A Qualitative Study of the Context of Speed Management in Cambodia

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Key Findings

• The context of speed management in Cambodia presents a number of challenges;
• A functional road hierarchy and a less complex speed limit system are needed;
• Effective enforcement requires resourcing and addressing of issues affecting deterrence;
• Knowledge of speed limits is low, and public education has an important role in supporting enforcement and motivating compliance;
• Funding, coordination, data support, monitoring and evaluation need to be addressed.

Abstract

Cambodia has one of the highest road crash rates amongst low-and middle-income countries (LMICs), with speeding a major contributor. Best practice speed management has been promoted internationally, and transfer of knowledge and best practices from high income countries (HICs) to LMICs has been recommended. However there is a need to take account of the physical, social and political environment of the LMIC concerned. The aims of this study were to analyse the context of speed management in Cambodia using the Road Safety Space Model (RSSM), and to recommend how best practice speed management could be implemented. Secondary sources were reviewed, and semi-structured interviews were conducted with 13 key informants with professional experience in speed management and enforcement in Cambodia. The interviews were recorded, transcribed, translated and thematic analysis was undertaken. The findings were interpreted using RSSM, within the categories of economic, institutional and social/cultural factors. Although there are Cambodian government initiatives to address speeding issues, many challenges were revealed. Recommendations are made, aligned with best practice recommendations for speed management. They include establishment of a functional road hierarchy and a review of provisions for different road users; a move away from the current complex vehicle-based speed limit scheme; improved databases to support enforcement, monitoring and evaluation; a review of current legislation and practices around fines and implementation of the licence points system; improvement of the spatial and temporal coverage of enforcement; public education to support enforcement; workplace safety measures to address speeding; and better coordination and funding across government agencies.

Keywords

Cambodia, speed management, speed enforcement, best practice, knowledge transfer, deterrence theory

Introduction

Cambodia, in Southeast Asia is classified among low-and middle-income countries (LMICs). In 2016, Cambodia had 1,852 road crash fatalities in a population of about 16 million (Road Crash and Victims Information System [RCVIS], 2017). This corresponds to a rate of 11.9 fatal crashes per 100,000 people (RCVIS, 2017), more than twice the Australian rate of 4.5 per 100,000 in 2018 (Bureau of Infrastructure, Transport and Regional Economics [BITRE] 2019). An earlier report on Cambodia (when the situation was better) estimated that road crashes cost the Cambodian economy over USD 310 million (2.4% of GDP) (Handicap International, 2012), This exceeds the amount of development assistance received by Cambodia (Chekijian, Paul, Kohl, Walker, Tomassoni, Cone & Vaca, 2014).

Speeding is identified as a risk factor causing road crashes and increasing their severity worldwide (Global Road Safety Partnership [GRSP], 2008) and is acknowledged as an important issue in Cambodia (RCVIS, 2017). Speed Management refers to “an active approach that requires (or persuades) drivers to adopt speeds that offer mobility without compromising safety (Global Road Safety Partnership [GRSP, 2008]). Its aim is to “reduce the number of road traffic crashes and the serious injuries and death that can result from them” (GRSP, 2008). This entails the implementation of multiple measures (enforcement, engineering and education) to produce successful outcomes. GRSP (2008:87) lists the tools required for effective speed management, summarised as follows:
Even in high-income countries (HICs), speed management has only partially succeeded in addressing the aims of reducing numbers and severity of crashes. In Australia, for example, the States and Territories have developed comprehensive speed management strategies and are committed through the National Road Safety Strategy (NRSS) 2011-2020 to a Safe System approach that has four pillars: Safe Road Users, Safe Vehicles, Safe Roads and Roadsides, and Safe Speeds. Overall, there has been a decline in fatalities in Australia at the same time as the population has increased (BITRE, 2019). However the decline has not met the NRSS target, and an inquiry into the NRSS concluded that there is still considerable work to do before full implementation of a Safe System in Australia is achieved (Woolley, Crozier, McIntosh & McInerney, 2018).

The same inquiry identified a number of shortcomings in speed management in Australia: rural speeds are too high to be compatible with a Safe System approach; urban speeds are mostly too high for safety of vulnerable road users; and there is insufficient data to monitor travel speeds and levels of speed enforcement in Australia. The report recommended that Australia “Accelerate the adoption of speed management initiatives that support harm elimination” (Woolley et al., 2018:8).

