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ROAD SAFETY DATA REVIEW IN CAMBODIA

SUMMARY NOTE

FUNDED BY

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Recommended Citation for this Report:

Weijermars W., Feypell V., Raffo V., Burlacu A., Paala M. (2021). *Road Safety Data Review in Cambodia. Summary Note.* Washington, DC: World Bank.

Cover Photo: Alexandre Brondino / Unsplash. Author's page photo: Chhor Sokunthea / World Bank.

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ACKNOWLEDGEMENTS

This guide was jointly prepared by the World Bank and the International Transport Forum (ITF). The team working on this document comprised of Wendy Weijermars, Veronique Feypell, Veronica I. Raffo, Alina F. Burlacu, and Mirick Paala. Valuable inputs were also provided by Sadig Aliyev, Veasna Bun, and Chandy Meas.

The International Transport Forum and the World Bank would like to express their greatest thanks to the Cambodian stakeholders, which made this project possible, and in particular:

- **H.E Min Meany, Secretary of State in charge of road safety**
- **H.E. Or Vandine, Secretary of State, Ministry of Health**
- **H.E. Him Yan- Vice General Commissioner of National Police**
- **Mr Sattya Boran, Deputy Director, Road Traffic Safety Department**
- **Dr. Chhor Nareth, Calmette Hospital**
- **Mr. Teng Chanat, District Police of Siem Reap**
- **Staff of the district police of Kampong Speu**
- **Ms. Men Chansokol, Director, Land Transport Department**
- **Mr Kim Pagna, AIP Foundation**

The authors would like to thank all the persons met during their visit to Cambodia for their time, dedication, and involvement.

This report was produced with funding support from UK AID through the World Bank's Global Road Safety Facility (GRSF).

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ROAD SAFETY DATA REVIEW IN CAMBODIA

BACKGROUND AND OBJECTIVE

Road safety is a major public health issue in Cambodia. Reducing the number of road crashes is a priority for the government. Accurate data are needed to design the most effective interventions. Improving the current crash data system will furnish a more comprehensive picture of critical road safety issues in Cambodia and provide the basis for developing policies to save more lives.

In the framework of the development of the Asia Pacific Road Safety Observatory (APRSO), the World Bank and the International Transport Forum (ITF), with the support of the Cambodian Government, initiated a project aimed at assessing the crash data system in Cambodia and developing a road map for strengthening this system.

This project follows up on a previous twinning project between Cambodia and the Netherlands, undertaken in the framework of the International Road Traffic and Accident Database (IRTAD) group of ITF in 2010-2014. That project concerned both a review of the Road Crash and Victim Information System (RCVIS), and training and support to develop a national road safety strategy and related indicators.

The current project started in 2019 and was carried out by the World Bank and the ITF, with support from the Global Road Safety Facility (GRSF) and UK AID. The Dutch Road Safety Research Institute, SWOV, was contracted by the ITF to lead the review.

This report provides conclusions and recommendations on the basis of the data review mission undertaken in December 2019.

THE DATA REVIEW MISSION

Experts from the SWOV, the ITF, the World Bank and the GRSF visited Cambodia from 6 to 13 December 2019 to review the crash data system of Cambodia and to discuss preliminary conclusions and recommendations with key high-level road safety stakeholders.

Prior to the mission, the review was prepared through desk research and preparatory meetings with SWOV-experts who had previously visited Cambodia. During the review mission, semi-structured interviews were held with the following stakeholders: the National Road Safety Committee (NRSC), National police, Provincial police in Siem Reap and Kampong Speu, Ministry of Health, Calmette Hospital, AIP Foundation and the vehicle registration office. The meetings were organized by a local consultant, in cooperation with the NRSC.

This report discusses the main findings of the review mission and provides a set of recommendations to further improve road crash data collection and analysis, and to improve road safety in general.

