improvement and future development.

NOW Complete the self-assessment for your jurisdiction by transferring the results from the star-rating processes within step 2. An example is given below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Theme</th>
<th>Star-rating 1</th>
<th>Star-rating 2</th>
<th>Star-rating 3</th>
<th>Star-rating 4</th>
<th>Star-rating 5</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Data and analysis capability</td>
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<tr>
<td>2</td>
<td>Community relationship</td>
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<tr>
<td>3</td>
<td>Road policing support Infrastructure</td>
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<td>4</td>
<td>Professionalism of the traffic police</td>
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<tr>
<td>5</td>
<td>Operational capability and capacity</td>
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Example:

<table>
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<tr>
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</tr>
</thead>
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<tr>
<td>1</td>
<td>Data and analysis capability</td>
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<td>Community relationship</td>
<td></td>
<td>⭐</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Road policing support Infrastructure</td>
<td>⭐</td>
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<td>⭐</td>
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</tbody>
</table>
4

Identifying your strengths, challenges and opportunities
Following the assessment for each of the key performance areas and the determination of the start-ratings, it is important to acknowledge organisational strengths as well as identify all potential barriers and challenges to effective law enforcement.

**Strengths:** Identify and acknowledge your good practices, successful programs and successful partnerships within your jurisdiction. These will provide the foundation for building future successes.

**Challenges:** The most common barriers identified internationally are: funding restrictions, resourcing implications and legislative impediments. While each is a challenge in its own right, the determination to move forward is paramount. Some barriers may be national, organisational, multi-sectorial or community based. Each must be considered on its merits, for its potential impact on progress and the avenues that may be implemented to overcome the barrier.

**Opportunities:** The time is right to move forward and take advantage of the international momentum. This includes the United Nations’ collaborative endeavor of the ‘Decade of Action’, Global Road Safety Week and World Road Safety Remembrance Days. It is appropriate to build sustainable capacity with identified and achievable goals, and to broaden your partnership base to approach road safety with shared responsibility and accountability.

The following table will assist in the identification of the challenges and then focus attention on the actions required to remove or minimise the impact of those barriers, and move forward taking advantage of the opportunities. Barriers and challenges will be specific to countries, depending on their socio-economic development, road safety legislation, core traffic police responsibilities, current road trauma, government commitment to road safety (political will), community attitudes and driver behaviours.
**Action No 1. Identify the challenges and control measures.**

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<tr>
<th>What is the Challenge?</th>
<th>What is the Control Measure?</th>
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**Next Step:** Convert your control measures into Action - specify what can be addressed over the next twelve months.

**Challenge No. 1**

Time line for action: (to be completed by ___/___/_______ date)

Who will take responsibility to address this challenge? ___________________________

What steps are required to commence and progress this specific action?

(a) ____________________________________

(b) ____________________________________

(c) ____________________________________

For Challenge **No. 2, and 3, 4, etc.,** repeat the above process.
**Action No. 2. Undertake a SWOT Analysis**

The use of a SWOT analysis or SWOT matrix as a brainstorming planning process will identify positive and negative aspects of your organisation and then form the basis of a major review – this is a smart, easy and useful technique to identify your **Strengths**, **Weaknesses**, **Threats** and **Opportunities**. Good practice police agencies will use this method to develop their strategic plan or to assist them in providing interventions and countermeasures in road policing reform.

The analysis can be applied to the entire organisation or refined to one particular aspect of policing such as “the subject of mobile vehicle interceptions” or “the question of police pursuits” – policy development can then follow.

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<td><strong>Strengths</strong></td>
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<td><strong>Threats</strong></td>
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- **STRENGTHS** – list and build upon those characteristics which are credible, powerful and are an advantage to your police operations
- **WEAKNESSES** – list and understand those characteristics which create a disadvantage or distraction to the effectiveness and efficiency of your operations
- **OPPORTUNITIES** – list and discover those elements which have potential value and can be exploited
- **THREATS** – list and manage those elements which pose a problem and need to be controlled or eliminated

Strengths and weaknesses are identified characteristics within your organisation and over which you have control. Opportunities and threats are usually external to your organisation. If you acknowledge your weaknesses and understand your threats, then progress can be made towards good practice and continuous improvement.
As a guide, ask questions for each category and record the critical issues:

**Strengths:** Internal perspective: What do you do well? What are your key successes? What are your key efficiencies? What do you do very effectively? What have been your achievements? Are your officers committed to achieve results? Does the community support your policing actions? What factors mean you get the job done? Remember to look at your strengths from both the perspective of your organisation and that of other agencies and the community – how do other agencies view the strengths you have raised? Does the community see your characteristics as strengths?

**Weaknesses:** Internal perspective: What could you improve? What factors limit your success? Have some of your programs failed? Why? What do you lack? Are your officers well-trained? Are your data collection and analysis sources reliable? What are your staffing levels? Do you lack resources? Is your communication strategy to the community effective? Is your communication strategy to government effective? What is the communication and relationship between agencies? Remember to look at your weaknesses from both the perspective of your organisation and that of other agencies and the community – how do other agencies view the weaknesses you have raised? Would they raise other issues as weaknesses?

**Opportunities:** What are the opportunities? Trends, initiatives in government agencies? Technology to improve your organisational performance? Sponsorships, grants or external funding to assist law enforcement? Can new professional skills and training programs be organised? Is there the ability to change government policy to assist your organisation? Are there social patterns, population profiles, lifestyle changes that may assist your strategic direction? Are there new partnerships to develop or strengthen? Community in road safety programs? Linkages to other police organisations (buddy system)? Ways to gain more resources or different resources (police reserves, police volunteer program)? Can any of your strengths be converted to opportunities or your weaknesses be eliminated to create opportunities?

**Threats:** What are barriers to effective enforcement? Is the change in technology, pace of technology or lack of technology a threat to organisational development? Is road trauma rising and causing embarrassment to your enforcement activities (or lack of enforcement activities)? Are there government regulations directly impacting on how your organisation can perform?

After undertaking a SWOT analysis, objectives can be set and planning or policy developed based on the best possible information and evidence. It is important to recognise the inter-relationships of the characteristics listed. For example a strength can be converted into an opportunity, declaring a weaknesses can assist its conversion to a strength or knowing your threats or potential threats can assist you to convert those negatives into an opportunity.

A SWOT analysis is just the start of the process – it basically results in lists for each category within the analysis. These characteristics then need to be pruned considerably, prioritised and converted to plans, actions and strategies. Both internal and external environments need to be assessed as a context for this planning.
5

Accepting the challenge and moving forward using good practice from the identified key performance areas
This Section expands on the key performance areas described in the star-rating assessment and provides good practices and solutions that may be implemented in a systematic way.

5.1 Data and analysis capability – Good Practice

Objective for good practice: To develop a crash data system capable of providing analysed data for use by law enforcement, traffic engineering design and maintenance, research agencies and other road safety partners.