Even though HICs like Australia do not necessarily implement best practice fully, the World Health Organization (WHO, 2004) recommended that LMICs adopt the proven and promising road safety approaches from developed nations’ best practices that are suitable and promising for local conditions. Similar comments have been made by Bliss and Breen (2012), and Wegman (2017). However it has also been noted that simply transplanting an intervention or program from one country to another may not give the desired results, because of the specific economic, institutional and social/cultural factors that influence the target issue (King, 2005). HIC’s have many differences from LMICs apart from the definitional economic distinction, such as income distribution, institutional development, health system capability, infrastructure, social structure, and culture (King, 2005). These potential factors influence road safety management, road infrastructure, vehicle standards, road user behaviour, law and regulation, and law enforcement, and would therefore influence the adoption of speed management in Cambodia. The first aim of this study is therefore to understand barriers and needs of speed management implementation in Cambodia by analysing the context of speeding and speed management in Cambodia. The second aim is to use the analysis of the context to suggest strategies for introducing more effective speed management in Cambodia.

Methods

Following the methodology used by King (2005), the methods employed in this study were qualitative, and comprised an initial review of secondary sources, including secondary data collections, policy documents and existing literature, followed by key informant interviews. Further details are provided below.

Review of Secondary Data, Policy Documents and Existing Literature

Time and resource constraints limited these sources of data to readily available secondary data, and official documents setting out the legislative framework and policies. Many of these documents are in Khmer, some are not available online, and websites may not be up to date. The second author is a Cambodian who previously worked in road safety in Cambodia for a number of years, for a non-government organisation (NGO), and was able to draw on relevant documents accumulated during that time, and contacts who could supply other official (non-confidential) sources. The documents included statistical reports, legislation, policy documents and research reports that appeared in the grey literature. There is very little research on road safety in Cambodia published in the scholarly literature.

The analytical approach followed Platt’s (1981a,b) recommendation for document research, which essentially involves taking an inductive, critical approach to the information that is extracted from the documents. Tight (2019) refers to Platt’s approach as quasi-legalistic, in the sense that what the documents say is not taken for granted as fact, but is considered as information on a particular topic which is open to reflection on its reliability and credibility. In this study, the limited amount of information available did not allow for much cross-checking of sources, however it was possible in some cases to relate secondary source information to the interview data.

Interviews with Key Informants and Context Analysis

Recruitment and sample characteristics

Snowballing and purposive sampling were utilized to recruit key informants in Cambodia, and in addition an Australian road safety consultant with extensive Cambodian experience was interviewed. The criteria for inclusion were involvement in road safety policy implementation, especially speed management and speed enforcement in Cambodia, and to be at least 18 years old. Ethical approval was granted by the Queensland University of Technology, and the participant
information sheet and informed consent form were translated into Khmer to ensure that participants fully understood the purpose of the research and their role. All participants were sent these documents prior to the interview, via e-mail, WhatsApp, or Facebook Messenger.

Eighteen eligible people were approached and five declined. The 13 participants were aged between 29 and 74 years old and their education ranged from undergraduate to PhD degree. Four were female. Five participants came from government agencies such as the National Road Safety Council, the Ministry for Public Works and Transport and the Ministry of Interior, and seven were Cambodian road safety consultants or experts. All participants have a professional knowledge of speeding and speed management in Cambodia. There is a limited number of eligible people in Cambodia, and those interviewed constitute a large proportion of them. As this made the government employees potentially reidentifiable from their comments if information was given on their current employment, a condition of ethical approval was that the labels for participant quotes only give a participant number (P1 to P13).

Data collection

Semi-structured interview questions adapted from King (2005) were used in interviews with the key informants. Each interview began with general questions, then progressed to more specific questions which depended on individual’s reflections and perspectives on the challenges of speed management and enforcement in Cambodia as well as their perceptions of driver speeding behaviour. The interviews were conducted between October and November 2019 through online means such as phone calls, Skype, and Facebook Messenger, and lasted between 47 and 87 minutes. After each interview, new ideas or questions were identified for use in subsequent interviews, i.e. an iterative process was adopted. Saturation of information was achieved before the final interview.

Analytical approach – thematic analysis and application of the Road Safety Space Model (RSSM)

The thematic analysis approach is described in the next subsection (“Data processing and analysis”), however its form was influenced by the intention to structure the themes to describe the Cambodian context of speed management. This utilised the Road Safety Space Model (RSSM) developed by King (2005). It is an ecological approach to assist the process of transferring road safety measures from HICs to LMICs, defining the “road safety space” as similar to an ecological space:

“Each road safety issue in a given country exists in a space defined by the economic, institutional, social and cultural factors which influence it. The factors include both broad and specific influences. The road safety space varies from one road safety issue to another, and from country to country, although some factors may be shared across road safety issues or across countries.” (King, 2005:97)

The space is represented in Figure 1, which also forms a template for visually mapping the factors that influence the road safety issue in question.

