Cambodia
Road Traffic Accident and Victim Information System

RTAVIS
ROAD TRAFFIC ACCIDENT & VICTIM INFORMATION SYSTEM

Annual Report 2006

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Developed by:

Ministry of Interior

Ministry of Health

Ministry of Public Works and Transport

Handicap International Belgium

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Foreword

Note from the Minister of Public Works and Transport

The traffic accident in Cambodia in the last recent years has becoming a great catastrophe which is threatening to both the people's welfares and lives and has been destroying numerous public and private properties countrywide. Report in 2006 on traffic accident confirmed that, the traffic accident has increased compared to the last years. Everyday, 4 people died and many more were injured by the traffic accidents, so much tragedy has becoming the legend for the society, in particular the victim's families.

Since 2005, the Royal Government of Cambodia has been establishing the National Road Safety Committee (NRSC) in order to implement the action plan of road safety which comprises of 15 points aiming to reduce the traffic accident. The road traffic law was declared in 2006 and came into effect on 01 March 2007 onward.

The National Road Safety Committee (NRSC) as well as on behalf of Ministry of Public Works and Transport (MPWT) will conduct the education, awareness on the road traffic laws and regulations to the people and will strengthen the laws to be more effective in order to prevent and reduce the road traffic fatality rates to the minimum level in accordance with the Asian nation's plan and the Royal Government, and will reduce the fatality rate to 5 within the year 2010 and under 2 in 2020 in 10,000 vehicles. Apart from these, the NRSC has been doing many more activities such as the celebrating of the National Road Safety Week and the Road Traffic Victim's Day of the year, conducted training on road traffic laws and the vehicle driving skills to people and conducted public awareness campaigns, particularly in the major national public holidays.

Finally, I would like to extend my thanking to Handicap International Belgium (HIB) that has been supporting to compile and edit the report on Road Traffic Accident and Victim Information System (RTAVIS) reflecting the traffic situation in Cambodia and I would like to appeal to all Cambodians, particularly the road users to strictly paying their respects to the road traffic laws and regulations and always be stuck with good morals and patience during driving to avoid the traffic accident from happening eventually. Protect your life for the ones you love.

In lieu of – Minister of Ministry of Public Works and Transport (MPWT) and Chairman of National Road Safety Committee (NRSC)

Vice Chairman of National Road Safety Committee

Chum Iek

Note from the Minister of Health

Traffic accident has severely and negatively affected the social welfare and national economy. The traffic accident has also hampered the national development, losing lives and disabling the people who are the workforce of the national economy. The long lasting treatment and the long lasting rehabilitation together with the loss of revenues due to disability or the loss of key persons in the families can make those families even poorer.

All these reasons are the necessary things that attention should be paid on the traffic safety issues. Ministry of Health is very proud to actively participate in implementing the action plan of the national traffic safety in particular the collaboration with the working partners such as Ministry of Public works and Transports, Ministry of Interior and the related institutions such as Handicap International Belgium in order to compile the Road Traffic Accident and Victim Information System (RTAVIS), the unique database collection system for accidents and injuries along the public road. According to the regular records in the reports on the traffic accidents in 2006 has confirmed that, the traffic accident has not yet decreasing. And through this report, it enable us to develop the action plans to prevent the traffic accidents in the present and in the future, in accordance with the new traffic laws being adopted for public uses in order to strengthen the traffic conditions in the country.

Ministry of Health will continue its collaboration with Handicap International Belgium and other partners to extend the database system along the state owned hospitals and other private clinics to cover the types of injuries and develop the database system to monitor and follow up on the general injuries. Injuries are the remarkable physical health that is increasing in Cambodia, while we still don't have proper monitoring and follow-up system.

The Ministry of Health has actively participated in the Awareness and Education Campaign on top of the Road Traffic Accident and Victim Information System (RTAVIS) in order to maximize the helmet wearing rates and the behavioural changes of people on how to safely trafficking on the public roads. These campaigns were successfully organized.

In the coming years, the efforts of Ministry of Health will mainly focusing on the improvement of the emergency assistance and the injuries treatment before and after arriving in the hospital. To offer the punctual treatment of injuries have the important roles in managing, monitoring and following up the injuries more effectively.

Finally, I would like to express my thanks to Handicap International Belgium and the World Health Organization (WHO) who have organized and compiled this report in close collaboration with Ministry of Health in order to reduce the injuries in Cambodia to the minimum levels.

HE Dr. Nuth Sokhom
Minister of Health

Note from the Ministry of Interior

Based on the drastic increment of people and travelling means including the improperly managed traffic orders, this has led Cambodia to become the country that has higher rate of traffic accidents than other countries in the region if comparing the numbers of vehicles. Currently, in the average, more than 3 persons are killed and many others are injured everyday. The accident is not only for the victims and their families, but it also becomes the obstacle affecting the economic policy and the poverty reduction strategy of the Royal Government of Cambodia.

Ministry of Interior expresses its sadness for the traffic accidents and the catastrophe stemmed from the traffic accidents as mentioned above. The Ministry of Interior has pointed out to the Skilled Department of General Commissariat of National Police in charge this affair, to try to find out good measures by all means to reduce the numbers of traffic accidents within the year 2007 and in the coming years.

The information on traffic accident data has shown other detailed and important factors which are the benefits for providing comprehensive knowledge to the society and are the masterpieces of efforts, good collaboration between Ministry of Interior, Ministry of Public Works and Transport, Ministry of Health, Ministry of Education and Sports and Handicap International Belgium, even though there are some lacks of materials or finances but is the important compass for us to find out the experience in order to take actions in reducing this accident.

In order to make things better improved, we need to increase our collaboration between Ministry of Interior, Ministry of Public Works and Transports, Ministry of Health, Ministry of Education Youth and Sports and Handicap International Belgium in order to analyze and raise the exact, on time plan in order to prevent and deal with all encountered problems in an effective way.

Ministry of Interior would like to appeal to all levels of people to pay strictly respect and follow the Traffic Laws and to participate in safeguarding the traffic orders for the benefits of the general traffic stability and for the life and personal properties preventions as well.