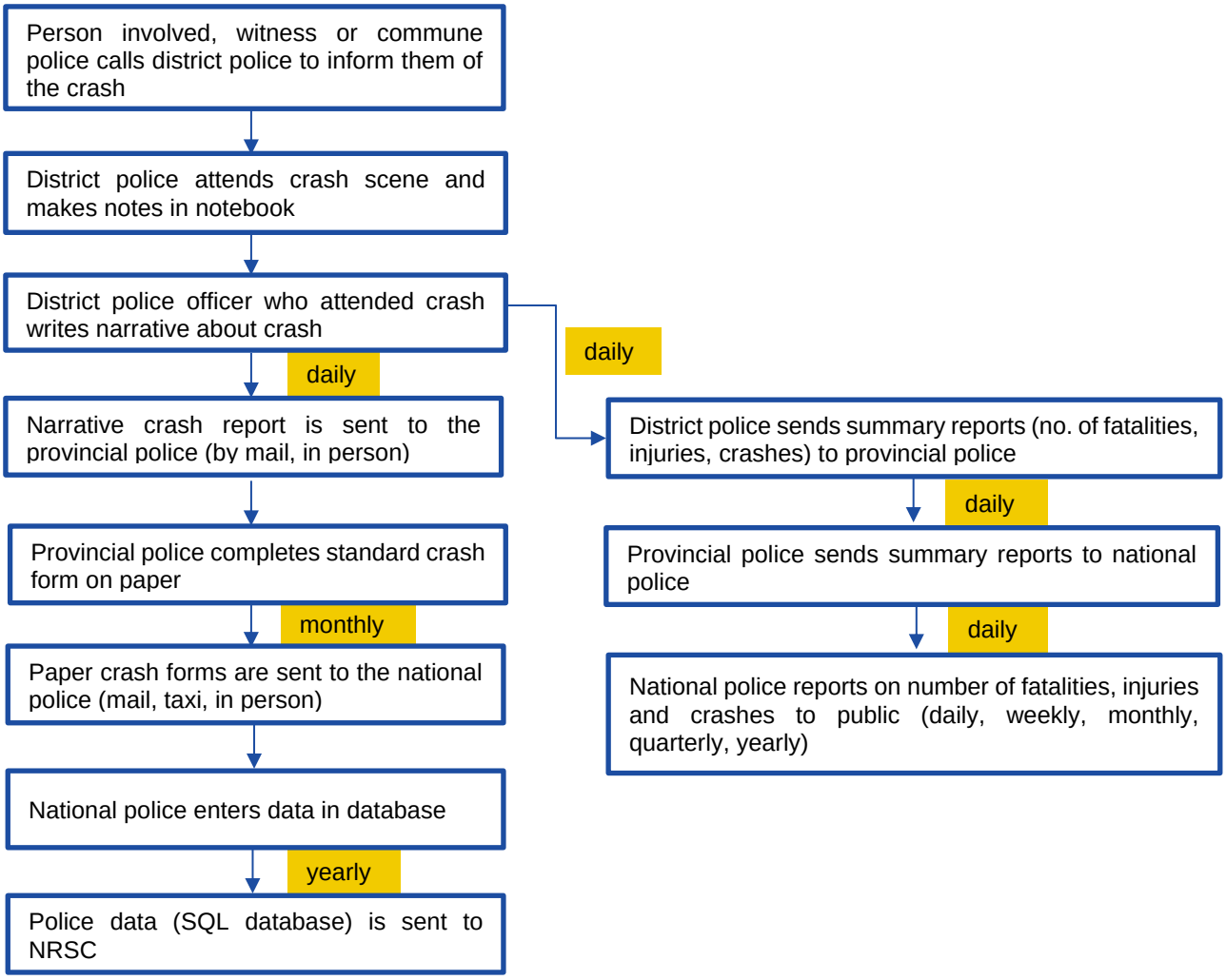
DESCRIPTION OF CRASH DATA COLLECTION IN CAMBODIA

The main crash database in Cambodia is the RCVIS that contains both police and hospital data. RCVIS was first created by Handicap International (HI) in 2004. It is managed by the General Secretariat of the NRSC.