The RSSM has been used to analyse the road safety context in several settings such as drink driving in Ghana (King, Damsere Derry, & Jia, 2016), road safety education in Thailand (King, 2005), motorcycle helmet wearing in Vietnam (King, 2005), and vulnerable road users in Brazil and India (Persia, Corazza, Mascio, Musso, & Tripodi, 2011). More recently it has been proposed as an essential

![Figure 1: Model of the ‘road safety space’ of contextual factors (Source: King, 2005:100). Note that only limited examples of contextual factors are given](image-url)
step in applying the traffic safety culture concept to LMICs (King, Watson & Fleiter, 2019). The model is intended to facilitate an understanding of the complex, multi-level influences on a road safety problem or issue in a country, to assist in identifying the barriers to, and facilitators of, possible interventions. Because these potential interventions might have been developed and evaluated in quite different contexts, in which important facilitators may have been taken for granted which are absent in the target country’s context, such an analysis can inform the choice, design and implementation of interventions.

Data processing and analysis

All interviews were audio recorded and then transcribed and translated verbatim from Khmer to English, except one interview in English. The data was qualitatively analysed using a form of thematic analysis (Braun & Clarke, 2006). Rather than “open coding”, the analysis aimed to identify themes based within the broad a priori RSSM categories of economic, institutional, social and cultural factors, an approach that represents a simple form of the Framework Method of thematic analysis (Gale, Heath, Cameron, Rashid & Redwood, 2013). To identify classification variables, each interview transcript was read several times, and key words and phrases were highlighted. To ensure the categorized themes addressed the research aims, some data that were included in the initial stage of analysis were reassessed and then excluded. The remaining variables were classified under each theme. This was initially carried out by SP, and verified by MK. Examples of quotes have been provided in the Results section to support the classification.

Results and Discussion

Speeding and Speed Management in Cambodia – Secondary Data and Official Documents

Crashes and speed-related crashes

Over the past 10 years the Cambodian Government has been guided by its National Road Safety Action Plan-NRSAP 2011-2020, which aimed to reduce road crash fatalities by 50% by 2020. Figure 2, which gives data to 2017 from RCVIS, indicates both an initial upward trend followed by a downward correction (RCVIS, 2017); however, this is the last official RCVIS report and gives data to 2016 only. It is uncertain how the 2017 figure in Figure 2 was derived – possible an estimate based on part of a year - and Sann (2017) has noted that the completeness of the RCVIS data has declined over time. Although the green line is stated to be “Fatalities: Reality”, it would be more accurate to refer to it as “Reported Fatalities” to acknowledge the likely inaccuracy of the data. The Global Status Report on Road Safety (WHO, 2018) estimates that the actual fatality figure for 2016 was around 2,803, which is about 1,000 higher than the RCVIS figure and higher than the corresponding point on the red line in the figure. This suggests that the road fatality situation has not improved in the past decade, may have worsened, and is not being tracked accurately.

According to RCVIS (2017), human error contributes to 95% of road fatalities in Cambodia. This is based on police opinion and reports of those involved in the crash rather than a detailed investigation, hence is likely to be inaccurate. Speeding is stated to be a leading cause of these road fatalities (38%), and head-on collisions represent the most common collision type for deaths related to speeding (29%). With respect to the type of road user, motorcycle riders and pedestrians comprised 65% and 15% of total deaths from speed-related crashes respectively. The high proportion of motorcyclist deaths is consistent with registration figures that show that powered two-and-three-wheelers comprise 85% of vehicles registered (Kong, 2018). Over two-thirds of at fault-drivers causing speed-related crashes were young drivers aged between 15 and 34 years old (71%), whereas around a third of the population (and around half of the population aged 15 and above) are in this age category. In addition, 16% of the at fault-drivers in speed-related crashes were suspected of driving under the influence of alcohol.

The RCVIS report notes that multiple factors contributed to speed-related crashes: road infrastructure deficits, lack of awareness and education, limited knowledge amongst road users, and issues with road designs and traffic signs. It states that there were developments and significant improvements
in the preceding five years (2012-2016) (RCVIS, 2017) although no evidence is provided.

Road traffic laws

Royal decree NS/RKM/0115/001, the New Cambodian Road Traffic Law, was approved on 6 January 2015. Article 17 makes drivers responsible for driving at a safe speed for the conditions (The Royal Government of Cambodia [RGC], 2015a), and article 5 of Sub-decree No.86 (approved on 8 July 2015) establishes maximum speed limits for different types of vehicles (RGC, 2015b):

- In cities/towns:
  - 30 Km/h for motorcycles, tricycles and agricultural vehicles
  - 40 Km/h for other vehicles

- Elsewhere:
  - 40 Km/h for tricycles, motorcycles with trailers, and agricultural vehicles
  - 60Km/h for motorcycles with capacity <=125cc, vehicles with trailers, and all types of trucks (except heavy trucks)
  - 70 Km/h for motorcycles with capacity > 125cc, and goods vehicles (heavy trucks)
  - 80 Km/h for light vehicles and passenger vehicles
  - 90 Km/h for light vehicles and passenger vehicles on roads with divided lanes

This mixture of speeds is complex and potentially frustrating where there is high traffic and a mix of vehicle types. Table 1 indicates the monetary penalties for speeding, which differ by vehicle type as well as speed above the relevant limit. Licences are issued with 12 points, with the intention that points will be deducted for various offences, though no more than 8 points can be deducted for the one incident. After three years, if there are still points remaining, the driver reverts to the full 12 points again.