Commissariat General of National Police
Deputy Commissioner

General

Sim Sophal

Note from Handicap International Belgium

Fort those who would still doubt about the dramatic consequences of road traffic accidents in Cambodia, the reading of this third RTAVIS report will offer a useful, even if frightening, experience.

With more than 26,000 yearly traffic casualties, almost 14,000 vehicles involved, 1,300 fatalities and 6000 severe injuries, Cambodia ranks amongst the most affected countries in the region in terms of fatalities.

The figures collected in the first months of 2007 reflect an even worse situation, with two permanent features: the leading cause of traffic accidents is human behaviour and young people account for most casualties.

In this respect, the recent decision of the Cambodian authorities to approve a new Land Traffic law is a clear sign of the Government's commitment to improve the security on the Cambodian roads.

This law paves the way for the implementation of various actions aimed at drastically improve the road safety situation. Such an improvement will however request strict enforcement measures, effective education and awareness campaigns and a strong coordination of all stakeholders under the leadership of the National Road Safety Committee.

Handicap International Belgium is proud to have contributed to the achievement of this report, that not only contains a detailed and accurate assessment of the road safety situation, but also proposes numerous recommendations to make the combat against road accidents a reality.

This report could not have been possible without the cooperation of numerous people and institutions that have shown a keen interest in the improvement of road safety in Cambodia. Our particular thanks go to the Ministry of Public Works and Transport, the Ministry of Health and the Ministry of Interior which continued to share their experience and data, as well as to the Belgian Technical Cooperation and the World Health Organization, whose representatives in Cambodia and in headquarters have been very supportive.

Sincere thanks are also due to the doctors and staffs of numerous hospitals, health centres, and private clinics as well as to all traffic police officers who devote time and enthusiasm to fill in the data collection forms every day. They are the key contributors in the success of the system.

Special thanks as well are due to the Handicap International Belgium road safety team, and in particular to its manager, Ms. Sann Socheata, and her colleagues, Mr. Meas Chandy, Mr. Sem Panhavuth, Ms. Ou Amra, Mr. Uy Math, Mr. Yorn Virak and Mr. Pea Kimvong, whose commitment and hard work made the publication of this report possible.

Last, we are pleased to mention our generous donors, the Belgian and the French Cooperation as well as the World Health Organization, for their continuous support in this crucial issue and the European Union for the publication of this report.

Handicap International Belgium
Country Director

Bruno Leclercq

I. Introduction

The **objective** of the Road Traffic Accident and Victim Information System (RTAVIS) is to provide government and development stakeholders in Cambodia with accurate, continuous and comprehensive information on **road traffic accidents and victims**.

It should allow them to better **understand** the current road safety situation, **plan** appropriate responses and **evaluate** impact of current and future initiatives.

RTAVIS collects, centralizes, analyses and disseminates information provided by **three different sources**:

- Public health facilities;
- Private clinics;
- Traffic police.

The system has been progressively developed since March 2004 by the **Ministry of Public Works and Transport,** the **Ministry of Interior** and the **Ministry of Health**, with the technical support of Handicap International Belgium. In Siem Reap, Otdar Mean Chey and Kampong Cham provinces, the system is also supported by the **Belgian Technical Cooperation**.

The system is developed in the framework of Action 2 (Road Accident Data Systems) of the **National Road Safety Action Plan** of the Royal Government of Cambodia.

The present report analyses the information collected by RTAVIS for the year **2006**. It is a synthesis of all the monthly reports that were published throughout 2006. The previous annual reports (annual report 2004 and 2005), as well as all monthly reports, can be found on the following website: www.roadsafetycambodia.info and www.cnctp.info

In 2007, RTAVIS will continue to be developed and will progressively be integrated in a **broader injury surveillance system**, collecting data not only on road traffic injuries but also on other kinds of injuries such as falls, domestic accidents, violence and drowning.

II. Executive Summary

Introduction

The year 2006 saw the adoption by the national assembly of the new traffic law. This new traffic law is an important milestone and its approval must be considered as a major step taken by the Government of Cambodia in its struggle against road safety issues.

In 2006 the NRSC and HIB have made official their collaboration by signing a cooperation agreement defining the implementation of specific aspects of the National Road Safety Action Plan.

The combination of these two major events gives a legal framework of intervention which will support the implementation of actions aiming at reducing the impact of road traffic accidents: **human behaviour is indeed by far the leading cause of road traffic accidents** in Cambodia and awareness and education campaigns alone are not sufficient to prevent them.

RTAVIS, in 2006, developed a national network of data collection, both with the traffic police and health structures. GPS use by traffic police was piloted in Phnom Penh, traffic accidents are located accurately and black spots can be mapped. The use of GPS will be extended in 2007.

The year 2007 will be also crucial since the recently approved law will have to be enforced. That will be done only through the implementation of a broad scope of actions which will address the problems at various levels. The collaboration of the whole of the actors will be required to achieve this objective.

Recommendation 1: Enforce the new land traffic law
The new land traffic law has been signed by the King February 8, 2007. The new law introduces key new elements that are expected to have a strong impact on the road safety situation:

- Every motorcyclist using a motorbike from 49 cc need to have a driving license[1];
- Helmet wearing is compulsory for all 2-3 motorized wheelers drivers[2];
- Fastening seatbelts is compulsory for all car front seat occupants;
- Blood alcohol concentration limit is provided;
- Fines and penalties are better detailed and adapted to the gravity of the infraction.

The new law will then need to be accompanied by several sub-decrees to describe **the enforcement mechanisms and their timing**. **A transition period, accompanied by effective awareness and education campaigns, will be necessary.**

Recommendation 2: Improve law enforcement by training and motivating traffic police[3].
Law enforcement is still very weak. Experience in other countries shows that even if traffic laws are very stringent, they are useless without adequate enforcement.
Traffic police officers should be trained on the new traffic law and receive **incentives** to enforce it correctly. As part of an output from the training, **a national enforcement action plan** should be developed. At the same time, traffic police officers should be provided appropriate tools to ensure the effectiveness of its enforcement (alcohol test, speed gun…).
Traffic police officers currently lack respect by the population. A campaign to improve their legitimacy and their image should be developed, simultaneously with clear changes in the way they operate.