The traffic police officer’s responsibility is to attend a crash site, investigate the cause, record the details and ensure a timely and accurate report is submitted (registered). This information becomes the foundation to the evidence base for intelligence-led law enforcement strategies and road traffic engineering solutions – the major reasons for collecting the data. Accuracy and reliability in this information is the key to road safety reform.

In most low to middle-income countries there is considerable under-reporting of collisions and particularly injuries; even deaths may not be reported or recorded by police. As a general guide, international experience indicates that for every reported road death we can typically expect around ten serious injuries and around 70 slight injuries.

Collision recording and reporting forms should be simple so as to ensure accuracy. While the collection process may appear tedious to the attending police, the information obtained is highly valuable for later use by enforcement analysts, researchers and engineers as they endeavour to understand the situation and provide effective counter-measures. As collision systems become more mature, the statistics reported by police should be cross-checked with data from the hospitals and emergency facilities to better understand the true scale of road trauma.

A simple workflow process map of the data collection from the crash site to the central police data repository is essential as an analytical tool to assess the different stages and to determine where improvements can be made in recording, accuracy, processing and analysis.

The production of an annual report is a major step forward. However, timely and useable monthly reports are also essential to assist proactive interventions.

Key question: Is the current crash data system operating to maximum effectiveness so that it provides qualitative analysis to guide and direct all road safety sectors in a timely manner?
5.1.1 Enhancing data and data analysis

A robust road crash data system is essential for planning and implementing effective road safety initiatives. It should provide the following detail:

- Accurate locations, crash profiling and cause, and road user categories.
- Detail for effective black spot analysis and to reduce crashes at hazardous locations.
- Detail for intelligence-led police operations.
- At risk road user groups – identified by casualty types rather than crash type.
- Timely reports and trend analysis to forecast potential road safety problems.

A multi-sector working group, chaired by the traffic police with stakeholder representatives should be formed to define the objectives and choose the best approach to move forward. This working group should:

- Review and enhance the ‘workflow’ map.
- Review of the type, range and depth of information collected at the crash site.
- Consider options for the methods of information transfer from the crash site to a central database.
- Identify all key sources of relevant data.
- Assess the upgrade of electronic systems including storage, processing of data including access protocols.
- Assess whether existing systems and processes can be modified to meet requirements.
- Set common goals and targets defining the purpose of the data analysis, operational requirements, costs, resources and training required.

A second phase of the working group’s operation may include:

- The identification of the minimum data elements required such as time, date, location, weather, speed limits and road-surface conditions and those that can be obtained from other sources such as registration and licensing particulars and network mapping. Data which is difficult to collect in a reliable form should be excluded.
- Clarification of definitions to harmonise with international standards, e.g., fatality definition from incident to death is 30 days, injury severity defined as serious and minor and with the exclusion of heart attacks, suicides and off road crashes.
- Evaluation and audit processes to ensure accuracy and validity of the data.

NOTE:

1: As the quality of crash data improves, the reported crash rate will probably reveal an increase in fatalities and particularly injuries, perhaps even dramatically, as previously under-reported statistics...
may now be captured. A media information strategy is essential to minimise the political and community concerns.

2: It is good practice to use data from different sources to cross-reference, validate and supplement the data collected from police sources. These different sources could include hospital admissions, attendance at medical centres, toll-way management collected crashes, tow-truck records, mortuary records and where appropriate, the insurance industry. If this information is not readily available, strategies should include ensuring collection in the future.

3: Some upgrades to crash data systems may focus on ‘software solutions’. However, the best system cannot produce high-quality data if data collection, entry and validation practices are poor. Enhancements to quality data collection should receive priority attention.

Effective data analysis is the foundation of evidence-based and outcome-focused road policing and traffic law enforcement. The process of analysis is essential to translate good data into effective traffic law enforcement.

Successful accident database programs rely on the ability to routinely and systematically analyse road accident data, to provide accurate, continuous and comprehensive information. Merely advising the number of deaths and injuries that occur across the nation, province or district is not ‘analysing’, it is simply reporting. Effective analysis relies on standardised processes that transform good data into effective traffic law enforcement actions.

**Good practice data analysis will support a smooth process to achieve the following:**

- Enable the organisation to collect, query, identify, analyse, disseminate, respond and evaluate – then continually repeat the process.
- The ‘SARA’ model – to **Scan**, **Analyse**, **Respond** and **Assess**.\(^{11}\)
- The *intelligence cycle* - which is to collect, process, analyse, disseminate and respond.

Key benefits of data analysis apply to all road safety sectors including:

- **Enforcement – Engineering – Education – Health - Research – Community awareness.**

Effective analysis provides a collaborative and evidence-based approach to road safety. The analysis will help us to understand where and why accidents happen. The pattern of accident causes becomes clearer, particularly for law enforcement to plan a range of remedial strategies, resource requirements and then measure enforcement effectiveness.

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\(^{11}\) [http://www.popcenter.org/about/?p=sara](http://www.popcenter.org/about/?p=sara)
The analysis of the data is of equal importance as the collection of the data. The data has to be analysed, understood and accepted in order to identify the key issues. Effective analysis leads to a prioritization of road safety programs and focused road safety based policing. Good quality data and good quality analysis will enable road safety professionals and stakeholders to develop policies and strategies that provide the greatest benefit.

**The key practical purposes of data analysis are:**

- Identification of high-risk locations.
- Identification of high-risk times of the day and days of the week.
- Identification of high-risk driver and rider behavioural activity.
- Identification of road trauma trends – rises, falls, peaks, trend lines, averages.
- Identification of black spot and black length locations.
- Identification of “intermediate” road trauma indicators.

By using accident data effectively, decision-makers can develop interventions and countermeasures that will have the greatest likelihood of reducing traffic fatalities and serious injuries.

Road Safety is a community problem, to be shared across all government agencies, community groups and non-government organisations. For stakeholders to contribute effectively to road trauma countermeasures, they need to have quality crash data and the reliable data analysis that enables better-informed decisions and that enables traffic police to work more effectively with national, provincial and district officials.

The ability to operate in an information sharing environment is a function of good practice in traffic law enforcement. Integration of all data is a key and critical issue.

Good practice involves getting all the decision makers to meet on a regular basis and commit to action - reviewing current activity, defining points of improvement and reviewing success or failure at subsequent meetings. Data analysis is at the heart of these meetings, to identify emerging patterns, solve long-term problems and work towards effective results. The managers will discuss information that the analyst has prepared, to ensure that no problem goes unaddressed, to encourage creative thinking and to reward effectiveness.

