

# Road Safety Policy & Practice

## Sharing road safety education and enforcement knowledge and practice throughout developing nations - challenges create opportunities!

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### Key Findings

- The benefits of combining education and enforcement are confirmed in practical applications where behavioural change has been achieved in low and middle-income countries (LMICs);
- A professional development model for traffic police is considered a successful methodology for nation-wide capacity building in LMICs using a practical train the trainer approach where trainers are assessed for their competence and coached through their initial knowledge transfer;
- Quick fix short training sessions do not achieve capacity building outcomes;
- Expenditure on road safety is an investment not a cost in LMICs;
- Police enforcement as demonstrated in a seat-belt wearing intervention is cost effective.

### Abstract

This paper presents a practitioner's perspective of implementing road safety strategies in low and middle-income countries. It identifies a gap in traffic law enforcement capability and describes professional development train the trainer programs to build capacity. The costs and benefits of road safety reform are raised in conjunction with the need to provide adequate funding to support the behavioural change of drivers. Understanding the challenges of piecemeal reform, policing capability, corruption and under-reporting of crashes provides opportunities to use this knowledge to impact behavioural change and road trauma reduction. The findings confirm education and enforcement as a successful methodology for reform as well as the need to create the perception of certainty of being caught and punished when breaking the law.

### Keywords

Enforcement, Education, Training, Challenges, Perception, Driver Behaviours

### Introduction

High-risk driver behaviours, low socio-economic environment and limited police enforcement capability are key issues for road safety in low and middle-income countries (LMICs). The aim is to build capacity of all road safety agencies while the challenge is to ensure interventions are sustainable.

The driving force for reform is the annual estimate of 1.3 million road fatalities globally and 20-50 million serious injuries. 90% of this trauma occurs in LMICs where a *neglected epidemic* exists with poor enforcement, poor administration, inadequate resources and corruption (Nantulya 2002). Laws are not enforced and a piecemeal approach to road safety is the lack of strategic planning, leadership and government commitment (WHO 2004).

High density traffic, poor road conditions and poor road user behaviours are compounded by the diversity of vehicles and

pedestrians all vying for road position. The perceived lack of road safety discipline is balanced with a degree of *order in chaos* especially at low speeds, less than 30kph. However, the discipline to achieve road safety outcomes needs a foundation shift in road user behaviours as risks are high at intersections and high-speed, high-risk roads.

Motivations for driver compliance are *general* and *specific* deterrence via enforcement which must be highly visible, repeated often, fair and consistent and well publicised (Homel 1988, 1990). Creating the perception of being caught and punished is fundamental with the certainty of detection being more important than penalty (Zaal 1994, Radin 1998, Isah 2012). Perception is reinforced by an *anywhere, anytime, anybody* enforcement strategy (Shuey 2013). Effective enforcement is further founded on a critical mass of compliant road users impacting the driving culture, otherwise, police consider enforcement futile.

Road safety research often calls for *more* enforcement without providing advice. The identified gap is the lack of specific guidance for road policing on *how* to improve enforcement capability in a sustained manner. 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 to significantly impact road trauma. This paper describes programs where that gap has been addressed to assist police enforcement capacity and capability. Key challenges to road safety reform are identified to ensure consideration in future interventions.

## Methodology

This paper draws upon a practitioner’s road safety experience in LMICs over 15 years and research to provide good practice opportunities for road safety reform for police enforcement and education. Programs which have been implemented and evaluated are described to enable enhancement and replication of the designed activities. The direct experiences of working with road safety practitioners, living within the communities, and, specifically as a participant observer and assessor at police operations were analysed to provide extensive insights into the challenges, opportunities and cautions for road safety professionals in LMICs.

An assessment of law enforcement capability consolidated 10 critical deficiencies, namely: data analysis, partnerships, community engagement, strategic planning, use of the media, education campaigns, technology, road policing capability, operational effectiveness and performance measures (Shuey 2006). These components were used as a foundation for road safety reviews, strategic plans, training programs and capacity building for LMICs as well as incorporating the principles of *Vision Zero*, the *Safe Systems Approach* and the *Decade of Action*.

## Demonstration Programs

Programs undertaken in Malaysia, China and the Philippines are described below to demonstrate the benefits of a professional curriculum, a professional delivery framework, a structured research and evaluation program and optimum methods of reaching police officers in an entire country. The benefits of community support, data collection and political commitment are included.