Note that Table 1 also gives the value of the fines in USD. To enable a comparison with Australian fines, so that the relative magnitude of the fines can be compared, a Purchasing Power Parity (PPP) conversion was undertaken to correct for differences in Gross Domestic Product (GDP) (OECD, 2012). Using PPP values, GDP per capita for Australia is 46,789.93 USD and for Cambodia is 3,744.219 USD (Index mundi, n.d.). Table 2 shows first a simple conversion of the Queensland fines from AUD to USD, then a conversion using the PPP values to the PPP equivalent of Cambodia (multiplying the Queensland figure by 3,744.219/46,789.93). The minimum speeding fine in Queensland is equivalent to 9.06 USD in Cambodia, almost three times higher than Cambodian minimum (3.67 USD), although for heavy vehicles it is less. The maximum speeding fine in Queensland is equivalent to 63.76 USD in Cambodia, more than twice the maximum Cambodian fine (30.60 USD).

Table 2: Comparison of speeding fines in Queensland vs Cambodia in terms of Purchasing Power Parity (PPP)

| Infringement | Penalty amount Cambodia (Riels) | Points | Penalty amount in USD | PP conversion to USD Cambodian equivalent |
|--------------|---------------------------------|--------|-----------------------|------------------------------------------|
|              | Motorcycle and tricycles | Light vehicles | Heavy vehicles | All Motorcycle and tricycles | Light vehicles | Heavy vehicles |
| 1-19 Km/h    | 15,000                         | 25,000                          | 50,000               | 1                         | 3.67             | 6.12              | 12.24           |
| 20-29 Km/h   | 20,000                         | 40,000                          | 75,000               | 2                         | 4.90             | 9.80              | 18.38           |
| 30-39 Km/h   | 25,000                         | 50,000                          | 100,000              | 3                         | 6.12             | 12.24             | 24.48           |
| 40-49 Km/h   | 30,000                         | 60,000                          | 125,000              | 4                         | 7.34             | 14.69             | 30.60           |
| 50 Km/h +    |                                 |                                  |                      | 6                         |                   |                   |                  |

Speed enforcement and deterrence

The Commissariat of National Police issued an official order on 1 September 2010, following on from an enforcement action plan issued on 26 March 2012, to enforce land traffic law in Phnom Penh and all provinces (Tun, 2015). Subsequently speed monitoring was implemented along national roads, especially blackspots, building on the five year (2009-2013) implementation of speed enforcement checkpoints through collaboration between national and local police, on national road sections with speed limit signs (Tun, 2015). An interesting aspect of the allocation of fine...
revenue specified in legislation is that 70% of the revenue from land traffic penalties is returned directly to the traffic police who conducted the enforcement. There is a risk that this could bias enforcement activity towards the optimum combination of fines issued per unit time and fine size. This was also addressed by key informants and is mentioned again below.

Road design and infrastructure

Limited information relevant to speed management and road factors was found. Although there are supposed to be designated motorcycle lanes and bicycle lanes, there is no clear delineation of lanes on most of Cambodia’s roads and so road users with different speed limits interact with each other. In addition, pedestrians are often forced to use the roadway as footpaths are often absent or obstructed by shops, parked vehicles and debris (King, King, Edwards, Hair, Cheang, Pearson & Coelho, 2018). This creates an environment in which road users of varying levels of vulnerability and differing legal requirements with respect to speeding are mixed together, which presents both a safety problem and practical difficulties for police enforcement. Without clear delineation of lanes for different road user types, and compliance with them, it seems unlikely there is much value in having different speed limits for different vehicle types.

Speeding behaviour

Handicap International conducted a knowledge-attitude-practice (KAP) survey on speeding in Cambodia in 2010 (Ear et al., 2011 cited in Tun, 2015). The survey found a very low level of knowledge of speed limits amongst participants in general, and only 19% of respondents knew the speed limit for cars in urban areas. Only 11% understood a traffic sign giving the maximum speed limit while less than 2% recognised a traffic sign giving the minimum speed limit. Over 50% of respondents were aware of speed enforcement and most of them supported law enforcement (Ear et al, 2011 cited in Tun, 2015). The study also reported reasons stated for driving fast, such as being in a hurry (92.6%), saving time (16%), and being afraid of being robbed at night (9.5%).