As a general principle, targeted enforcement and education interventions should have area-wide focus so as to ensure compliance on identified high-risk and illegal driver/rider behaviours such as drink driving, speeding, overloading, careless and dangerous driving as well as non-helmet wearing and non-seat belt wearing.
Data analysis can be used as a ‘prevention tool’ to reduce the level of road collisions. Proactive analysis will assist agencies take action to prevent repetition of high-risk and illegal occurrences, for example, by providing a predictive model for preventative interventions by social marketing, education and awareness campaigns and enforcement interventions. This is actionable information for preventative strategies. For example, preventative strategies for head injuries can be as simple as ensuring that:

- All persons on a motorcycle wear a helmet, especially passengers and children.
- All chin straps on helmet users are fastened.
- All helmets are of an approved quality and certified to a standard.
- Enforcement, education and awareness apply to these strategies.

The causes of accidents can be viewed as two-sided – the persons committing the traffic offences that create the accident and the environment in which the accident occurs. To achieve effective road safety outcomes, analysis of both aspects is important.

Best practice road policing and effective traffic law enforcement is evidence-based and outcome-focused. Successful accident database programs rely on the ability to routinely and systematically analyse road accident data. This provides accurate, timely, continuous and comprehensive information on road accidents. However, the information must be used in a strategic and proactive way to ensure success in measurably reducing road trauma.

The collection, reporting and analysis of accident information and data sharing with road safety partners will lead to improved road safety at district, provincial and national level and provide credibility to the overall program.


(This provides practical guidance for establishing data systems for improved measurement of road trauma, selecting evidence-based interventions and enable better evaluation of progress.)

### 5.2 The Community relationship

The relationship with the community is a broad-based theme encompassing education and engagement, driver attitude, education and awareness and the development of partnerships. Police need to engage the whole community, to assist in the identification of road safety problems and contribute to the development of solutions. This engagement can be integrated through the schools, the media and the local community. Partnerships are strongly aligned with community relationships and require police leadership, mutual trust, effective communication and linkages, sharing of information, collaboration, coordination and common objectives. Role definitions for each partner, along with clear understanding of shared responsibilities and accountabilities are integral to success.
As partnerships are the key to successful community relationships, their development forms the basis of advice within this section.

Partnerships are foundational to successful road safety programs. They do not develop of their own accord— they must be sought out and nurtured, stimulated, rewarded and maintained. A partnership may be short-term for a specific purpose, however, they are generally long term and with a strategic focus. Good practice traffic police organisations take the lead in establishing and maintaining partnerships. It is important to understand the ‘power’ of Partnerships. Partnerships are not a threat to enforcement; rather, they are a strength with the following attributes:

- Have a positive, active and working relationship to influence cultural change/ community attitudes towards road safety and to achieve specific outcomes
- Have ‘win/win’ objectives and mutual benefits with a commitment from both parties to achieve positive outcomes. Partners need to clearly identify ‘what’s in it for them?’ as an outcome. This may arise from a genuine interest in road safety, or seeking recognition as a good corporate citizen, social responsibility or for publicity for their own cause.
- Have a governance structure with accountability, a steering committee, charter and terms of reference
- Be participative, consultative and inviting of contributions of innovative road safety solutions
- Address funding opportunities and alternate funding streams for sustainable program development

‘Partnerships’ are different from groups of ‘stakeholders’. Partnerships involve mutual understanding and agreement whereas stakeholders are identified as those organisations or individuals having an interest in the outcome and who should be considered in any consultative process.

The following process is recommended for establishing and enhancing partnerships.

Core traffic police responsibilities include attending road trauma, dealing with offenders, victims and families, investigating crash causes, collecting and collating statistics and identifying and implementing remedial actions and countermeasures. This foundational information provides excellent opportunities for police to take a leadership role to initiate, develop and support partnerships locally and nationally.

The first action is to engage in meaningful discussion with the individuals, groups or organisations who share a common desire to save lives. Discussions may canvas the level of influence each party can provide, and their level of commitment and possible contributions towards road safety. Undue emphasis should not be placed on funding or resourcing impediments. Police may initiate a number
of partnership activities but it does not necessarily follow that they will maintain the lead role or responsibility. This will follow in accord with the nature of the partnership and its objectives and the outcomes sought. In some circumstances the road safety activity may already be underway and police may strengthen the outcome by adopting a strong support role.

Partnerships can have a formal or semi-formal structure, achieved, for example, by establishing a steering group with representation from each of the parties, selection of a leader/chair, then determining a mission, objectives, activities, terms of reference and expected road safety outcomes. A memorandum of understanding (MOU) or memorandum of agreement (MOA) may provide a simple process of formalization. In more complex arrangements that involve funding or resourcing commitments, legally binding contracts may be required as a protection for the parties. Once fully developed you may consolidate a charter of partnerships, which is an up-to-date register of agreements and supportive arrangements.

Key strategies and initiatives can then be determined to support the objectives of the partnership. As a foundation for these strategies, evidence-based position statements may be developed or confirmed. Target activities can be converted to public statements, and a media launch arranged to promote the objectives and raise the road safety awareness in the community; it also binds the parties in a public declaration of their intent to achieve results. Periodic media statements and a continuous media profile can engender strong support for the cause and remind the public about the dangers involved in road trauma.

Partnerships require monitoring and support. Some are formed under verbal agreement for short term publicity. Others may be formed with the best of intentions but soon become ineffective ‘NATO’ partnerships – No action, talk only. This is the reason why the forgoing process is recommended to achieve both the action outcomes and sustainability of operation.

A further caution is the perceived unpopularity of traffic law enforcement, even among general police personnel in some jurisdictions. Some potential and actual partners may wish to distance themselves from these activities and only become involved in the educative processes of road safety. Some partners may seek to exert influence on police operational enforcement activities while others may distance themselves or withdraw sponsorship following public debate on sensitive issues such as revenue raising allegations with the imposition of fines as penalties.

To avoid these pitfalls, police must provide information and advice on the rationale for any enforcement activities and support this information with evidence-based statements. This does not...
imply restrictions on the operational independence for police enforcement activities, but rather, engaging partners and the community in the rationale for the enforcement. Sharing the positive results and credits on road safety outcomes is an excellent way to receive continued partnership support.

Sensitivity to the moral values of every partner is important to avoid embarrassment or unintended complications. The risks may be avoided by reviewing any code of conduct and code of ethics promoted by the partner and validating the motivation for the partnership in the initial discussions.

Partnerships that are working should be promoted and those that are lagging, strengthened. It is important to know what works and what does not work in your community. Program evaluation is a means of taking stock, identifying these key issues, confronting challenges and moving forward. Periodic reviews and evaluation provide the stimulus to improve and continue in a more productive way.

The list of potential partner organisations is open ended across all sectors of society ranging from government departments, local government, non-government organisations, community groups as well as commercial and private organisations.

### 5.3 Road policing infrastructure support systems

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<tr>
<th>Situational analysis</th>
<th>Establish an inter-agency working group</th>
<th>Whole of government road safety reform</th>
<th>Monitor progress</th>
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**Objective for good practice:** To ensure that support systems are fully functional and provide optimum benefits for police operational enforcement and traffic management services.