- **COLLECTION OF CRASH DATA BY THE POLICE**

Figure 1 illustrates the process for the collection of crash data by the police in the provinces that were visited. Crashes are initially registered by the district police. The district police report crashes by means of a narrative report, describing the crash circumstances. On the basis of the narrative, in the provinces that were visited, the provincial police complete a standardized crash form on paper. The National police stated that in other provinces, the standardized crash form is completed by the district police. The standardized crash form is similar throughout the country and contains information on the people and vehicles involved in the crash, the location of the crash, crash characteristics and the (expected) cause of the crash. The form also includes variables describing whether drivers/casualties were wearing a helmet or seatbelt and used alcohol and/or drugs.

Figure 1. Process for police data crash collection



The paper crash forms are sent to the national police who enter the information in an online database. The data in the SQL database[1] is sent to NRSC once a year to be included in the RCVIS. The national police are planning to delegate the completion of crash forms to the district police in the future.

[1] SQL: Structured Query Language, a domain-specific language used in programming and designed for managing data held in a relational database management system (wikipedio.org)

In addition to the crash reports, summary statistics are sent by different means (taxi, post, phone etc.) every day from the district police to the provincial police and subsequently to the national police. The summary statistics include information on the number of road traffic fatalities (according to the police data), the number of people injured in traffic and the number of road traffic crashes. The national police report the summary statistics to the government and the media (and thus to the public) every day, week, month, trimester, and year.

According to the current procedures, hospitals are required to complete injury forms for road traffic casualties taken to the hospital. Once completed, the paper forms are sent to the provincial health departments and subsequently to the Ministry of Health (MOH). The MOH then sends every month the forms to NRSC, who enters the information into the RCVIS.

In addition to the data in the RCVIS, daily summary statistics (e.g. number of fatalities reported by police) are available.

- **COLLECTION OF CASUALTY DATA BY HOSPITAL**

There are different levels of hospitals and health center facilities in Cambodia: health posts and health centers for providing daily health care, 81 referral hospitals at district level, provincial hospitals in each of 24 provinces (outside the capital city) and around a dozen national hospitals, with Calmette hospital the flagship health center. Serious road traffic injuries are in general treated in national or provincial hospitals. There are also private hospitals and private ambulances, but officially, private ambulances are not allowed to transfer patients.