Another study on speed behaviour conducted by Handicap International (Tun, 2015) found that over half of all types of drivers exceeded speed limits. Vehicles with trailers represented the highest rate of speeding, followed by buses with less than 20 seats. Moreover, 40% of participants reported driving at an excessive speed in the last three months, although 86% stated they felt nervous driving at these speeds.

The level of support for law enforcement in relation to speeding is promising, and the reported anxiety experienced when driving at excessive speed could contribute to motivation to comply, for example in public education messages. Clearly there is a need to address the low level of knowledge of speed limits and the understanding of speed limit signage, and the high level of self-reported speeding. It seems likely that this would require speed enforcement at a high enough intensity, supported by public education that gives road users information on speed limits and signage, and highlights the increased level of enforcement.

Context Analysis Based on Thematic Analysis of Key Informant Interviews

The themes that emerged from the thematic analysis were mapped onto an RSSM template derived from the diagram in Figure 1, using the same approach as King (2005), and King et al. (2016). The mapping (Figure 3) involves spatially...
assigning themes to locations on the template based on two criteria: first, since some themes show an overlap between the three categories (economic, institutional, social and cultural), they are positioned between the corners to indicate this (e.g. “limited commitment” in the diagram involves both limited institutional commitment and limited economic commitment); second, how closely they are positioned to the centre (the road safety issue of interest) represents the degree to which they are macro (operating at national level or across a range of issues, e.g. the time it takes for legislation to take effect) or micro (directly related to speed management, e.g. police speed enforcement practices).

Although there are overlaps between factors in the degree to which they are economic, institutional or social/cultural, they have been clustered in the discussion below according to the dominant category. For space reasons, only a limited number of relevant quotes have been included to illustrate the themes.

**Economic factors**

Low prioritization of road safety funding and speed management was observed. A majority of participants stated that road safety is not yet prioritized by the Cambodian Government, relevant ministries, donors, the private sector and NGOs. There were assertions that this is due to non-approval of a proposed budget for road safety due to the government having a limited budget and other priorities such as supporting the health sector, education, and road construction. This hampers the building of capacity in human resources, purchase of equipment for enforcement, replacement of old speed-related traffic signs and treatment of blackspots. It is also consistent with previous studies that show low government investment in road safety in LMICs (e.g., Bishal, Hyder, Ghaffar, Morrow, & Kobusingye, 2003). One participant believed that potential donors and the private sector are not interested in road safety. There is a plan to fund road safety by selling special vehicle plates, however, it is likely that this will make only a small contribution.

P08 “...The budget that the government has allocated for road safety is limited, road safety is less prioritized if compared to other fields…. Each ministry always requests budget for their activities annually, I think it may be the same for road safety activities... but it may be inadequate for implementation to address this issue”

The consequence is low affordability of speed management equipment and a lack of budget for capacity building and speed management implementation. According to participants, there is not enough equipment for enforcement, such as speed measuring cameras and the like, and other equipment which would enable more enforcement at the district and commune level (discussed further below).

Due to the limited budget, the intervention strategies related to speeding tend to focus more on awareness and education, but not awareness about law enforcement. They focus on general risk factors including speeding, but there are no dedicated speeding program awareness or education programs. A reason advanced for lack of funds was due to previous funding being donor driven, however this funding had ceased and was not replaced with government funding.

P04 “Speeding is difficult to implement ... 1. we find it difficult to cooperate with the government and 2. we don't have equipment to implement speed management... 3. we don't have funding from main donors...”

Two participants were concerned about the distribution of revenue from fines in Cambodia. The distribution is set by Cambodian Land Traffic Law, and includes the provision that 70% of the fine revenue is returned to the police officers who were conducting the enforcement operation that led to the fine. This issue (which is a combination of economic and institutional) was noted in the discussion of the secondary source analysis as potentially distorting enforcement priorities.

At the level of personal economic considerations, the general deterrence requirement of a high perceived severity of punishment needs to be followed up, as there were differing views about whether the size of the penalty was enough. It was noted that the fine did not matter for high income people, especially as there is the points deduction system has not been implemented (addressed in the next section).

P03 “…The penalty related to point deduction of driving license, we haven’t implemented yet....... because sometimes our population have not clearly understood about traffic law”

**Institutional factors**

Low commitment from the government, the private sector and road safety networks in Cambodia was mentioned at both the national and sub-national level.

P04 “…There are less commitments from private sectors, organizations…” “...the greatest challenge is that I found it difficult to convince them...”, and “…sometimes they fail to convince their top management...”