The term infrastructure refers to the support systems that enable traffic law enforcement to operate effectively and efficiently. This includes laws, the legal system, the legal process, the driver licensing system and the vehicle registration system. A key aspect of this theme is that all the services needed for an efficient and effective functioning road policing organisation are not within the responsibility or control of the road policing and traffic law enforcement services. Therefore, the ability to impact on reform is more difficult as the finances, resources and authority to initiate change do not fall under the authority of the police.

A disciplined process is recommended to achieve positive outcomes, and beginning with identifying deficiencies by employing a situational analysis.
The support services include databases usually under the control of other government agencies. For each database, there is a need to check the current situation and determine desired outcomes, as well and identifying the steps/influences required to achieve outcomes. Good practice traffic policing requires field access to a number of databases, to verify driver identification, residential particulars, registration and licence status and driver history, including demerit points, prior convictions and ‘warning flags’ of potential for violence. Real-time access to the databases may be via two-way radio communications, mobile telephone or ‘in-vehicle’ computer. For each database an assessment should cover the capability for access, the need for the information, the accuracy of the information, the retrieval time to obtain the information as well as the risks associated with the non-supply of that information in real-time. Aspects to consider include:

- **Communication links**: This applies to network availability, dedicated frequency channels, communications congestion, dead-spots in the network, base to vehicle radio communications, base to personnel (foot-patrol) communications, equipment and resources for the communications centre and field officers.

- **Access**: Field access via the communications centre to the various data-bases – radio, telephone and computer access.

- **Registration database**: Accuracy and currency of the information as well as legislative requirements to notify change of address, change of ownership or vehicle modifications. Is the system is manual or computerised? What is the process for registration renewal and registration expiration and are there audit processes to prevent duplicate registrations and fraud control?

- **Licence database**: Accuracy and currency of the information as well as legislative requirements to notify change of address. Important considerations are the process for, and time delay in change of licence status such as cancellation, suspension, disqualification, re-licensing after suspension, demerit points and the compulsory fitting of alcohol testing interlock equipment. In good practice jurisdictions, the licence database will be cross-referenced with the criminal history database for offender records of violence, drugs use and possession of firearms.

- **The traffic laws**: Statutory laws provide the foundation for road user compliance and effective law enforcement. Laws must be clear and specific so that police can direct enforcement to those risk behaviours causing road crashes. The laws should be designed with a road safety focus so that penalties reflect the seriousness of high-risk offences. Evidential requirements for the burden of proof should be easy to apply for each offence. Where laws are inadequate, complex, burdensome or inoperative, the evidence of the deficiencies should be collated and reports submitted to government for legislative reform. Where possible, support agencies should be enlisted to contribute to the reform process.

- **The judicial process**: The legal framework must be transparent, accessible and efficient with court rulings, prosecution and decisions available for public access. Streamlined procedures should apply to minor offences and sanctions with alternative resolution procedures in place.
so that only contested cases require determination. The right of appeal should be available to ensure a high level of public confidence in the process.

The situational analysis will determine the impact of any or all of the above issues on the ability to provide effective policing. Additionally, for an individual jurisdiction there may be other external issues impacting upon police effectiveness that need to be addressed under this theme.

The impact of support services on police efficiency needs to be fully scoped to identify the implications and timing of any significant limitations, and the expected overall effect on road trauma. Following the initial review, an inter-agency full-time or part-time working group can provide recommendations for remedial action or better system outcomes. The working party should comprise subject matter experts, operational police, agency representatives and budget and finance specialists. It should have formal terms of reference and specific accountabilities.

The working party may be established under the guidance of an Inter-agency Steering Committee of senior staff delegates who can provide focus, establish terms of reference, timelines and expected outcomes. Both the Steering Committee and the working group should be action-oriented and base their recommendations for reform on the prevailing evidence.

An holistic approach to road safety implies an all-inclusive approach to interventions and with controls over planning, collaboration and evaluation. For police, this includes ensuring that the laws are in place and enforceable, the support systems of registration, licensing and judicial systems are established and effective, police training is implemented, police equipment is provided and community awareness programs have been initiated. This requires a dedicated coordination body with authority to address all issues across the agencies. The most common approach for interagency coordination is the formation of a National Road Safety Council established under government authority, and with a secretariat and resources. Senior traffic police should be represented on this council and voice their requests for improvement to support services, which they can base on scoping reports, assessments and reviews undertaken. Police can demonstrate initiative in the generation of cross-agency reform and even more important, ensure that remedial actions benefit the efficiency and effectiveness of operational police.
Monitoring progress is a critical component of the reform agenda. Though police do not have control to improve the support infrastructure, it is important to ensure they provide the evidence-base to generate reform and fully document all requests. Resource and financial constraints are often put forward by government as the reason for inaction. However, effective documentation through the IRPAP process will provide support to justify reform, both for its positive benefits and for the demonstrable impact of ‘inactions’.

Documenting the problem with justification in an evidence-based submission provides an official registration of the issues and an imperative for action.

### 5.4 Enhancing the professionalism of the Traffic Police

Police professionalism is a broad concept; it covers many attributes, including the quality, status and respect afforded traffic police management and individual officers. It includes being well-trained, skilled and knowing the laws, policies, procedures and regulations. To be recognised as professional, individual officers need to exhibit a high standard of ethics, show respect for the community, have effective communication and presentation skills and set an example as the authoritative and skilled representatives for road safety reform.

Professionalism is fundamental to the effective and efficient delivery of strategic and operational functions. Traffic police officers are entrusted with authority and responsibility by government and the community and this authority should be used fairly and with integrity.

An initial action to enhance professionalism is to ensure that all the basic documentation is in order and that instructions are communicated to and understood by all officers. The recommended essential documents include:

- **Role definition:** The role of the traffic police must be clearly defined in government legislation, regulations or policy statements outlining traffic management, enforcement and community education responsibilities.
- **Strategic Plan:** A road policing strategic plan aligned to the national road safety strategic plan and including realistic targets and performance indicators.
Policies: Clear policies/policy statements for generic activities likely to be encountered by traffic enforcement officers.

Operational plans: All operational plans must align with the road policing strategic plan and include realistic targets, performance indicators and intermediate performance indicators.

Standard operating procedures: Written procedures to provide guidance on routine activities such as targeted patrols, vehicle interceptions, checkpoint operations, checkpoint evasion, offender processing, dealing with aggressive drivers and common offences such as speeding, drink-driving, freight and passenger overloading, non-seat belt wearing and non-helmet wearing for riders, passengers and children.

Induction documents: All new officers appointed to the traffic division/department should be provided with instructional material on the objectives of road safety and the organisation’s expectations on their behaviour and performance.

Professional standards: Documents include a code of conduct and code of ethics. The standards may apply to the entire organisation but they are highly relevant to the work of traffic law enforcement officers.

These documents are essential – however, the critical requirement is that all officers are aware of the content and apply the policies and guidelines in their daily activities.