Recommendation 3: Continue to provide the National Road Safety Committee with adequate funding[4] and human resource development
The National Road Safety Committee will not function effectively if it does not have appropriate funding and the improvement of capacity building among its staffs to perform its activities.

[1] Driving licenses are currently not compulsory for motorbikes below 100 cc and most motorbikes in use in the country are below 100 cc. Therefore, most motorcyclists in the country do not have to pass a theoretical and practical examination before driving a motorcycle and most likely do not know the traffic rules.
[2] Ideally, motorbikes' passengers should also have to wear helmets.
[3] Cf. Action 8 of the National Road Safety Action Plan: Law Enforcement.
[4] Cf. Actions 1 and 3 of the National Road Safety Action Plan: Establishing a National Road Safety Committee and Road Safety Funding.

Recommendation 4: Continue to establish a "culture of road safety" in Cambodia
Besides the actions taken at the ministry level, the **civil society** has a very important role to play in improving road safety. Several actions can be taken simultaneously by victims' associations, NGOs, international organizations, private companies and individuals in a **coordinated way**. A particular emphasis should be put on the organization of **national** road safety campaigns and events, such as the National Road Safety Week in April[5], and the National Remembrance Day of Road Traffic Victims[6] in November.

Recommendation 5: Further develop the national road traffic accident data collection system at the national level, combining data coming from various sources[7].
Over the last 3 years, RTAVIS has been able to combine data coming from 3 different sources to produce detailed analysis on road traffic accidents and casualties. The network now covers the overall country with its 3 sources and the data collection capacity of the system has increased. Such a system must be further continued to develop in order to:

1. Have a better understanding of the road safety situation;
2. Evaluate road safety actions and the implementation of the national road safety action plan;
3. Advocate for more action on road safety.

Notice:
RTAVIS now cover the whole country geographically, traffic police data have been integrated 24 provinces, new hospital, clinics and health centres have been progressively added to the system.
The Cambodian Demographic and Health Survey 2005 indeed estimated the number of road traffic casualties at around 122,800, while RTAVIS reports 26,146 casualties in 2006.

Key figures

General figures

- In 2006, **26,146 road traffic casualties** were reported to RTAVIS, resulting from **9,338 accidents**. Among them, **1,292 were fatalities (an average of 3.5 fatalities per day)** and **6,033 were severely injured**. Almost 14,000 vehicles were involved in those accidents.

- The number of road traffic **fatalities has more than doubled** over the last 5 years.

- Road traffic accidents increased proportionally more than road traffic and population.

- There are **18 fatalities per 10,000 registered vehicles**. It has increased 15%, compared to 2005. **It is a very big challenge for the country to achieve the target for 2010** (7 fatalities per 10,000 vehicles), which is set in the National Road Safety Action Plan. **Cambodia has one of the highest fatality rates in the region, compared to the number of vehicles in use in the country**. Compared to the number of inhabitants, the rate is however still below many other countries.

- In Phnom Penh, the number of **fatalities has decreased by 13% from 2005 to 2006**. **The significant decreases have been noticed during Pchum Ben celebration and water festival.**

Notice on 2007:
The figures for the first 2 months of 2007 **show a sharp increase of the number of fatalities**: on average, more than **4 people died per day due to road traffic accidents in Cambodia** during the first 2 months of 2007.

[5] It has been approved by the government of Cambodia to be the national road safety week from 07th to 14th of April
[6] The same day of the International Remembrance Day of Road Traffic Victims.
[7] Cf. Action 2 of the Road Safety Action Plan: Road Accident Data Systems.

Age of casualties

- The average age of casualties is 28.
- 70% of casualties are among the active part of the population (age 20 to 54).
- People aged between **20 and 29 years old** represent the **highest percentage of casualties and fatalities.**
- **More than 50% of casualties are between 15 - 29 years old, although they represent only 31% of the population**. Conversely, **children (0-14) account for 10% of casualties although they represent 37% of the population**.

Recommendation 6: Develop a specific strategy to address road safety issues among young drivers.
The age pyramid of Cambodian population shows that **almost 40% of the population is aged below 15 years old**. It means that in the coming years, a growing number of young people will start to drive on Cambodian roads. Knowing that young people between 15 and 29 are currently associated with more than 50% road traffic casualties, there is a risk that this percentage will further increase in the future.
It is therefore essential to target future road users by notably **developing effective road safety education in primary and lower secondary schools**.

Gender of casualties

- **Males** account for **72% of casualties**, although they account for only less than 50% of the population.
- the number of male fatalities in 100,000 inhabitants is **4 times higher** than female fatality rate (**14.5 compared to 3.6**)
- This over-representation of males in the casualties is especially important in the **working–age proportion.**

Recommendation 7: Consider males as a cluster of population specifically at risk when developing a specific strategy to address road safety issues among drivers.
The figures show that males represent a higher ratio of casualties per inhabitants: they **account for 72% of casualties[8], although they account for only 49% of the population.** This over-representation of males in the casualties is especially important in the **working–age proportion** of the population (20-39 years old), where males represent around **80% of casualties**.
This element has to be taken in consideration when developing awareness campaigns.

Type of transport

- Motorbikes' users account for the large majority of casualties and fatalities (72% and 59% respectively), followed by pedestrians, bicyclists and car users.
- **Pedestrians share 16% of fatalities, while they represent only 8% of casualties.**
- **The percentage of pedestrian and bicycle casualties is much higher among children and old people.** Almost 50% of casualties below 5 years old are pedestrians.

Recommendation 8: The heterogeneity of the Cambodian traffic shall be taken in consideration in roads engineering
Cambodian roads are characterized by a wide variety of types of traffic (motorbikes, cars, tricycles, tuk-tuks, minivans, trucks, oxcarts, etc).
Separation between four-wheelers and two-wheelers on national roads and on main town streets would reduce the number of accidents, and at the same time it would improve traffic flows.
Although accounting for only 8%, pedestrian is the second most at-risk population after motorbike users.
The access to pavement should be given back to pedestrian in Phnom Penh. Most child casualties are pedestrians. Teaching them the basic rules and risks of the road can allow them to travel safer from home to school and elsewhere. The road infrastructure should be improved for pedestrian friendly environment.