### Professional Development of Traffic Police, Malaysia 2007-2008

This holistic program commenced with Ministerial meetings to endorse a national commitment to the professional development of traffic police officers. A ½ day executive workshop with senior police and transport officers then committed to support the capacity building program. The two-day leadership program for senior officers addressed; Benchmarking and Leadership; Effective Use of Intelligence and Analysis; Planning Strategies and Tactics and Focus on the Future - Developing the Plan. For this component, 500 officer days were committed to the program. A *train the trainer* model followed for the delivery of a 5 day course nation-wide (Figure 1).

A key practical approach was to involve the trainers in the Leadership program, developing two-way trust and strengthening the relationship with senior officers. The interactive workshops then sourced *real* data to identify critical risks, develop strategies and conduct on-road practical enforcement. Finally, the *trainers* were coached through their initial knowledge transfer ensuring competent and credible program delivery.

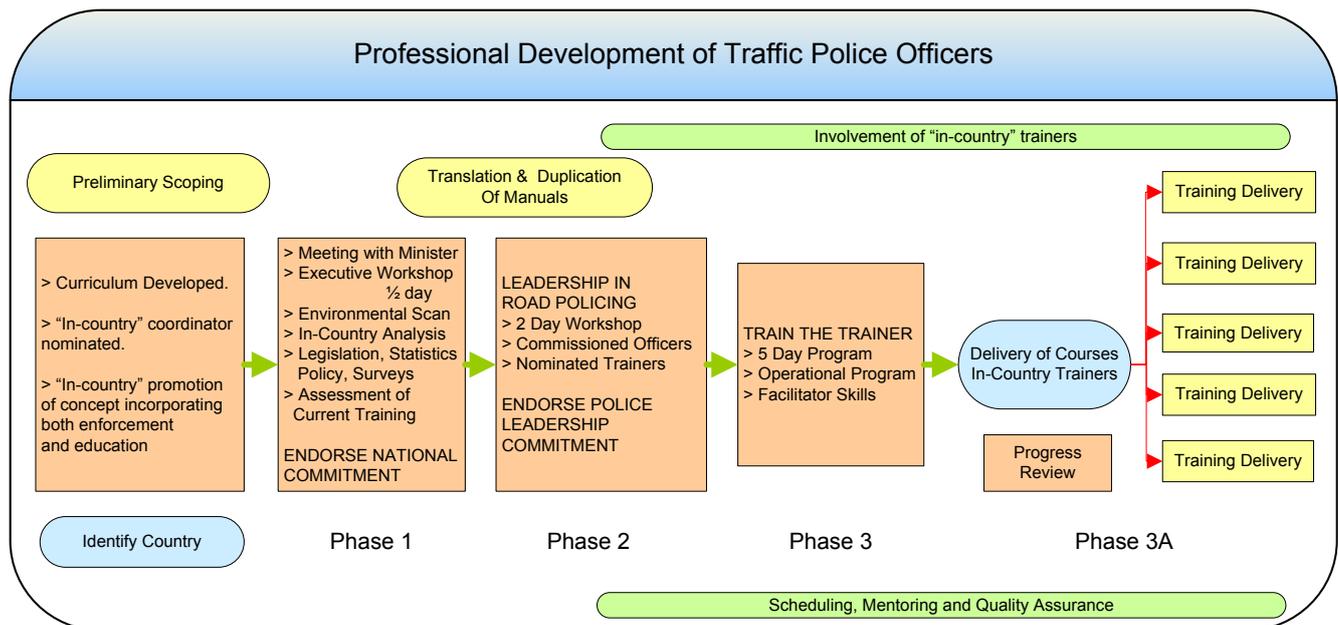


Figure 1. Professional development program for traffic police - Malaysia

Program success was determined through formative evaluation commencing at development through the life of the program and was undertaken by the Malaysian Institute of Road Safety Research (MIROS). Process implementation and progress impact culminated in summative evaluation in the later stages. Phase 2 and 3 workshops, modules and content were scored by participant agreement/disagreement scales with positive results of 70% -90% in all criteria. The highest agreement scores were in 'mindset change' being 98% and trainers' expertise and knowledge at 94.1%. Lower scores in any category indicated the need to review those components. Evaluation and on-site longitudinal surveys by MIROS at the target checkpoint locations, pre-course, at intervention and post-intervention identified trauma reduction at those locations over a period of twelve months (MIROS 2007, 2008).