A review of the training documentation includes identifying and consolidating the following:

- Has a Training Needs Analysis been documented for road policing and traffic law enforcement?
- Is there a traffic police training curriculum and a curriculum framework for traffic police courses? Does this sequentially apply to operational traffic police, specialist officers such as crash investigations or specialist units, supervisors, and management/command?
- What training instruction is provided on the traffic laws?
- Are there courses on strategic traffic enforcement and leadership in road safety?
- Does competency based training apply?
- Are the instructors qualified to deliver training services and do they have traffic operational experience?
- Is there induction training for officers recruited from general policing to traffic/road policing, or transferred from the police academy?
- Is there operational skills training for specific equipment such as speed guns and breathalysers?

The deficiencies identified in the foundation documents and the basic training materials provide a catalyst for action.
These deficiencies need to be fully scoped to identify remedial actions, including timelines, resources and costs. This responsibility can be allocated to a full-time or part-time working party, with terms of reference and specific accountabilities. The working party should comprise subject matter experts, operational police and representatives from budget and finance sections.

The working party may be established under the guidance of a Steering Committee chaired by the Traffic Police Commander to provide focus, establish the terms of reference, timelines and expected outcomes. Both the Steering Committee and the working group should be action-oriented and recommendations for reform must be founded upon the prevailing evidence.

Training is a critical component of professional development.

A Training Needs Analysis/Assessment (TNA) is a systematic and thorough investigation to identify the gaps in operational policing skills, knowledge, practice and service delivery, and determine the training needed to overcome those gaps. It is critical to determine these organisational priorities in a systematic way, the first essential stage of any training program. Widespread consultation with all ranks is required – that is, asking questions and eliciting and recording the answers.

**Objective:** To identify the gap between the current level of officer competence and an ideal level for an officer to effectively carry out the duties required of them.

Police skills and knowledge are important in road safety. However, attitudes, behaviours and the performance of traffic police officers are also critical. Professional policing is achieved with skilled, confident and competent officers.

‘Training’ is sometimes put forward as a solution to a problem when there is no clear understanding of the problem or the requirements that are needed to address it. This is why it is important to follow the simple and sequential structure of the TNA. A lack of equipment or resources is not a training need, and a shortfall in work performance may or may not indicate a training need.

A TNA may be undertaken for an individual, a team, a division or the entire road policing department. It may also be undertaken for one component of traffic law enforcement such as speed management, seat-belt compliance, helmet-wearing compliance or drink-driving interventions.

In general, a TNA complements a strategic approach to road policing and traffic law enforcement. Therefore, a TNA recommendation to upgrade training can be considered as an investment in road policing and not merely as a cost. It is investment in the same way as increased resources, equipment or technology. Generally, training increases skill, capability and capacity.

The following benefits should result from undertaking a Training Needs Analysis:
The need for training or capacity building is recognised, accepted and supported by traffic police command. 
- Training and development will have focus and direction.
- Training needs will be prioritised.
- Appropriate methods to meet the training needs will be identified.
- Training will be systematic and planned as well as flexible enough to cope with ad hoc requests.
- The contribution that training makes to the professional development of traffic police can be recognised and evaluated against the initial costs.
- The outcomes will assist in the development of operational guidelines in the field (standard operational procedures) and the application of performance indicators and intermediate performance indicators for field operations.

The process to undertake a training needs analysis is:
1. Identify the road safety problem for your jurisdiction (this has already been accomplished under step one of the IRPAP program).
2. Plan how you are going to organise the data collection and analysis including the main tasks and the resources needed, timeframes, consultation process and survey of officers.
3. Identify the operational requirements and determine the level of technical and procedural expertise required for officers to perform their traffic enforcement responsibilities. This includes knowledge of laws, procedures, principles, policies and standard operational procedures as well as knowledge of the skills, attitudes and behaviours required.
4. Review the current training curriculum and training courses.
5. Assess the current competence and confidence of the officers in their core responsibilities. This can be accomplished with a self-evaluation questionnaire.
6. Analyse the data to identify the training needs and priorities and the gap in skills.
7. Report the findings, including project costs, timelines and recommendations.\(^\text{12}\)

The TNA may reveal a need to build policing capacity through the introduction of courses such as crash investigation skills, data management, specialist enforcement units, driving skills, management of operational traffic units, effective enforcement strategies, understanding driver behaviours and intelligence-led policing. On acceptance of the TNA, the next phase of the training is to focus on developing a training plan with more definitive assessment of costs, a confirmed timeline and training evaluation criteria. The costs of not undertaking the training can be included for comparison (i.e. of limited enforcement continuing, offenders not being detected or prosecuted and road trauma increasing). The outcomes of all courses should enhance leadership and knowledge in road safety and traffic enforcement and contribute to the reduction of crashes as well as enhancing police operations and traffic management.

As the organisation gains competence and skill in the delivery of training programs that can contribute towards the national road safety goals, consideration should be given to a centre of traffic training excellence. This may begin as a facility with sequential structured courses in a curriculum framework, and develop as a stand-alone resource or as a part of the police training academy or institute. The training centre will have the following characteristics:

- The centre shall be adequately resourced to deliver training to ensure that traffic police at all ranks are competent in their role and responsibilities.
- The courses will encompass the operational, management and leadership requirements for road policing and traffic law enforcement.
- All courses should have learning objectives, learning goals, lesson plans and assessment criteria.
- Students will be trained to a standard of competence assessed against duty requirements.
- Trainers will be qualified to deliver courses and transfer knowledge in operational and administration aspects of modern road policing.
- Recognition of prior learning is accepted.
- An effective monitoring and evaluation capability to ensure the centre continues to meet operational requirements.

The objective for the centre is to ensure that the training has credence through the accreditation of the courses, the trainers and ultimately, the overall facility.

Professional governance and accountability requires that traffic police commanders and supervisors ensure all officers comply with government guidelines and policies, as well as police procedures and processes in all aspects of traffic law enforcement.

Traffic police officers are an official representative of government entrusted to enforce the laws for road safety. The conduct of individual officers, on and off-duty is representative of the entire organisation. At all times, the behaviours should be at the highest ethical standards. Criteria for measuring ethical standards may be obtained from different sources. The most common measures used are disciplinary actions, citizen complaints and commendations, which covers the best and the worst of behaviours. More rigorous ratings include surveys from citizens, supervisors, peers, or self-assessment. Assessments may be referenced against quality and volume of work, job knowledge and supervisory performance evaluations. Data for assessment of professional standards can be collected in a consistent manner, it is objective in nature and is not subject to bias.