Helmet wearing

- **26% of casualties suffer from head injuries**, which is in line with the world average of 28%.
- More than 45% of casualties injured in Phnom Penh suffer from cranial trauma. This is partly due to the fact that a larger proportion of motorbike's casualties is noticed in Phnom Penh (83% compared to 69% in province).

[8] 73% in Phnom Penh and 72% in provinces.

- **72% of casualties suffering from a cranial trauma are indeed motorbike users** and only **4% are wearing a helmet at the time of the accident.**
- **38% of motorbikes' riders were suffering from head injury.**
- **19%** of motorbikes' rider involved in an accident in 2006 and who **were not wearing helmet** did suffer from head injury. This figure is decreasing to 12% when wearing a helmet.

Recommendation 9: Develop specific awareness and enforcement campaigns to increase helmet wearing[9].
A large number of head injuries could be avoided if people were wearing helmets correctly. Awareness campaigns organized so far by Handicap International Belgium in collaboration with the Ministry of Health and several other stakeholders have already allowed increasing two and half of the helmet wearing rate in Phnom Penh (from 8 to 21%).

Seatbelt

In 95% of the cases, a 4-wheels vehicles driver/passenger who was moderately, mildly or severely injured in a traffic accident did not wear a seatbelt.

Recommendation 10: Develop specific awareness and enforcement campaigns to increase seatbelt fastening.
A large number of injuries could be avoided if people were fastening their seatbelt correctly. Awareness campaigns should take this element in consideration when focusing on 4-wheel vehicles, and mainly private cars and taxis.

Occupation of casualties

- **The active part of the population is the most affected by road traffic accidents.**
- The percentages of fatalities by occupation are following the similar pattern as casualties: **farmers share the highest percentage**, followed by workers and students.
- **Farmers constitute the larger group of fatalities than casualties** (26% of fatalities, 24% of casualties).
- **Farmers are victims of motorbike accidents in 72% of the cases.**

Recommendation 11: Take in consideration the evolution of motorbike ownership among the rural population.
The yearly **increase** observed **in the percentage of farmers being victims of accident** (9% in 2004, 19% in 2005 and 24% in 2006) seems to indicate that an increasingly number of farmers use motorbike when traveling. Awareness campaigns should take this element in consideration when organised in rural areas, with a specific attention on traffic rules, adopting a defensive way of driving and wearing of helmet. A community-based approach should be encouraged in this respect.

Severity of injuries and hospital discharge

- **5% of casualties are fatalities.**
- **23% of casualties are severely injured** (requiring surgery or admission to intensive care).
- In total, **26% of casualties suffer from head injuries.**
- 38% of motorbikes' riders were suffering from head injury, 22% were severely injured and 4% died.
- Car users and pedestrians suffer more fatalities than other types of road users.
- Although more than 80% of the casualties were fully treated and sent home, 7% were referred to another hospitals and 2% requested to be treated by a private clinic or a traditional healer.

Nature of injuries

- **82% of fatalities** suffered from head injuries.
- **26% of casualties suffer from head injuries**, which is slightly lower than the world average of 28%.

[9] Cf. Action 12 of the Road Safety Action Plan: Road Safety Public Campaigns.
This recommendation is strongly supported by the World Health Organization and Handicap International, which launched several campaigns to promote the use of helmets.

- **A higher percentage of head injuries is noticed in Phnom Penh** compared to the rest of the country (more than 45%).
- The average cost of medical treatment is US$ 79 per casualty.

Driving license

- **Only 55% of car/truck/bus drivers have a valid driving license** at the time of the accident.
- 22% of children between 5 and 14 years old who were victim of a motorbike accident were driving the motorbike by themselves at the time of accident.

Recommendation 12: Take measures to enforce the law regarding the driving license validity.
This action must be linked to a monitoring of the quality of the training given prior to the delivery of the license. A monitoring of the quality of the examination as well as the training offered by the driving schools should be considered[10]. A specific attention should be paid to the validity of driving license for motorbikes.

Day of accident

- On average, more than **70 road traffic casualties are reported every day by RTAVIS[11]**. **Several peaks (up to 300 casualties a day) are noticed**, corresponding mainly to Khmer national holidays.
- Weekend (Friday 6 pm until Sunday midnight) accidents are responsible for 36% of casualties.
- A higher percentage of casualties are noticed on Saturdays**, especially during the night**. A lower percentage of casualties occur on Friday evenings.

Time of accident

- Nighttime accidents are responsible for 30% of casualties.
- One peak of casualties is observed between 6 pm and 7 pm.

Causes of accident

- "**Hit and run" accidents**[12] represent 23% of accidents and are responsible for 21% of casualties.
- Only 37% of the casualties are responsible for the accident in which they have been injured.
- **Human error is responsible for more than 90% of casualties**. Road and weather conditions are responsible for more than 10% of casualties while vehicle defect is responsible for only 4% of casualties.
- Almost 50% of fatalities are due **to non appropriated speed,** while other 20% are caused by **alcohol abuse.**

Recommendation 13: **Develop enforcement campaigns on driving rules.**
Current road users' behavior in Cambodia is generally **erratic, undisciplined and inconsistent**. With the rapid increase of speed and traffic, the situation will worsen and awareness campaigns alone will have to be coupled with a strict **enforcement of the law**, a **better driving examination system** and a **better control of the driving schools**.

Recommendation 14:**Develop awareness and enforcement campaigns targeting drunken driving**

Type of collision (vehicles involved)

- **Motorbike-motorbike collisions** are responsible for 34% of the casualties, followed by **motorbike-car collisions** (16%) and motorbikes that fell alone (11%).
- **Pedestrians are mainly injured by motorbikes rather than by cars**. Motorbike-pedestrian collisions indeed represent 5% of casualties while car-pedestrian collisions represent only 1% of casualties.
- **32%** of four-wheelers involved in road traffic accidents are **right-hand drives**, although they present only **5%** among 4 wheel vehicle official registered.
- **On average, 2.8 people are injured per accident.**

[10] Cf. Action 10 of the Road Safety Action Plan: Drivers Training.
[11] All hospitals and private clinics do not yet participate to RTAVIS and the actual average daily number of casualties is therefore higher than 70. The Cambodian Demographic and Health Survey 2005 indeed estimated the number of road traffic casualties at around 122,800. We estimate that this figure is more close to the reality, which would make an average daily number of road traffic casualties of 340.
[12] Accidents where the driver of the vehicle causing the accident escapes after the accident.