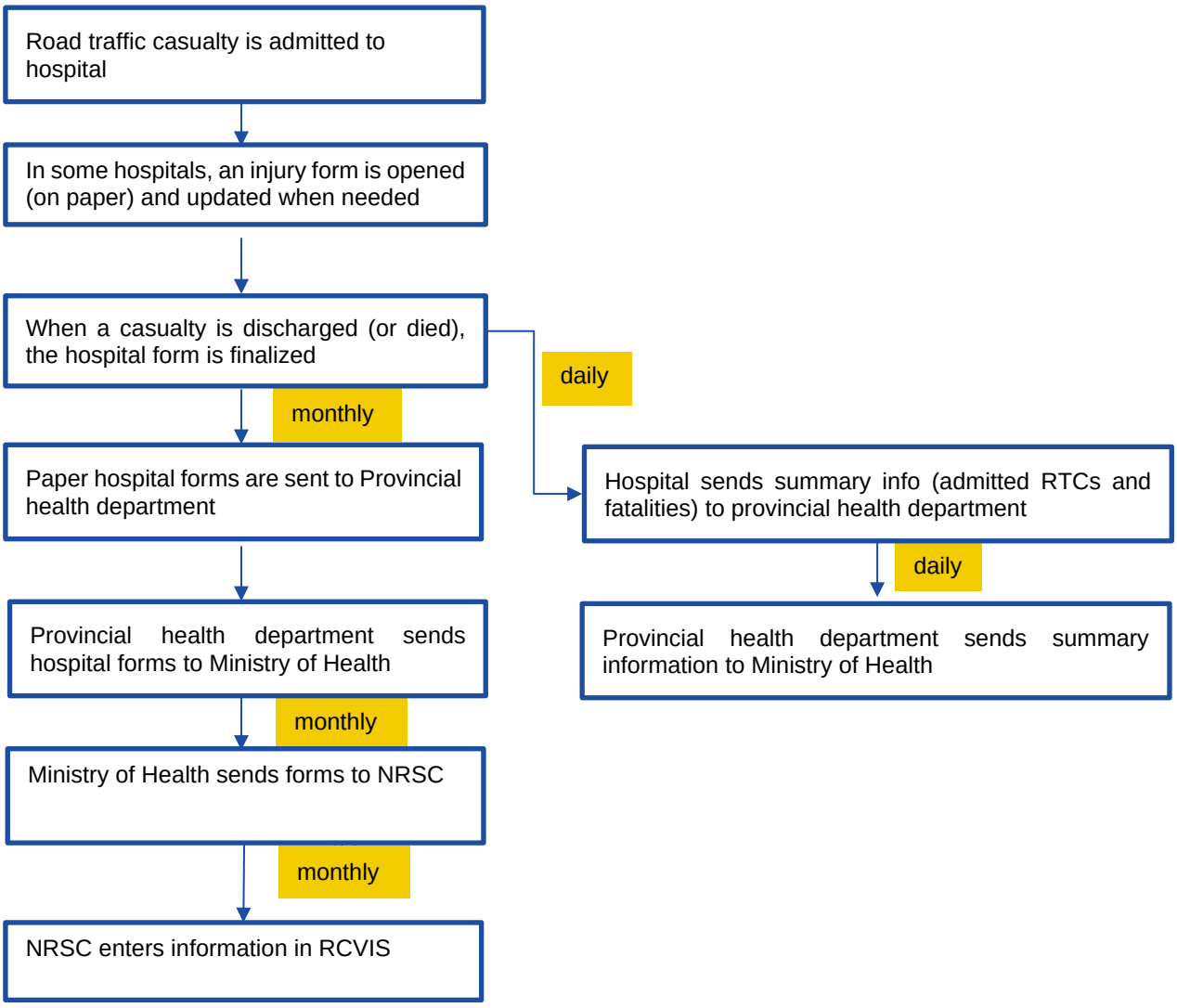
Figure 2 illustrates the hospital data collection process for road traffic victims. When a road casualty arrives at the hospital, an injury form should be opened. There is a standardized injury form available in all hospitals. In practice, not all hospitals complete this form and record information in other formats. The standardized form is fairly complete and provides information on the nature and severity of the injury, the crash (transport mode, counterpart, location), the casualty (e.g. name, gender, age, occupation) and discharge information (fully treated and sent home, referred to other hospital/health center, sent home but disabled for life, died at hospital or before arriving in the hospital).

The hospital form is on paper and stays with the patient during their stay at the hospital. It is finalized when a casualty is discharged or dies in the hospital. The hospital paper forms are sent to the Provincial Health department and subsequently to the MOH.

When the RCVIS was developed, the paper forms were entered into the Injury Surveillance System by the MOH, but according to the current procedure, the paper forms are sent to NRSC and NRSC enters the information into RCVIS. Injury forms are not limited to road traffic casualties and forms are completed for injuries caused by events other than road traffic crashes. The NRSC receives all injury forms and after screening sends the injury forms that are not related to road traffic crashes back to the MOH.

In addition to the injury forms, summary statistics are sent from the hospitals to the provincial health department and subsequently to the MOH every day. The summary statistics provide information on the number of road traffic casualties that were admitted to the hospital and the number of road traffic casualties who died in the hospital that day.

Figure 2: Process for hospital data collection



STRENGTHS AND POSSIBLE IMPROVEMENTS

The main strengths of the road safety data collection in Cambodia are:

- There is close cooperation between the different stakeholders and the NRSC who functions as the lead agency for road safety.
- The RCVIS contains both police and hospital data and duplicate records are removed.
- The summary statistics provide a possible first check concerning the completeness of the crash data in the RCVIS. It should be noted though that the number of road traffic victims that die in the hospital according to the summary statistics seems to be very low.