On the other hand, some success was reported with a government-established competitive model for fleet companies, involving the potential award of an official certificate in recognition of success in reducing road crashes in their fleet.

Lack of road safety management and partnership was raised, with some participants feeling that involvement from relevant partners and the National Road Safety Council has been limited.

P11 “Cambodia has more resources than other countries that I know, but they are not coordinated” and “…Road Safety council or committee in Cambodia, but it does not have the power to dictate to the different groups and to coordinate in different groups in an effective way...”
A problematic hierarchy of responsible authorities was considered to be another important obstacle for speed management in Cambodia. Many national and rural roads have been recently improved and paved, but there is no enforcement at district level and effectively none at commune level. Several participants pointed out that commune police officers do not have authorization to enforce traffic laws in their communes, since only traffic police officers have authorization to enforce the law and there are no dedicated traffic police officers at the commune level. To gain authorization, commune police need to ask approval from their management at the district and provincial level and then the enforcement must be approved by the governor.

P09 “...If they want to enforce the law, they need to ask approval from district and provincial level.”

This has relevance to the general deterrence requirement of a high perceived risk of detection. Some participants pointed out that speed enforcement is conducted only on national roads and one stated that speeding is not enforced in Phnom Penh. Furthermore, it is enforced only during the daytime, at night there is insufficient light along the roads so the detector on the camera reportedly does not work well. Nearly half of the participants said speeding is not enforced regularly.

Another potential issue is political influence. It was pointed out that the government cancelled the requirement for a driving license to ride a motorcycle 125cc and under, apparently for political reasons. It is also customary not to enforce traffic laws six months before and after the election.

P09 “...After the announcement of no need for a driving license for under 125cc, there is a good chance that young drivers will drive motorcycles without a driving license...it is a mistake to allow them to drive without learning about the law, which leads to speeding”

The concept of corruption remains a potential challenge for a speed management program in Cambodia. Four participants were concerned about corruption in law enforcement and program activities. One participant pointed out that some drivers obtained driving licenses without a test. Another felt that offenders could use money to address their illegal actions which reduces respect for the law. Presumably the return of 70% of fines to police officers should address this issue, which suggests that there may be some other issues at play that facilitate corruption (e.g. a non-financial benefit gained by police for a bribe that is lower than the return from the fine).

P09 “Example, the fine is 50,000 Riels...if drivers pay 50,000 Riels, they have a receipt from traffic police officer... If there is any negotiation with police to pay just 5,000 or 10,000 Riels, then police will accept...”

Lack of infrastructure support for speed enforcement is another potential issue. Most participants (8 out of 13) pointed out that there are no effective means of sending automated speed enforcement tickets to offenders’ homes because vehicle ownership data is not accurate. One participant reported that for penalties where the ticket was sent to the recorded address of the vehicle owner, only 20% paid, 30% avoided the fine (presumably be presenting evidence that they were no longer the owner), and 50% could not be found at the address. These issues are being addressed, with the implementation of a QR code for vehicle plate number and driver identity, and upgrading the vehicle registration system so it can be linked to databases in other departments to support the process of penalty administration. There are issues with other databases as well, such as the recording of previous offences.

P11 “...if you speed today, if I caught you speeding again tomorrow, there is no database to show that you have been caught yesterday or 10 times in the last month.”

Most participants pointed out that there are insufficient human resources for enforcement, and a need for capacity building to implement speed management at both national and sub-national level. There is a lack of budget for training, and traffic police work long hours and often do not get invited to attend training. When training is provided, it is general rather than dedicated to speed management, and there are very small numbers of police at district and commune level anyway.

P08 “…Traffic police officers have other duties, they are not assigned to work only for road safety, I think they may lack human resources.”

It was mentioned that many speed cameras have been purchased and this has been beneficial, although the number of cameras may not be enough to support expansion. There are plans to install red light/speed cameras at some traffic lights, but this was the only measure mentioned that related in some way to road infrastructure, apart from concern that road construction standards were compromised because contracts went to the lowest bidder.

The length of time taken to gain approval from the government is another barrier for improving speed management in Cambod. This applies to infrastructure programs, campaigns, and also legislation.

P11 “In Cambodia it takes about three years to get legislation change.... in Australia because if you want the legislation change it can be done in 12 months.”