Type of collision

- 24% of accidents are **head-on collisions** and **right-angle,** followed by rear end (11%).
- 71% of vehicles were going straight ahead at the time of the accidents.

Cost of accident

The average damage cost per vehicle involved in accident is **US$ 160.** Knowing that **13,977 vehicles were involved in accidents in 2006**, the total estimation of damage cost is **US$ 2,236,320.**

Location of accident

- More than **40% of casualties are injured in urban areas.**
- Almost **12% of accidents** occurred in Phnom Penh, followed by Kampong Cham (9%), Kandal (8%) and Battambang (8%).
- In Phnom Penh, the top three communes affected by road traffic casualties (measured as number of casualties per 1,000 inhabitants) are Preak Lieb, Chrouy Changva, and Chakto Mukh. The two first are located along major national roads.
- In terms of population density, **the highest fatality rates are observed in Krong Kep and Sihanouk Ville**, which are the most popular leisure places for Cambodian people during holidays and weekends.

Type of road

- **63% of casualties** are injured in accidents occurring on **national/provincial roads**.
- **In comparison with the volume of traffic, national road 4 is the most deadly,** followed by national roads 2 and 7.

Road characteristics

- More than 70% of casualties are injured in accidents occurring on **straight roads**.
- 74% of casualties are injured in accidents occurring on **paved roads**.

Recommendation 15: Develop specific actions targeting the national roads[13].
There is a direct link between the length of the paved road network and the number of accidents.
National roads have recently been rehabilitated and traffic volume, as well as speed on those roads, is increasing rapidly. The number of accidents on those roads is therefore expected to increase even more rapidly.
Road safety action plans are urgently needed to accompany road rehabilitation and construction to ensure that:
- Hazardous locations and black spots are clearly identified and marked;
- Schools and markets are clearly identified and protected, notably with speed breakers;
- Villagers are properly informed on the additional risks that the road brings;
- Speed limits are clearly indicated and respected.

Transfer to hospital

- **Only 25% of casualties are transferred to the hospital or clinic by ambulance**. This is mainly an issue in provinces where only 19% of casualties are transferred to the hospital by ambulance.
- 33% of casualties arrive at the hospital **less then 30 minutes** after the accident while more than 30% of casualties take **more than 2 hours to reach hospital**.
- In the provinces, 37% of seriously injured casualties take more than 2 hours to reach the hospital.

[13] This recommendation is supported by a program of Handicap International which is supporting local NGOs and village committees to initiate road safety actions in village located along national roads.

Recommendation 16: **Improve emergency assistance to traffic victims[14].**
This is one of the **most urgent recommendations**. The current Cambodian healthcare system is currently not capable of absorbing the current and expected number of road traffic casualties. The problem is especially serious in remote areas along national roads where casualties sometimes have to wait several hours before being taken to hospital. The equipment and competence of the district hospitals are generally not sufficient and casualties often travel from one district hospital to a referral hospital before being sent to Phnom Penh. **Ambulance services should also be improved** and people should be better informed of what to do in case they are victims or witnesses of accidents (who to call, what first aid they can provide, etc).
Traffic police should as well be properly trained on **first aid**.

Police attendance

Police are present on the accident site in almost **63% of the cases**.

[14] Cf. Action 11 of the Road Safety Action Plan: Emergency Assistance to Traffic Victims.

Differences between Phnom Penh and provinces

The key indicators mentioned here above are **national averages**. However, important differences are noticed between Phnom Penh and the provinces. The figure here below summarizes the main differences.

Figure 1: Main road safety indicators – differences between Phnom Penh and provinces

	Phnom Penh only 2006		All Provinces without Phnom Penh 2006	
Number of casualties reported to RTAVIS	**5,547**		**20,599**	
Age				
Percentage of casualties aged between 15 and 24 years old	43%	2,357	34%	7,044
Type of road user				
Percentage of motorbike riders	83%	4,627	69%	13,724
Percentage of pedestrians	8%	467	8%	1,594
Percentage of car riders (private and taxis)	2%	137	6%	1,155
Percentage of bicycle riders	3%	169	6%	1,194
Occupation				
Percentage of students	28%	1,466	20%	3,890
Percentage of farmers	3%	152	30%	5,855
Percentage of workers	31%	1,631	18%	3,372
Nature of injuries: (1)				
Percentage of casualties suffering from cranial trauma	47%	1,986	37%	4,808
Day of accident:				
Percentage of casualties injured during the weekend (from Friday 6 pm to Sunday midnight)	37%	2,042	36%	7,370
Time of accident:				
Percentage of casualties injured during nighttime (from 6 pm to 5.59 am)	42%	2,304	27%	5,660
Peak(s) of casualties	7pm - 9pm		5pm - 7pm	
Cause of accident: (2)				
Percentage of casualties injured in accidents due to human error	**98%**	**5,235**	**92%**	**17,898**
High speed	35%	1,889	44%	8,442
Alcohol or drug abuse	18%	991	17%	3,403
Dangerous overtaking	19%	1,009	11%	2,111
Other	26%	1,346	20%	3,942
Percentage of casualties injured in accidents due to road conditions	**4%**	**197**	**13%**	**2,702**
Percentage of casualties injured in accidents due to weather conditions	**1%**	**66**	**3%**	**514**
Percentage of casualties injured in accidents due to vehicle defect	**1%**	**61**	**4%**	**892**
Type of collision:				
Percentage of casualties injured in motorbike-motorbike collisions	44%	2,399	31%	6,138
Percentage of casualties injured in motorbike-car collisions	28%	1,418	16%	3,247
Percentage of casualties injured in motorbike-pedestrian collisions	9%	491	7%	1,522
Hit and Run: (3)				
Percentage of casualties injured in accidents where the driver of the vehicle causing the accidents escaped after the accident	21%	211	22%	1,404
Time to be transferred to hospitals:				
Percentage of casualties arriving at hospitals between 10 and 30 minutes after the accident	40%	1,665	26%	3,205
Percentage of casualties arriving at hospital more than 2 hours after the accident	17%	716	37%	4,527
Way to be transferred to hospitals: (4)				
Percentage of casualties transported by ambulance	41%	1,681	19%	2,145
Attendance of police:				
Percentage of cases were police was present on the accident site	59%	3,248	64%	12,368