Possible improvements of the current system are:

- The registration process is largely on paper. Concerning police registration, it could save time and energy if the district police completed the crash form itself and it would be even more efficient if that could be done in an electronic form. For example, using tablets and a data analysis tool (such as the web-based Data for Road Incident Visualization, Evaluation and Reporting (DRIVER) tool developed by the World Bank).
- Although the RCVIS was quite a sophisticated system when it was developed, it is not up to date with the modern technology that exists today.
- Digitalization of data processing in hospitals would also bring added value. Currently, hospital forms are first completed on paper by the hospitals. These paper forms are sent to the provincial health department, which then sends them to the MOH, which then sends them to NRSC. The precise role of the provincial health departments and the MOH in this process is not clear.
- The frequency of the training of provincial police officers in use of the reporting system could be increased and it would be good to train police officers at district level as well.
- In hospitals, a digital system for patient admission and administration would facilitate the management of patient forms.
- Better equipment (including computers and vehicles) for district police would facilitate the tasks of police officers in collecting and managing road crash information.

RECOMMENDATIONS

Digitalization of Data Collection by Police

The main recommendation concerning the collection of crash data is to investigate opportunities for digitalization. Transferring the responsibility for completion of crash forms from the provincial police to the district police is also recommended.

Digitalization of the crash data collection is quite a complex operation and choices need to be made, for example related to the software and devices that are used. It is recommended to discuss issues of cost, ease of use of software and devices and functionalities of the system with the stakeholders, and to start with a pilot project in one or two provinces to try out and optimize the systems before procurement nationally.

Capacity Building

To get the necessary support and input from all stakeholders involved in road crash data collection and analysis, it is important that people at different levels in the relevant organisations understand why it is important to collect and analyse the data and understand why digitalization and the recommended improvement to the process are needed.

Training of Police Officers

Police officers who are responsible for collecting the data should be offered operational training on how to complete the crash form effectively, and how to use digital recording devices effectively once these are introduced. Police officers should also undertake training on crash investigation. The other

people involved in the crash data collection, e.g. people that run checks or analyze the data, should also benefit from training.

Hospital Data

Digitalization of data collection in hospitals is recommended. Investigation as to whether the various patient registration systems used in hospitals could be combined is recommended, so that hospital staff only have to enter data once. It could be investigated whether the relevant information for NRSC could be exported from one database used for multiple purposes (e.g. administration of hospital care, patient medical records).

As with the processing of police data, the team recommends a review of the process for managing hospital data and the roles of the different levels of administration involved with a view to simplification.

Digitalization of the collection of hospital data might be more complex than digitalization of the crash data collected by the police. Therefore, a choice could be to first focus on the digitalization of the collection of police data. In that case, it will be important to review the reliability of estimates of the number of road traffic casualties that die in hospitals, so that an accurate estimate of the total number of road traffic fatalities can be made.

Analysis of Vital Registration Data

Vital statistics registration systems, that record all births and deaths, are an important source of data. Comparison of the number of road deaths recorded by the police with the number of road deaths according to vital statistics is recommended. A first step could be to explore this data source, analyzing the procedures used and determining which variables are included and could serve as a key for linking the data to the RCVIS database.

The team recommends discussing differences in deaths recorded by the RCVIS system with the WHO estimate for Cambodia with WHO experts.

Crash Data Analysis

The RCVIS annual report discusses some useful disaggregation of data on fatalities. Analysis of the data could be useful to explore possible missing cases. One could for example look at different combinations of variables, e.g. province and transport mode, province, and age group, etc. One could analyze developments over time as well as number of casualties related to number of inhabitants and number of registered vehicles. Training for NRSC staff to run analyses of data using standard spreadsheet or database management software, for example Excel, is recommended.

ROAD MAP

A road map for strengthening road safety traffic data collection in Cambodia was presented to the Cambodian stakeholders on 1 October 2020. It focuses both on the digitalization of police data collection and on the digitalisation of hospital data collection. It makes proposals on steps to be undertaken over a 24-month period.