### China Seat Belt Intervention, Guangzhou 2005-2006

The initiative was the first comprehensively implemented road safety strategy in China comprising health promotion, social marketing, enhanced police enforcement and input from scientists and educators. Although a law since 1993, seat-belt wearing rate was low. The objectives over 12 months, were to increase seat-belt wearing by 20%, build capacity in road traffic injury prevention, estimate cost-effectiveness of the intervention and reduce the number and severity of injuries.

A roadside audit identified taxi-drivers refusing to buckle up, faking use by deception to fool police or only fastening their seat-belt on approach to a check-point. The key deception was a bolt, clip or other obstruction preventing the seat-belt retraction operating, with the sash draped across the shoulder and without the buckle engaged (Figure 2). This practice was observed in 90% of taxis and *Operation Taxi-Driver* was instigated to assist 20 major companies educate over 20,000 drivers.

A police *train the trainer* program involved two cohorts of 25 senior police who were trained in seat-belt enforcement, traffic safety and checkpoint operations with responsibility to train all 1,125 traffic police in Guangzhou, a mega city of 8.5 million people. Although enforcement activities were 40% less than targeted, 44,430 seat-belt infringements were issued during the intervention.

The analysis of pre and post research showed a significant increase in general population seat-belt use from 50%-62% compared to a decrease of 6% in the control city. Seat-belt use by taxi drivers increased by 21%. The estimated total number of Disability Adjusted Life Years saved (DALYs) was 530 (USD \$418 per DALY - costs vs cost savings). Behavioural change was achieved through combining education and enforcement in a traditional road safety approach.

An economic analysis of police resources in training, operations and promotions compared with the outcomes achieved determined that this enforcement program was cost-effective. Further, the cooperation and collaboration of the partners was an essential component of the intervention reinforcing the value of combining education and enforcement (George Institute 2007). The World Health Organisation has endorsed this innovative intervention supported by research, as valuable in achieving continuous improvement (WHO 2009).

### Training Programs - China 2010-2016

Road policing training programs were undertaken in 12 major cities throughout China targeting primarily drink-driving and speed management interventions which were identified as the two high-risk driver behaviours. The programs included checkpoint operations, safe vehicle interceptions, operational planning and performance monitoring. Field observations and capacity reviews ensured a structured evaluation for continuous improvement (Figure 3).

A nation-wide road safety enforcement training program was provided through the central academy of Wuxi Traffic Management Research Institute in June 2012. Four senior traffic police from all 23 provinces, 4 municipalities and autonomous regions in China, in two cohorts undertook a professional development program in *Strategic Leadership and Traffic Law Enforcement*.

With five modules, the program provided an holistic approach to road policing enabling the participants to understand the fundamentals of road safety, behavioral change, evaluating programs and importantly, setting their own goals to develop strategic plans. This program was the **how** of effective enforcement emphasising *efficiency, effectiveness and safety* in all enforcement operations. The



Figure 2. Unsafe and deceptive use of seat belts by taxi drivers, Guangzhou, China



Figure 3. Police training checkpoint operations, China

strategic and practical operational modules were applicable and adaptable to the diversity of local social, economic, political and cultural needs throughout China.

### Development of Master Trainers - Asia Pacific 2014 -2015

An Asia Pacific Road Safety Program, in Manila included an enforcement *train the trainer* program for 33 participants from 10 ASEAN countries who were coached as *master trainers*. The structured workshops enabled rich discussion on critical issues of traffic law enforcement with a representative mix of professional backgrounds. Each participant was provided with a road safety manual, power-points, facilitation skills and reference materials to deliver a 5-day training program.

The program provided focus for each country to determine its capacity building needs and interventions, particularly in road policing and traffic law enforcement. Workshop discussions highlighted the need to improve community relationships, partnerships; driver attitudes; develop leadership strategies; strengthen task force and operational policing; database enhancement; and, to improve management. The program is a model for future delivery of *train the trainer* programs.