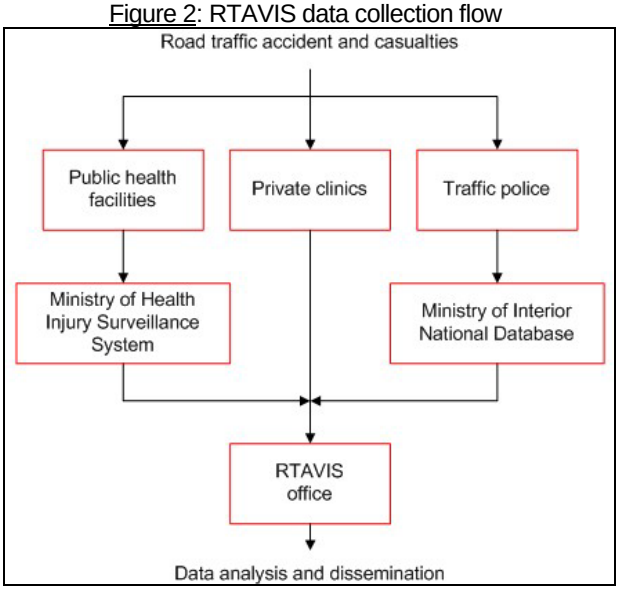
Note:
- (1) and (4): Based on hospital data only.
- (2): Some accidents were due to more than one cause.
- (3): Based on traffic police data only

III. System coverage

Data sources

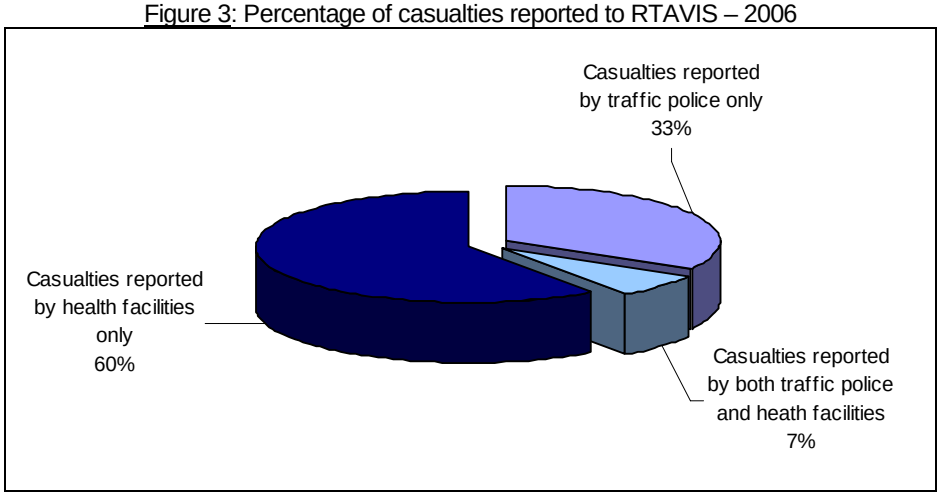
Research shows that in most countries official accident statistics based on traffic police reports only underestimate the real number of road traffic casualties[15].
To avoid this underreporting, RTAVIS therefore collects data at **three different data sources**, as illustrated by the figure here below:

Figure 2: RTAVIS data collection flow



In 2006, traffic police reported 40% of casualties. The other 60% were reported by health facilities only (without police records)**,** as shown on the figure below.

Figure 3: Percentage of casualties reported to RTAVIS – 2006



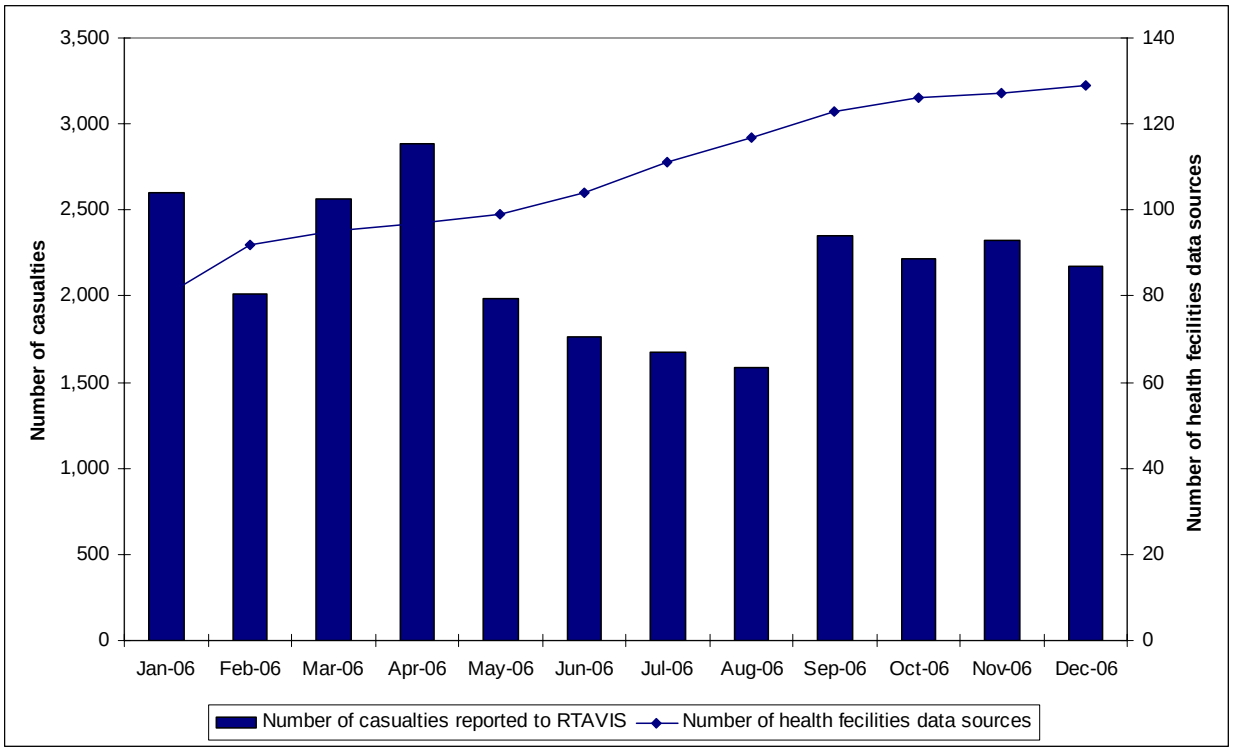
Notice:
To avoid double entries between health facilities and traffic police data, when a casualty is reported by a health facility as well as by the traffic police, it is taken into account only once and shared around 7% of the casualties.