The critical behaviours impacting most negatively professional standards are corruption and abuse of power. Both represent anti-social policing and highly adverse impacts on law enforcement. They must be eliminated. Innuendo about corruption across other government agencies, or poor salary and working conditions for police officers do not justify inaction by management. Good practice police organisations develop, publish and strictly monitor a code of conduct outlining expectations of officers in the performance of their duties. This includes strong statements on integrity such as the following example.
A police officer will not engage in acts of corruption or bribery, nor will an officer condone such acts by other police officers. The public demands that the integrity of police officers be above reproach. Officers will refuse to accept any gifts, presents, subscriptions, favours, gratuities or promises that could be interpreted as seeming to cause the officer to refrain from performing official responsibilities honestly and within the law. Police officers must not receive private or special advantage from their official status. Respect from the public cannot be bought, it can only be earned and cultivated.  

At times officers will be confronted with ethical circumstances about which there is no written policy. A model developed in good practice police organisations is based on the SELF test to help make ethical decisions. Consider:

**Scrutiny** – will your decision withstand public scrutiny by the community, your leaders and official review?

**Ethical** – is your decision ethical and in compliance with official policies, practices or procedures? Does your decision comply with the code of ethics and professional and ethical standards?

**Lawful** – is your decision lawful having regard to the law, regulations and your police instructions?

**Fair** – is your decision fair on the community, your colleagues, your family, yourself and others?

Decisions must be in accord with the human rights as set out in the United Nations Charter of Human Rights, and in particular, no discrimination on the basis of race, colour, sex, religion, social or political status.

### 5.5 Improving operational capability

Good practice in traffic police enforcement reflects the ability to provide evidence-based, highly visible, active and sustainable road safety enforcement programs to deliver effective and efficient safety-oriented outcomes. This includes the effective use of traffic law enforcement equipment and technology. Key issues for consideration in this section are the needs of strategic and operational plans, targeted enforcement activities for high-risk road safety offences and measures to improve efficiency, effectiveness and safety of police operations.

---


The star-rating assessment will clarify the status of your enforcement capability. The road trauma statistics will identify where program interventions should be focussed. The risks factors identified may include inappropriate speed, drink-driving and drunk-driving, overloading of commercial, freight and passenger vehicles, non-wearing of helmets on motorcycles and non-wearing of seat belts in motor vehicles. All these risks factors can impact on road trauma. However, as resources are limited it is important to identify the highest risk factors and then focus attention on the core of the problem for the specific risk. It is not possible, for example, to penalise every driver for ‘overloading’; the better approach is to work through the transport companies to ensure compliance. A better approach than attempting to capture every speeding motorist is to focus on deterrence with high visibility, targeted enforcement programs that are televised, for example, so that many thousands of road users see enforcement in action and can appreciate that the risks of being caught and penalised are high. The critical issues in the situational analysis are to understand the causes of crashes, driver behaviours and the best means to ensure that drivers comply with the law.

A road policing strategic plan provides a framework for law enforcement and is an essential complement to the National Road Safety Strategic Plan. The plan will detail the road safety challenges and identify the specific strategies intended to counteract the problems. Critical issues to be addressed include the strategic aims, key focus areas, partnerships to develop or strengthen, and details of actions and activities to be undertaken to impact the most serious road safety problems. The plan should detail key performance indicators, opportunities to increase effectiveness, the resources required and an implementation schedule. Appendix A provides a template for developing a strategic plan. The plan must be supported by a strong strategic approach to road safety, in line with recognised methods.

As consistently demonstrated internationally, the best road safety results are achieved with a balanced mix between: **EDUCATION and ENFORCEMENT**

Neither of these will work to best effect in isolation and neither will work effectively without the other. So, there must be ‘social marketing’ to accompany enforcement campaigns, with senior police providing strong warnings about forthcoming enforcement operations. This promotes the concept of ‘fairness’ to warn law breaking drivers at the same time a strengthening the road safety message for the community. Other strategies include adopting the principles of **general deterrence** through the public promotion of both the risks as well as the high visibility of regular and **active** police enforcement. **Specific deterrence**, for drivers/riders who have not responded to education or general deterrence, can directly impact targeted offences and offenders through fines, loss of demerit points or loss of licence.
Strategic enforcement must be **evidence-based** and **outcome-focused** to reduce the prevalence of offences that create the potential for crashes. An ‘**anywhere, anytime**’ approach coupled with diverse enforcement strategies and technologies will increase the detection rate of high-risk and habitual offenders. The inclusion of ANYBODY means that no one is exempt.

### ‘ANYWHERE/ANYTIME/ANYBODY’

The public must know the seriousness of road traffic offences, that road traffic offences are illegal and that there is a high probability that they will be caught and prosecuted, if they commit an offence. Drivers must believe that committing an offence is not worth the risk of being caught and punished. No one is exempt.

As the organisation responsible for traffic law enforcement, it is critical to use information, data and intelligence to the maximum advantage. The information must be accurate, timely, and provide the basis for the deployment of scarce resources, including patrol officers, vehicles and checkpoints.

Effective use of intelligence enables senior traffic police officers to be competent in forming:

- Strategic assessments of the current road trauma and on how best to direct enforcement.
- Tactical assessments for effective deployment of personnel for maximum impact.
- Problem profiles of particular areas, population sectors and age groups.
- Target profiles of specific groups, individuals, locations, and time-based operations.

The effective use of intelligence gives police focus and enhances capacity to achieve safety on the roads.

### The key challenge is: How can we build value and efficiency in traffic law enforcement through the use of better intelligence and knowledge?

Intelligence from crash statistics, trend analysis from traffic infringements, speed survey analysis and police enforcement activity **all** must be collated and available to enable the targeted interventions. Collecting the intelligence and not making full use of it regularly may prove as adverse as having no access to the intelligence. It is a police responsibility to ensure this information is available and used effectively.

Understanding driver perceptions of being apprehended for driving offences is a most important element in any enforcement strategy. Research has made clear that fear of being caught and punished for traffic violations is a more powerful motivation for reducing speed than the fear of being involved in a crash. This knowledge assists in developing key messages to create in the minds of drivers the perception that enforcement will take place anywhere/anytime and, for anybody. By example if they drink and drive, they will be caught and punished and if they speed the chances of being caught and punished are very high. The most successful emerging strategies are seeking to gain community acceptance in order to achieve that cultural shift in driver behaviour and so to change the focus to a community road safety mentality. However, strong enforcement needs to complement these strategies for without enforcement there will be minimum compliance with road safety legislation.
Following the development and circulation of the strategic plan, operational plans provide the guidance for policing activities to ensure effective implementation of the strategy. These police operations require a ‘written’ plan to ensure the actions are detailed, specific and accountable. A good approach for operational planning is to follow a recognised military and police procedure to Plan – Brief – Execute – De-Brief and develop the written plan using a structured format, ‘SMEAC’.

**Situation**
- General overview, the ‘big picture’
- Risk assessment – potential issues and countermeasures or precautions

**Mission**
- Short succinct statement on what you want to achieve

**Execution**
- A detailed brief on how you are going to conduct the operation
  - General outline of the mission
  - Timings, locations, actions
  - Procedures, protocols, sequence of events
  - Who is going to undertake the tasks?
  - How is the operation to be effected?