A more concerning aspect of legislation relates to its implementation, which affects the general deterrence aim to have high perceived severity of penalties and certainty the penalty will be administered. As flagged in the previous section, the points system that was described in the secondary source analysis, whereby offending drivers have points deducted from the 12 they are allotted for a three year period, has not been implemented. Since mention was made of plans for legislation to enable implementation, and therefore a further delay, this suggests that there are complexities to legislation and/or legislative processes more generally that need to be addressed.
Social and cultural factors

Limited knowledge and understanding of speeding and speed enforcement are potential barriers in this area. Almost half the participants considered that road users and drivers have limited education and knowledge related to speeding, the traffic law and law enforcement. As noted in the discussion of secondary sources, this is consistent with survey evidence. When asked about reasons for speeding, most participants said drivers are in hurry, do not know about traffic law and traffic signs, law enforcement is low, and they may be using drugs (especially fleet drivers).

Cambodia is a Buddhist country (around 95% of the population), and belief in karma and reincarnation are part of this, i.e. that negative events (like a traffic crash) are experienced because of one’s actions in a previous life (Sann, 2017). This is an issue for promotion of safe behaviours, as it is linked with the view that safe behaviours will not help to avoid karma, and incidents where people do the right thing but are still killed or injured are taken as evidence that karma is more important, as are multiple incidences of unsafe behaviours that do not result in negative consequences (King, 2005). When asked about driver behaviour in relation to karma, there were mixed views about whether this was due to genuine belief in karma, lack of knowledge, or a generational issue.

P9 “It is a kind of belief in the previous generation. ... So, we can’t reject that they don’t believe in that...”

Notably, it has previously been found that educated informants in a similar society (Thailand) expressed the same doubts, whereas less educated Thais of all ages showed a strong belief in karma as an explanation of road crashes (King and King, 2006). This is a form of fatalism, which is found in all societies, although they differ on what kinds of outcomes cannot be influenced by safety behaviours, which suggests that public education should aim to align road safety outcomes alongside other outcomes that can be influenced by taking appropriate action (Kayani, King & Fleiter, 2012), in this case compliance with speed limits.

The Culture of Facilitation (CF) or VIP Treatment is another challenge for speed enforcement. This refers to the process whereby offenders try to avoid punishment using their networks, relationships, or power to negotiate with traffic police officers. This similar to the Chinese concept “guanxi” involving the use of personal networks, social capital, and gift economies (Gold, Guthrie, & Wank, 2002) to avoid enforcement and punishment, which negatively influences community perceptions of the fairness of law enforcement (Jia, Fleiter, King, Sheehan, Ma, Lei & Zhang, 2016) and undermines the development of a culture of compliance with the law (Sinclair, 2013). Although the practice has been reduced in Cambodia, nearly half of participants pointed out that it is still practiced when the law is enforced. It weakens trust in police and law enforcement in general. It is also relevant to the general deterrence requirement of a high perceived certainty of punishment of detected breaking the law.

P11 “There is also a major problem in Cambodia with VIP treatment because many of those people who hold position or power in the government or in various areas maintain that they are exempted from being penalized or fine, so that is the big problem for the police that are abused the power which is a major consideration”

There were other issues of less direct relevance to speed management, such as the unavailability of young males for event-based public education (though this does not apply to mass media) and the practice of failing to stop after a crash because associates of a victim may attack you (examples have been filmed and posted on social media). The “hit and run” practice has become embedded in professional driving practice, where truck or bus drivers employed by fleets are directed not to stop and let the insurance company manage the case.

Recommendations

In the Introduction a brief summary was presented of the GRSP (2008) list of tools required for effective speed management. The first of these is a road hierarchy based on function, in rural and urban areas, however there was no mention of such a hierarchy in connection with speed management in the sources consulted. The legislation on speed limits only makes a distinction between “cities/towns” and “elsewhere”. The importance of this becomes apparent when considering the next tool, appropriate speed limits (based on the Safe System approach) that are clearly signed. The explanation provided in GRSP (2008) makes it clear that the factors involved in setting speed limits are strongly based on road design and road features, as well as the traffic mix. However, Cambodia’s are based only on the type of vehicle within the roads/cities vs elsewhere distinction, which takes no account of the comparative mix of the vehicles, the function of the roads, their design or conditions. This makes it very difficult to implement a Safe System approach to speed management.

The need for clear signage recommended by GRSP is also affected by the multiple speed limits that apply to different vehicle types. Strong consideration should be given to reducing this complexity, which ties in with the first part of the next tool, effective laws and regulations supported by effective enforcement and adequate penalties. There were examples given by key informants of deficits in administrative databases that prevent some laws and regulations from being enforced effectively, in particular the inaccuracy of the data on vehicle ownership and the owner’s address. This is very important for automated speed enforcement, a direction in which Cambodia has been heading. There was information that this deficit is being addressed, and it is important that such improvements are indeed implemented as fully as possible.