[15] Recent research shows that statistics based on traffic police only report 60% of seriously injured road traffic casualties in developed countries.

Private clinics play a growing role in the treatment of road traffic casualties. In Phnom Penh, they have treated more than **35% of the casualties** in 2006.

Health facility data sources have been progressively added into the RTAVIS coverage, as shown on the chart below. **In December 2006, 129 health facilities (provincial hospitals, referral hospitals and health centers) were participating in RTAVIS.** This number has steadily increased during the year. Full country coverage with hospital and traffic police data has been achieved by the end of 2006.

Figure 4: Evolution of the number of casualties and health facilities data sources – January to December 2006



Notice on Injury Surveillance

In 2007, several workshops will be organized by the Ministry of Health, HIB and other interested stakeholders to **extend the data collection system set up for RTAVIS to other types of injuries**, such as falls, drowning, domestic violence,...

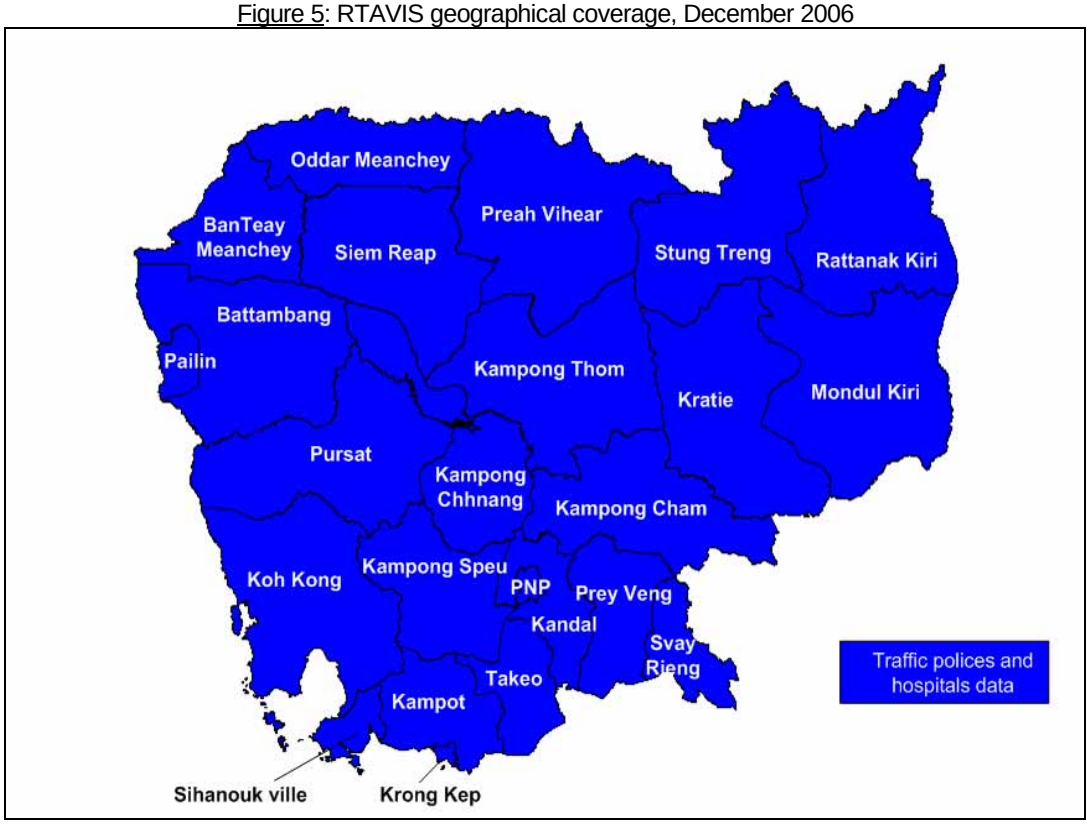
Injuries in general are indeed estimated to be a **growing cause of death and disability in Cambodia** but there is currently no ongoing data collection system to monitor these issues[16].

[16] The Demographic and Health Survey performed in 2005 in Cambodia estimated that road traffic injuries represent 45.9% of injuries, followed by falls from tree/building (14.2%).

Geographic coverage

By the end of 2006, **RTAVIS covered 24 Cambodian provinces with traffic police and health facilities data**[17], as shown on the figure here below. All traffic police officers have been trained on the RTAVIS data collection forms since 2005. Training of hospital and private clinic staffs has been finalised in mid-2006, in collaboration with the Ministry of Health.

Figure 5: RTAVIS geographical coverage, December 2006

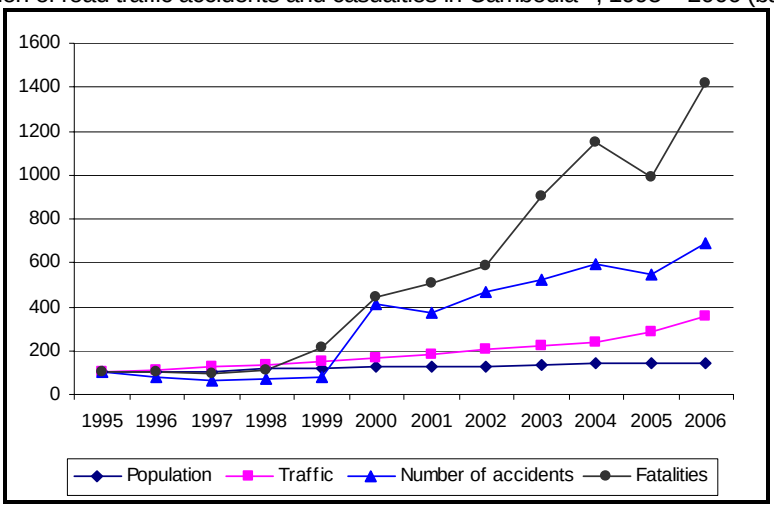


[17] Although they have received training, none health facilities from Pailin and Mondol kiri did report in 2006.