Digitalization of Police Data Collection

The road map for digitalization of police data collection consists of three main phases:

1. Preparation phase: for the selection of software and devices and the selection of pilot areas (6 to 12 months)
2. Pilot projects in three to five districts to implement and monitor the digitalization of crash data collection (6 to 12 months)
3. Nation-wide scale up (12 to 24 months)

Selection of Software and Devices

The safety data platform should meet the following principles:

- The system should assist stakeholders in the development of evidence-based road safety programs;
- The platform must be flexible to meet changing contexts and needs but sustainable in relation to future development support and system upgrades;
- Data must be shared with and be easily accessible by stakeholders; and
- Data collection and analysis processes must be well defined, intuitive, and documented.

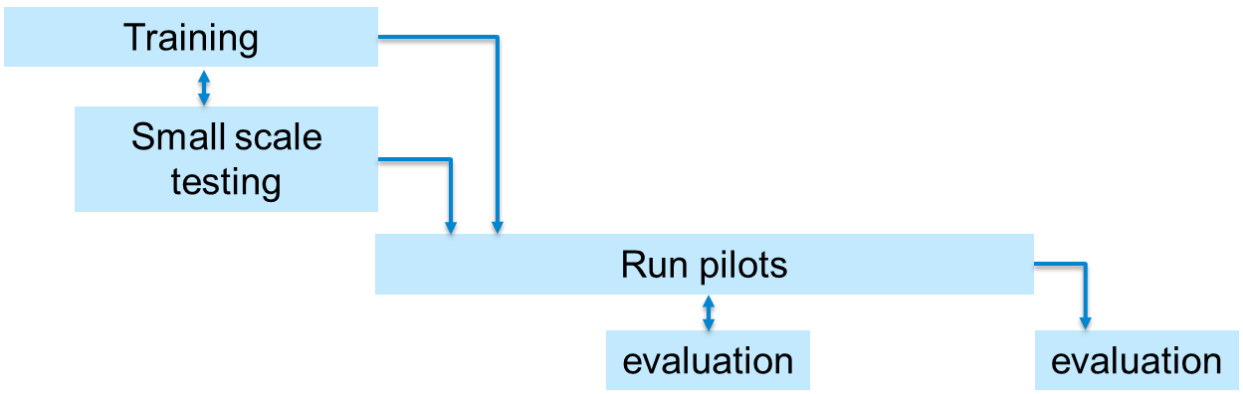
Various tools are available that meet these principles functionalities. One of them is the DRIVER system. There are also other options; one of them is to upgrade the existing RCVIS database.

We suggest collaboration between the Cambodian stakeholders to review in detail the various options.

Selection, Preparation, and Implementation of Pilot Projects

We recommended running pilots in three to five districts that are different in nature, e.g., a more urban or rural setting, different provinces, small vs large districts, among others. Concerning devices, one could consider trying out different devices in different pilot regions and to base the final decision on the pilot results.

Implementation of the pilot projects is summarized in the figure below.



Nationwide Scale-Up

Based on the lessons learned during the pilot, the system should be gradually scaled up to the national level. Stepwise implementation, implementing the new digital process in one or two provinces at a time might be considered as this is easier to manage and also has the advantage that the introduction can be slightly adjusted at each step, learning from implementation in previous steps.

Digitalization of Hospital Data Collection

Concerning the digitalization of hospital data, a comparable road map can be followed to that proposed for the digitalization of the police data collection:

- preparation phase
- pilot phase
- nationwide scale-up.

However, more knowledge about hospital practices is needed, as the team only visited one hospital during the mission. Therefore, we recommend as a first step a further consultation with hospital staff at provincial and district hospitals

NEXT STEPS

Implementation of the road map is envisaged to be supported under the World Bank financed Cambodia Road Connectivity Improvement Project, which was approved by the World Bank on 16 July 2020. The project includes resources to support the Ministry of Public Works and Transport (MPWT) with technical assistance as well as procurement of required software and hardware for upgrade of the road crash data system. The World Bank team and the MPWT will continue close collaboration on the road safety agenda in Cambodia.

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