Comparison between Queensland and Cambodian fines for speeding, based on PPP, indicate that penalties in Cambodia are relatively lower and could be increased. Information from key informants was that the integrity of enforcement was open to question due to reported bribery and influence
(Culture of Facilitation and VIP Treatment). The extent to which this is rumour or reality needs to be ascertained, and any necessary action should be transparent, to build confidence in police integrity. A more difficult issue is the current arrangement by which 70% of fines are returned to the police who issue them. This reduces the temptation to take bribes, but could distort enforcement activity towards offences with a combination of value and frequency that optimises benefits to the police officers concerned. The other important penalty aspect is the points system, which has not been functioning. It is promising that this is apparently being addressed, though its effectiveness will also rely on the accuracy and timeliness of data recording.

Effective enforcement using a general deterrence approach involves sufficient intensity and visibility to give the impression that enforcement can occur anywhere at any time. The interview information suggests that there are several issues that need addressing to achieve this. There is reported to be almost no speed enforcement at provincial and commune level, through a combination of limited resources and onerous processes for gaining approval for police at these levels to conduct traffic law enforcement. Even in cities and towns, enforcement typically does not occur at night, and it appears that traffic police numbers are limited, which both constrains enforcement and prevents police from receiving adequate training. Lack of funding has hampered the purchase and use of automated speed enforcement technology, and previous funding from NGOs has not been replaced. Finding additional resources is challenging, but could be addressed through negotiation of development priorities with funders.

The effectiveness of enforcement is known to be interdependent with public education about the risks of speeding, and to support enforcement activity. The surveys considered in the secondary source analysis showed a lack of knowledge about speed limits and speed signs, which is related to the issue of the complexity of current speed limit legislation. The interviews that mentioned public education referred mostly to event-based programs (getting groups of people together) which tend not to involve young males. A systematic approach to public education that ties together considerations of target groups, target behaviours, appropriate channels, credible and appropriate messages (e.g., addressing fatalistic beliefs), and support for enforcement activities is required.

The main point mentioned relevant to installation of low/medium cost engineering treatments to reduce risk was the use of delineated motorcycle and bicycle lanes. Such lanes are apparently intended to be in place, but are not well delineated and ignored by road users. To some extent the need for such lanes is tied to the differential speed limits by vehicle type, and to some extent it recognises different degrees of vulnerability of road user types. The policies and practices for such lanes need to be reviewed at the same time consideration is given to reducing the complexity of the speed limits and implementing a road hierarchy explicitly based on function, road design, road features and traffic mix. It may be that fully separated lanes for bicycles and/or motorcycles would be advisable for certain road functions. The use of roadways by pedestrians also needs attention, although this requires a combination of provision of footpaths, regular maintenance to make repairs and clear debris, and enforcement to keep paths clear of parking and businesses.

New vehicle technologies were not mentioned in secondary sources or by any informant, and are likely to enter the fleet through market processes unless the government takes the initiative to require certain technologies to become more widely available. This could also happen as part of workplace health and safety legislation and management to reduce work-related driving risk, especially for freight vehicles. The key informants and secondary sources did not address work-related driving directly, although the results of the survey reported by Tun (2015) implied that commercial vehicles (including buses) were more likely to speed. A structured approach to commercial driving safety would have wider benefits in addition to reduction in speed-related crashes.

An important need that is not mentioned among the GRSP tools is data to enable monitoring and evaluation of speed management. One of the criticisms of speed management in Australia was the lack of information on travel speeds over time, and the lack of reliability of data on speed-related crashes. It has been noted that Cambodia’s RCVIS is not as accurate as it once was, and the WHO estimates of total fatalities in Cambodia are significantly higher than the RCVIS figure. It is important to address these points, if possible. Since this involves several agencies whose coordination was reported to be lacking, an effective Safe System approach will depend on this coordination being improved.

Conclusions

Implementation of best practice speed management is challenging for HICs, and even more so for LMICs like Cambodia. An analysis of the context of speed management in Cambodia, using secondary sources and key informant interviews, indicates a number of challenges that would need to be addressed. There is a need to introduce a road hierarchy based on function, and to change the speed limit legislation from a complex vehicle-based scheme to a road hierarchy-based scheme. Road users need to understand what the speed limits are, what the penalties are, and that there is a high chance of being detected anywhere at any time (the reality of which also needs to be ensured). They need to be certain that penalties will be administered impartially and with high certainty, and the penalties need to be sufficiently high to deter offences.

A macro level issue concerns the funding available for policing, training, equipment and campaigns; and legislation and processes that support rather than hamper the delivery of enforcement at a high enough level, across locations in rural as well as metropolitan areas. This funding support is likely to be necessary to ensure that the data systems that support and enable speed management operation, monitoring and evaluation are accurate and reliable and up to date.

Overall, pursuit of a Safe System approach to speed management needs to be coordinated across the relevant agencies.
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