### Youth empowerment programs - Cambodia

A cooperative approach of education and enforcement is demonstrated in Cambodia in youth empowerment programs. The Cambodian Red Cross Youth are a team of 60 university students who have undertaken a two-day road safety program and operate across six provinces. They work with police on night-time checkpoints providing education to offenders on *respect for the law*, the *risks* of not wearing a helmet and the risks in drinking and driving/riding.

The Young Ambassadors for Road Safety network empowers students to design sustainable road safety awareness initiatives for their peers. They educate students on the importance of helmet-wearing and have been instrumental in a national head-safe helmet-on project.

CamSafe is another not for profit organisation optimizing youth participation in community road safety. Participants undertake a *Go Gens* spirit training program, develop and promote road safety videos, assist with disability services and educate school children on road safety. Members

coordinate with Red Cross, non-government organisations and private sectors during major events such as the Khmer New Year, Pchum Ben Day and Road Safety Week (Figure 4).

On analysis, these youth programs provide community and peer education aligned with policing activities with the common target to reduce road trauma. Youth working on police checkpoints enhance the visible and active presence of the interventions and demonstrate a community policing approach to the problem. Helmet-wearing awareness initiatives address the safety benefits in parallel with enforcement activities. Similarly, drink driving awareness videos produced by the youth volunteers and released pre-festival provide strong messages to complement enforcement.

While success cannot be attributed to individual activities, surveys indicate driver respondents' attitudes to drinking and driving dropped from 55% to 22% over six months and the driver impaired related crash fatalities decreased by 34% in 2016. Helmet-wearing surveys identified an improvement in attitude to passenger wearing from 86% to 98% in target communes and increased compliance on actual wearing rate of passengers from 10% to 14% (RCVIS 2014).

### Study tours for police - practical application of knowledge transfer

Study tours for LMIC police officers have directly applied knowledge transfer in practice-based learning and observations. Officers from Cambodia and China who have observed the practical application of checkpoint operations and vehicle interceptions with Queensland and Victoria Police have implemented good practice solutions in their country.

The Cambodian checkpoint model has been replicated throughout the country while the model in Suzhou, China with 50 police and 10 police cars, test drivers for alcohol impairment across 3 lanes of traffic. It operates weekly supported by 8 smaller satellite operations during the week promoting highly visible and active enforcement and efficiency in testing throughput. The Chinese model is the most efficient observed. Both models achieve road safety credibility in visible police presence and demonstrate the practical outcomes of police commanders understanding a strategic approach.



Figure 4. Camsafe youth road safety programs

## Developing road safety data systems - Cambodia 2004 onwards

A good practice data collection program is the Cambodian Road Crash and Victim Information System (RCVIS), developed in 2004 using police and health data for evidence-based reform (RCVIS 2004 onwards). Progressive training and improvement using this system provides the framework for the National Road Safety Action Plan.

An evaluation found 100% of police districts and 65% of hospitals reporting to the system in 2010 and concluded that the RCVIS provides a strong foundation for road crash injury and fatality surveillance (Parker 2014). An analysis supports observations of data retrieval and use being a primary driver and valuable resource for helmet-wearing, drink driving and speed management interventions.

## Government commitment to enforcement - Vietnam 2007

Helmet-wearing laws commenced in Asia from 2000 however, with little impact and minimal enforcement until education and enforcement workshops commenced in 2006. The Vietnamese government decreed an enforcement date of 15<sup>th</sup> December 2007. This *national enforcement threat* raised the helmet-wearing rate virtually overnight *on that date* from 10%- 30% to almost 100%. An analysis confirmed the perception of apprehension was a major motivator for compliance rather than a concern for safety.

Unfortunately, the threat of enforcement was not sustained, and helmet-wearing rates dropped especially at night-time. Police maintained they had done the enforcement package therefore the community should know and comply - neglecting the principles of *sustained enforcement* and *repeated often*. The outcome is also a practical reminder of the need to reinforce the *perception* of being apprehended.

## Key Challenges to Road Safety Reform in LMICs

Identification of challenges to road safety reform in LMICs provides opportunities to further improve enforcement training and behavioural change programs. Key challenges are discussed in turn below.

## Piecemeal reform

The enormity and complexity of road trauma in LMICs provide challenges for all road safety professionals with foundation issues such as where to start and how to achieve value for money and services in sustainable programs. These challenges are exacerbated by the socio-economic, cultural and political environments. It should also be appreciated that countries such as Australia, United Kingdom and Sweden have been progressively developing road safety interventions over 50 years.