**Administration and Logistics**
- What equipment is needed?
- What resources are needed?
- Food, amenities
- How is the operation to be administered

**Communication**
- What police radio or other communications are needed

This easy-to-follow structure may be used in both written and oral plans and provides the ability to effectively and efficiently apply the complexities of the planning process in a simplified manner.

Monitoring and evaluating is an essential component of good practice policing and the foundation for continuous improvement and capacity building strategies. Monitoring is keeping focus on your objectives and plan and taking corrective action to keep aligned with the plan. As emphasised throughout this manual every aspect of road policing should be subject to evaluation. In the operational sense, this applies to pilot programs, social marketing campaigns, public opinion, and the effects or results of all general project activities. Relying on the number of tickets issued is not a...
International Road Policing Assessment Program (IRPAP)

valued performance measure for road safety unless it is part of an extensive data-set complementing other activities such as public attitude surveys, baseline trauma data, speed monitoring or the monitoring of the perception of enforcement.

Monitoring and evaluation starts with baseline measurements, followed by performance indicators, intermediate performance indicators and outcome indicators. This process can be organised internally within police control or with the assistance of professional research bodies

Performance indicators form the basis of monitoring and evaluation and are critical to demonstrating current success and assisting future actions or activities, including:

- Funding requests from government by documenting the scale of the problem and demonstrating the effectiveness of any enforcement interventions.
- Demonstrating a return on investment for the current program (resources, finances) and opportunities to reduce these costs.
- Justifying police activities to the public, that is, proving that the intervention was beneficial, necessary or otherwise justified and identifying if the benefits are likely to be sustained.
- Highlighting the lack of public awareness and the need for further education or advertising.
- Assisting in the collection of statistical data, trend analysis and subsequent evaluation of the program.

Conversely, performance indicators may provide an early warning sign if an intervention is not working as planned thereby enabling corrective action to be taken to minimise any negative impact.

Operational policing requires focus on the outcomes to be achieved. Several goals will need to be identified to enable successful outcomes. Goals should be ‘SMART’ - Specific, Measurable, Agreed upon, Realistic and Time-based.

A goal may be:

- To undertake ten police operations for ‘helmet wearing’ enforcement over a period of six months to raise the level of helmet wearing by 10%.
- To provide ten intensive enforcement operations in a pre-crash zone for 12 months to intercept and prosecute speeding drivers/riders to reduce crashes by 10%.

Intermediate performance indicators include measurements such as:

- Mean traffic speeds – interventions aimed at reducing these speeds can be later compared with reductions in road trauma
- Helmet-wearing rates and seat-belt wearing rates - interventions aimed at increasing the wearing rates can be later compared with reductions in road trauma
- Drink-driving interception readings – the levels can be measured over time and compared with road trauma caused by alcohol-impaired drivers
- Public attitude surveys identifying attitudes to speed or drink-driving enforcement – measurement of changing attitudes over time.

The focus on measurement of police performance must extend to means to improvement in operational effectiveness, efficiency and safety. As an example, these are three key areas upon which to judge success for police interventions such as checkpoint operations or mobile interceptions.
Improving police enforcement effectiveness is achieved by:

- High public exposure such as using the media for promotion of road safety awareness, advertisements, campaign warnings, educational programs.
- Ensuring that the objectives are communicated to the police and the community.
- Increasing the public perception of enforcement through regular checkpoint operations and visible police presence.
- Ensuring that enforcement signage is displayed at checkpoint operations.
- Using the police emergency lighting to enhance the visible and active presence.
- Developing partnerships and using community groups to broadcast the road safety message.

Improving police enforcement efficiency is achieved by:

- Training in strategic enforcement practices.
- Developing competence in using technology such as breathalysers and speed detection devices.
- Enhancing procedures to reduce the processing time for offenders and non-offenders during mobile interceptions and at checkpoint operations.
- Adopting good practice checkpoint operational procedures to increase the throughput of drivers and riders who are assessed.

Improvements to safety are achieved by:

- Ensuring safety is considered as paramount in all operations and police activities.
- Ensuring a safety officer is appointed at all checkpoint and major operations.
- Ensuring that all vehicles are intentionally ‘slowed’ before entering checkpoint locations.
- Ensuring that a police vehicle with emergency lights operating is used to provide a ‘safety corridor’ at all checkpoint operations.
- Ensuring that all traffic police operate in uniform with fluorescent safety vests to increase visibility.
- Ensuring that all night-time checkpoint operations have adequate lighting to illuminate the checkpoint entrance and operational areas.

Adopting these planning procedures and operational practices will enhance operational capability, to provide more effective, efficient and safe operations. Appendix B provides a checklist for ensuring that good practice checkpoint control and accountability is maintained.
Conclusion

The star-rating system provides a simple and objective self-assessment measurement across all sectors of the traffic law enforcement, with five stars indicating good practice and one star indicating a need for substantial reforms. Assessment within this framework can be completed without detailed and complicated analysis.

Star ratings provide an opportunity to develop improvement and investment plans for enhancements such as in training and technology and in supporting partnerships to build capacity for sustainable enforcement strategies, which monitor efficiency and effectiveness of performance and continually work towards higher levels of professionalism.
Further Reading


International Road Assessment Program (iRAP), www.irap.org (accessed 28/5/2014)

New Car Assessment Program (NCAP), www.euroncap.com (accessed 28/5/2014)

Owens K and M Boorman, Evaluating the deterrent effect of random breath testing (RBT) and random drug testing (RDT) – The driver’s perspective, Research findings, Monograph Series No. 41, National drug law enforcement research fund, Commonwealth of Australia, Canberra, 2009.

Shuey Ray, Intelligent enforcement, the key to road safety, Proceedings of the 9th Intelligent Transport Asia Pacific Forum, Singapore 14th – 16th July, 2008.


World Health Organisation, Global Plan for the Decade of Action for Road Safety 2011-2020,


Good practice manuals

Several good practice manuals have been published by the United Nations Road Safety Collaboration, World Health Organisation and Global Road Safety Partnership. They have been translated into many languages. They are not road policing specific, however, have good practice law enforcement and road policing content within the manuals.

http://www.who.int/roadsafety/publications/en/ This website is an excellent source of road safety information. The following listed manuals can be downloaded as required:
International Road Policing Assessment Program (IRPAP)

☐ Speed Management – A road safety manual for decision-makers and practitioners (2008)

☐ Drinking and driving – A road safety manual for decision-makers and practitioners (2007)

☐ Helmets – A road safety manual for decision-makers and practitioners (2006)

☐ Data systems – A road safety manual for decision-makers and practitioners (2010)

☐ Pedestrian Safety – a road safety manual for decision-makers and practitioners (2013)

Glossary

**Accident coordinates:** The longitude and the latitude where the accident takes place.

**ANPR/ALPR:** Automated number plate recognition; Automated licence plate recognition.

**Anywhere/anytime/anybody:**

The public must know the seriousness of road traffic offences, that road traffic offences are illegal and that there is a high probability that they will be caught and prosecuted, if they commit an offence. Drivers must believe that committing an offence is not worth the risk of being caught and punished. No one is exempt.