IV. Evolution of data

Road traffic accidents, casualties and fatalities continue to increase more proportionally than road traffic and population. Over the last 5 years, the number of accidents increased by 50% and **the number of fatalities has more than doubled**. In the meantime, population has increased by 12% and the number of registered motorized vehicles has been **increased by 70%.**

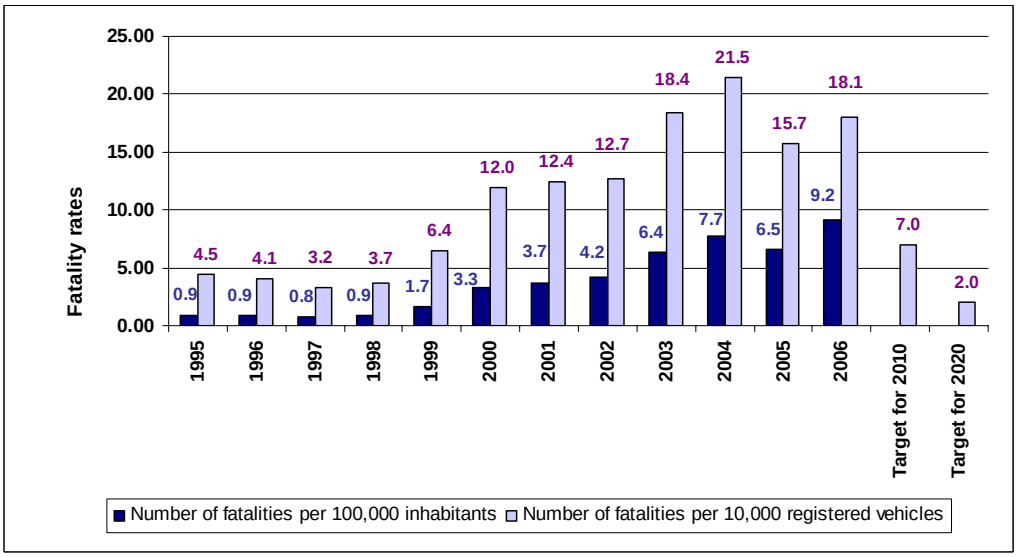
Figure 6: Evolution of road traffic accidents and casualties in Cambodia[18], 1995 – 2006 (base 100 = 1995)



Generally, the fatality rate (in 100,000 inhabitants) has been increased since 1995, with the highest rate in 2006 (9.2 fatalities per 100,000 inhabitants).

In 2006, there are 18 fatalities per 10,000 registered vehicles. It has increased 15%, compared to 2005. It is a very big challenge for the country to achieve the target for 2010, which is set in the National Road Safety Action Plan.

Figure 7: Fatality rates in Cambodia 1995 – 2006 and its target for 2010 and 2020[19]



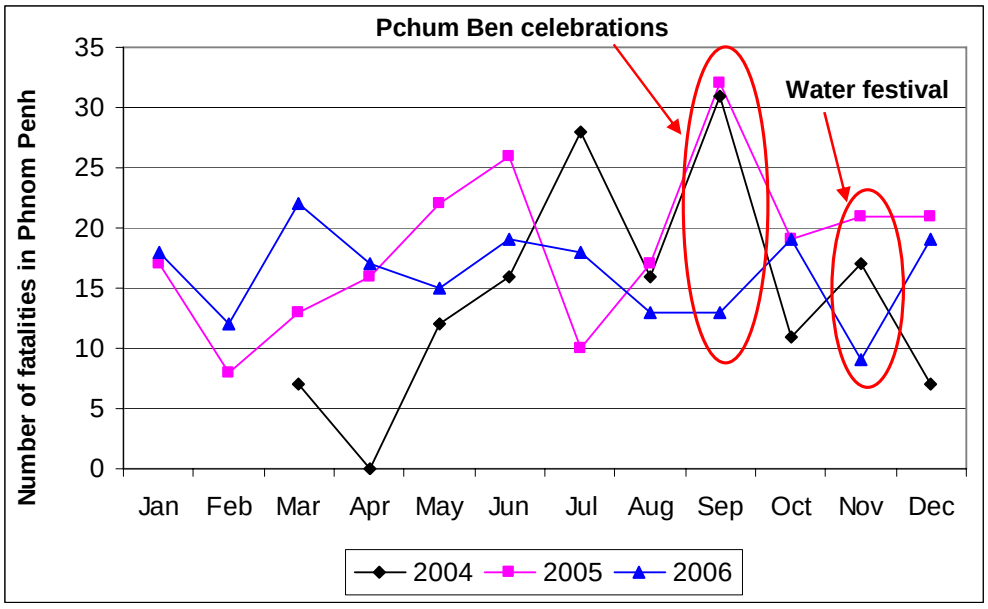
[18] Sources:
- Population: First Revision of Population Projections for Cambodia 1998 -2020, National Institute of Statistics, Ministry of Planning, June 2004;
- Traffic and accident figures: Ministry of Public Works and Transport.

[19] Sources: National Road Safety Action Plan

Notice:
RTAVIS has been recently created. Long period evolution charts or year to year comparisons at the national level are therefore not yet possible for 1995 up to 2005. The graphs (figure 6 and 7) are based on figures provided by the traffic police only.

In Phnom Penh, the number of **fatalities has decreased by 13% from 2005 to 2006**. **The significant decreases have been noticed during Pchum Ben celebration and water festival**. This can show the positive impacts of road safety actions, organized by road safety related stakeholders, especially the government during the celebrations.

Figure 8: The evolution of the numbers of fatalities in Phnom Penh – March 2004 to December, 2006



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