Effective police enforcement is achieved through professional development in competency-based training and coaching to ensure sustainability and capacity building. Barriers to achieving these outcomes are: (a) lack of funding for extended programs; (b) lack of political commitment to enforcement programs; (c) police and donors seeking *quick fix* solutions and training packages e.g. 2-3 days maximum; and (d) donors and police unwilling to support structured *train the trainer* programs e.g. Donors and police agencies will support the training of 50 officers and call it a *train the trainer* program notwithstanding most officers do not have the competence to re-train others.

Further, both donors and police fail to appreciate the time commitments of police competency-based training in high income countries. *Quick fix* short training sessions are piecemeal solutions and do not build capacity or ensure continuous improvement.

## Failing to consider road safety as an investment

Governments fail to appreciate and commit to counteracting the *real* costs of road trauma. These costs vary from 1.5% to 3.5% of the Gross Domestic Product (GDP) e.g. Cambodia 2.3% GDP = USD \$337 million, Malaysia 1.7% GDP (OECD 2017). Overall, government expenditure on road safety in LMICs is insignificant when compared to their GDP costs of road trauma.

An educative example is that of the Japanese Government in 1970 whereby an investment of 0.06% of its GDP resulted in a 50% fatality reduction over 10 years (Japanese White Papers 1971 onwards). The challenge is to use the Japanese example, understand the country's expenditure and costs and

present the argument that *expenditure on road safety is an investment not a cost*.

## Cost-benefit analysis as a pre-requisite of road safety reform

Cost-benefit studies are available internationally for road safety interventions. Behavioural reforms such as drink driving enforcement and speed management can be assessed against engineering solutions such as new roads and wire-rope barriers. In these studies, enforcement and education programs will achieve short-term results which must be sustained vs building a divided highway leading to longer term and usually permanent gains. *Notwithstanding these differences, all road safety programs require a cost/benefit ratio assessment.*

## Traffic police capability to commit to visible enforcement

LMIC road policing bodies are transitioning from para-military organisations to traffic law enforcement and often focused on traffic control, registration and licensing, VIP escorts, motorcades, vehicle inspections and administration. Enforcement basics are often lacking such as accurate observations, note taking, safety procedures, planning, strategies and presenting evidence. Resource availability for enforcement may only be 10% compared to higher income countries with historically dedicated traffic services able to commit 90% plus of available resources (Shuey 2013).

Enforcement activities are rarely self-initiated and require an *order* for operations and checkpoints and then only activated in locations often requiring government or provincial authorization. Politically, enforcement is viewed as confrontational to the public and softer approaches are preferred. The results are that checkpoint operations for two hours per week are perceived as satisfactory.

Instilling a culture of *active and visible police presence* and *repeated often* is a major challenge. Limited enforcement is confounded by natural disasters, floods, demonstrations and elections in LMICs. In these situations, enforcement activity reduces to zero and road users take advantage disrespecting their legal and safety obligations. Understanding these issues are pre-cursors to training and development programs.

## Corruption

Corruption is an abuse of power breeding mistrust in the community and police, lowering community standards, resulting in loss of international reputation and damaging the reputation of all honest traffic officers and supervisors. Importantly, because there is no official sanction, poor driving behaviours continue and there are no incentives for drivers to modify their behaviour.

The limited controls and secrecy of corrupt activity inhibit accurate recording, so perceptions form the basis for country-wide rankings globally of their public sector in the ‘corruption perceptions index’ reported annually by

Transparency International. Bribery of/by traffic police may be a component of a broader culture where corruption by officials exists in transport, driver licensing, construction, health and politics. Nevertheless, police corruption undermines public trust, cooperation, victimizes vulnerable groups and impedes strategic countermeasures.

On-the-spot roadside police fines are endorsed in legislation as an incentive base in some Asian countries where fines are collected, receipted and apportioned according to law. This rationale exists because vehicle ownership, recording of addresses and licence records are poor, negating any option to pay later as well as the fine being due in the province where the offence was committed. However, there is no excuse for any activity outside this legislated framework.