**Compstat:** Computer assisted accountability program, which originated in the New York Police Department. Operational commanders report regularly against road safety targets that are structured to encourage maximum outputs and outcomes.

**Estimated:** An estimate is the best and most reliable calculations from all the figures available. For example, your confirmed data or figures might be two or three years out of date and, therefore, you may need to make assumptions on the trends available. It is important to record your figures as estimates, and also document your assumptions.

**Jurisdiction:** The practical area of authority and responsibility that is to be the subject of this review. It may be a country, a province or district.

**GDP:** Gross Domestic Product – A primary indicator used to gauge the health of the economy of a country.

**GIS:** Geographic Information System – A digital mapping and spatial analysis system.

**GPS:** Global Positioning System – A hand-held device that can measure accurately the earth coordinates of the holder of the device.

**IRPAP** International Road Policing Assessment Program

**SARA Model** Used for data analysis. Scan, Analyse, Respond and Assess

**SELF Test** Ethical assessment test. Scrutiny, Ethical, Lawful, Fair
SMART objectives Specific, Measurable, Agreed, Realistic, Time based

SMEAC: A structured planning process - Situation, Mission, Execution, Administration and Logistics and Communication.

SOP’s: Standard operating procedures

SWOT Analysis: A smart and effective way to assess organisational capacity through Strengths, Weaknesses, Opportunities and Threats.

TNA: Training needs analysis/assessment.

Document control

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Appendix A – Strategic Planning Template

**Strategic Aims:**

- ______________________
- ______________________
- ______________________

**Key Focus Areas:**

- ______________________
- ______________________
- ______________________

**Partnerships – to develop or strengthen:**

- ______________________
- ______________________
- ______________________
- ______________________
- ______________________

**Specific Strategies – key themes and approaches:**

**Most serious road safety problem or challenge**

a. **Objective**

b. **Current capability**

c. **Actions & Activities to be undertaken**

i. ______________________

ii. ______________________

iii. ______________________

d. **Key performance indicators**

i. ______________________

ii. ______________________

iii. ______________________

e. **Opportunities to increase effectiveness**

i. ______________________

ii. ______________________

iii. ______________________

f. **Resources required**

i. ______________________

ii. ______________________

iii. ______________________
g. Schedule of delivery (start date and realistic time line)

|_____|_____|_____|____|____|____|____|____|

Next serious problem or Issue

a. Objective

b. Current capability

c. Actions & Activities to be undertaken
   i. __________________________
   ii. __________________________
   iii. __________________________

d. Key performance indicators
   i. __________________________
   ii. __________________________
   iii. __________________________

e. Opportunities to increase effectiveness
   i. __________________________
   ii. __________________________
   iii. __________________________

f. Resources required
   iv. __________________________
   v. __________________________
   vi. __________________________

g. Schedule of delivery (start date and realistic time line)

|_____|_____|_____|____|____|____|____|____|

Outcomes sought:

_______________________________________
_______________________________________

Issues to follow up:

_______________________________________
_______________________________________
_______________________________________
_______________________________________
Appendix B - Checkpoint Operation Checklist

Checkpoint Objectives:

- That the maximum number of drivers/riders observe police checking for ____________ (name the Offence) and compliance with legislation.
- To deter drivers/riders from committing an offence.

LOCATION: _______________________________ DATE: __________

COMMENCED: ___________________ COMPLETED: ___________________

1. SITE SET UP

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<thead>
<tr>
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<tbody>
<tr>
<td>1.1</td>
<td>EXISTING CHECK POINT</td>
</tr>
<tr>
<td>1.2</td>
<td>CLEAR TRAFFIC FLOW</td>
</tr>
<tr>
<td>1.3</td>
<td>ON ROAD PULL OFF AREA</td>
</tr>
<tr>
<td>1.4</td>
<td>OFF ROAD PULL OFF AREA</td>
</tr>
<tr>
<td>1.5</td>
<td>MAXIMUM VISUAL IMPACT?</td>
</tr>
<tr>
<td>1.6</td>
<td>MINIMUM CONGESTION</td>
</tr>
<tr>
<td>1.7</td>
<td>RISK ASSESSMENT COMPLETED</td>
</tr>
<tr>
<td>1.8</td>
<td>CONTINGENCY PLAN COMPLETED</td>
</tr>
<tr>
<td>1.9</td>
<td>BRIEFING TO POLICE ON HELMET WEARING LEGISLATION AND REQUIREMENTS</td>
</tr>
</tbody>
</table>

2. SAFETY FACTORS

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>2.1</td>
<td>VISIBILITY</td>
</tr>
<tr>
<td>2.1.1</td>
<td>Has a drive through been undertaken to assess visual impact from drivers to be checked?</td>
</tr>
<tr>
<td>2.2</td>
<td>LIGHTING</td>
</tr>
<tr>
<td>2.3</td>
<td>SHELTER</td>
</tr>
<tr>
<td>2.4</td>
<td>EVEN ROAD SURFACE</td>
</tr>
<tr>
<td>2.5</td>
<td>SAFE PULL OFF AREA</td>
</tr>
<tr>
<td>2.6</td>
<td>POLICE VEHICLE FOR SAFETY CORRIDOR</td>
</tr>
</tbody>
</table>
2.7 EMERGENCY POLICE LIGHTS OPERATING

2.6 NOMINATED SAFETY OFFICER

Officer’s Name________________________

3. EQUIPMENT

3.1 TICKET BOOKS

3.2 REFLECTIVE VESTS

3.2.1 Checkpoint officers

3.2.2 Supervisor

3.2.3 VIP’s, Official observers

3.3 SAFETY CONES

3.4 DIRECTIONAL WANDS

3.5 FLASHING LIGHTS (Battery Life?)

3.6 CHECK POINT SIGNS ADVISING THE TARGET OFFENCE

3.7 WEATHER PROTECTION – Rain/Heat

3.8 COMMUNICATIONS (RADIOS)

3.9 PHOTOGRAPHIC OR VIDEO EVIDENCE (if required)

4. RESOURCES

4.1 PERSONNEL – NUMBERS

4.2 TRANSPORTATION

4.3 ‘SPOTTER’ VEHICLE/OFFICER (AS REQUIRED-)
5. **STATISTICS COLLECTION**

5.1 RECORDING TOOLS (FORMS, PENS, ETC)

5.2 DEDICATED RECORDING PERSON

5.3 RECORDING PERSON BRIEFED

5.4 RECORDING

5.4.1 Infringements by type

5.4.2 Warnings

5.4.3 Education

5.4.4 Hours of checkpoint operation

CHECKPOINT SUPERVISOR: NAME ____________________

RANK ____________________

SIGNATURE ____________________

DATE __ / __ / ____