Abuse of power by officials is a greater impediment to road safety. VIP expectations to be exempt from law and demanding immunity at checkpoints are prevalent occurrences. In China, an offender may initiate *guanxi*, a moral obligation to/from a higher official to instruct the commander to release the offender. This *abuse of power* has been minimised by body-worn cameras, ethics training and the commanders’ prohibiting police mobile phones on checkpoints rendering personal contact impossible and therefore due process occurs *at least until the following day!* Anti-corruption strategies include; training; accountability regimes; officials collecting fines at checkpoints; receipts issued for fines; and, large banners at checkpoints listing offences and fines.

Government officials and employees not complying with the helmet-wearing laws, government and military officials not wearing seat-belts and Ministerial motorcycle escorts wearing ballistic vests, however, no helmets are also damaging to road safety reform. For example, the Thai Prime Minister was filmed riding with 200 motorcycle supporters during a public election campaign without a helmet - resulting in a justifiable ‘*why should I*’ excuse from civilian motorcycle riders.

## Under-reporting of road crash data

Under-reporting of crash data is a serious concern in LMICs (Odero 1997), with estimates varying from 25% to 60% of crashes not reported (Aeron-Thomas 2003). Explanations range from definitional issues, deliberate misrepresentation, crash reporting, investigation difficulties, and lack of competence in data collection.

China excludes some highways as well as fatalities involving government employees and rail/road incidents. In Vietnam, notwithstanding recommendations from the World Bank, *National Road Accident Database* upgrade 2012, there was no national commitment to reconcile the huge discrepancy between police data and injury surveillance data from 100 hospitals. In Yemen and Ethiopia, the lack of crash investigation capability and rudimentary data collection minimises data analysis. The common theme identified is that the lack of, and underuse of, available data does not enable a true road trauma assessment and therefore reduces the impact of positive interventions.



Figure 5. Helmet-wearing intervention Cambodia - purchase of 3 quality helmets

In Indonesia, Police Command undertook a concerted effort to improve data collection and quality from 2009-2010 resulting in a substantial increase of 10,000 fatalities in one year (20,000 to 31,234). During a *Driver Licensing Review* in Dubai, alcohol was not considered relevant in fatalities in 2005. However, on this being drawn to police attention, in 2006, alcohol was classified as the primary crash cause in 76 or 24.4% of the 312 fatalities. *In both examples, data quality now provides a more realistic approach to strategies and interventions.*

### Unintended consequences of enforcement

Unintended consequences of enforcement observed in Asia include motorcyclists driving on the footpath, undertaking “u” turns or riding through barriers to evade checkpoints; riders putting on a helmet or buckling a seat-belt only on approach to a checkpoint; riders renting helmets before a checkpoint and helmet return past the checkpoint on national highways in Vietnam. In addition, donor funded helmets in Thailand were sold in markets and special helmets provided by the King were sold as a collector’s item. Checkpoint evasion strategies were developed to strengthen enforcement, however, auditing the trail of donated helmets is a major task considering the poverty of nations.

An unintended consequence of the helmet-wearing implementation in Vietnam, was the failure to proclaim and enforce safety standards in parallel, resulting in *fake* and makeshift helmets, rudimentary head coverings, construction helmets and poor-quality imports from China with no protective polystyrene inserts. Many riders opted for cheap imitations at USD \$2 rather than a quality helmet at USD \$12 (Compliance vs Safety). To this day, fake helmets and fake standards stamped on poor quality helmets are a major safety hazard and have compromised the positive initial impact of an overnight cultural change. Interestingly, other Asian countries, including China, have not suffered a prevalence of fake helmets.

### Conclusion

This paper has provided an overview of police professional development and train the trainer enforcement programs designed to build nation-wide capacity for road safety reform in LMICs. The benefits of combining education and enforcement are confirmed. Understanding the challenges of piecemeal reform, policing capability, corruption and under-reporting of crashes provides opportunities to use this knowledge in future programs for road trauma reduction. The Japanese financial model provides an example for

governments to treat road safety as an investment rather than a cost and the China seat-belt intervention demonstrates police enforcement as cost-effective.

Road safety capacity building in LMICs bring about achievements and satisfaction in sharing knowledge internationally with road safety colleagues, volunteers and professionals supported by donor organisations. The real rewards lie in observing the children now wearing helmets. Figure 5 depicts a grandmother, mother and daughter riding into a village during a *head-safe, helmet-on* program in Cambodia and leaving after purchasing quality helmets.

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