

Legal Analysis of the Regulation of Legal Liability for Violations of the Law by Motorized Vehicle Owners

Rivan Achmad Purwantono¹⁾, Gunarto²⁾ & Bambang Tri Bawono³⁾

¹⁾ Faculty of Law, Universitas Islam Sultan Agung, Indonesia, E-mail: rivantono@yahoo.com

²⁾ Faculty of Law, Universitas Islam Sultan Agung, Indonesia, E-mail: <u>gunarto@unissula.ac.id</u>

³⁾ Faculty of Law, Universitas Islam Sultan Agung, Indonesia, E-mail: <u>bambang@unissula.ac.id</u>

Abstract. Based on the provisions of Article 14 in PP No. 18 of 1965 which regulates the liability of motorized vehicle owners in Indonesia, its implementation to date has not been fully realized. This is due to the complexity of the legal subjects responsible for the implementation of these provisions, which causes injustice to motorized vehicle owners. In certain situations, vehicle owners are not involved in an accident at all, as the vehicle is under their control. The core cause of this problem lies in the vagueness of the applicable regulations, which do not explicitly distinguish between individual and collective responsibility for traffic accidents. Therefore, research was sought to reconstruct the relevant norms, rules and regulations so that the implementation of Article 14 in PP No. 18 of 1965 can be carried out effectively. Several other regulations, including but not limited to Act No. 22 of 2009 and related regulations, have accommodated provisions regarding traffic law violations and accidents comprehensively. The results show that there was injustice for motorized vehicle owners because the accident did not occur when the vehicle was under their control. The arrangements in other regulations also indicated that the party who must be responsible for a traffic accident is the driver of the vehicle that caused the accident, regardless of his status as a vehicle owner or not. This phenomenon occurred due to the failure to clearly separate individual and collective responsibility for traffic accidents in the context of Article 14-PP No. 18 of 1965. In an effort to achieve balanced and accurate legal justice, it is necessary to revise and improve the relevant regulations to ensure a balance in the determination of responsibility in traffic accident cases.

Keywords: Accidents; Liability; Owner; Reconstruction; Traffic; Vehicle.

1. Introduction

The increasing number of traffic accidents is one of the problems facing Indonesia's transportation sector. This is due to inappropriate transportation



means, road conditions, vehicles, and supporting infrastructure with the progress of the city. With economic growth and a larger population, there is more activity and more personal transportation. Traffic accidents are something that happens frequently and cause a lot of losses. Accidents cause damage in addition to damaging public property.

With the increase in the number of motorized vehicles, both two-wheelers and four- wheelers, there is an increase in traffic complexity, which has a direct and indirect impact on the increase in the number of accidents.

Traffic accidents are the leading cause of death in developed and developing countries in all age groups, except in the elderly. It has been observed that the number of traffic accidents increases with the number of vehicles. The number of accident victims determines the level of safety.

Other factors such as vehicle malfunction, defective vehicle design, road design, and lack of compliance with traffic signs also contribute to the occurrence of accidents. Accidents do not happen by chance, but have causes that can be analyzed and identified so that corrective actions and preventive measures can be taken.

There are several factors that can cause road accidents, including: human error factors, technical failures in vehicles, road conditions, and weather factors. According to Warpani, the causes of traffic accidents can be grouped into four main elements, namely people, vehicles, roads, and the surrounding environment.¹

First, the human error factor, which can be caused by traffic violations. To overcome this problem, efforts are needed to educate and socialize the public to comply with traffic regulations. Through socialization, it is hoped that the public can be more obedient and reduce accidents caused by human error.

Second, driver factors, which can be caused by a lack of concentration, drowsiness, using a cell phone while driving, playing audio/video, chatting, or being glued to advertisements/billboards. This is often overlooked by drivers, especially teenagers. Accidents caused by this factor are numerous, so it is not advisable to use a cell phone while driving. However, if it is really urgent and you have to answer a phone call, you should stop for a moment and not use hands-free so that you can still hear your surroundings. The role of the driver as a road user is very important in the occurrence of accidents. The drivers control, accelerate, slow down, brake and stop the vehicle. Each driver has differences in reaction time, concentration levels, intelligence levels, and personal

¹ Warpani. 1999. Pengelolaan Lalu Lintas dan Angkutan Jalan. Bandung: ITB



characteristics influenced by physical factors, age, gender, emotions, vision, and others.

Some driver criteria that can cause traffic accidents are:

1. A drunk driver is a state in which the driver loses consciousness due to the influence of alcohol, drugs, narcotics and the like.

2. Drowsy or overly tired driver, which is a situation where the driver drives a vehicle in a state of fatigue or drowsiness due to lack of rest to such an extent that it results in less alert and less agile reacting to changes that occur.

3. An emotional or distracted driver, which is a situation where the driver is driving the vehicle in a state of divided concentration due to daydreaming, chatting, lighting a cigarette, using a cell phone, looking right and left, and others.

4. Unskilled driver, which is a situation where the driver cannot estimate the capabilities of the vehicle, such as the ability to brake, the ability to maintain distance from the vehicle in front of him, and so on.

Apart from drivers, other road users, namely pedestrians, can also be the causes of accidents. This can be inflicted on pedestrians in a variety of ways, such as crossing the road at the wrong place or time (unsafe), walking too centered and not being careful.² The improvements that need to be made regarding the driver factor are to provide understanding to drivers to prioritize safety when driving.

Third, road factors include road plan speed, road geometry, presence of guard rails in mountainous areas, presence of road medians, visibility, and road surface conditions. Damaged or potholed roads can cause accidents and threaten the safety of road users. Roads need to be carefully planned and designed taking into account the expected future growth in vehicle volumes. The road design should be up to standard and properly executed and adequately maintained, with the aim of providing safety for road users. Road properties can also influence and cause traffic accidents. Some of the things that can cause accidents related to road conditions are as follows:

1. Damage to the road surface (for example, large potholes that are difficult for drivers to avoid);

2. Defective road construction (e.g. the shoulder is too low compared to the road surface, the pavement width and shoulder are too narrow);

² World Health Organization (2013) 'Keselamatan Pejalan Kaki: Manual Keselamatan Jalan Bagi Pengambil Keputusan Dan Praktisi'. World Health Organization



3. Imperfect road geometrics (e.g., super elevation on curves is too steep or too gentle, bend radii are too small, driver's free view is too narrow, the combination of vertical and horizontal alignments is not appropriate, road drops and rises are too steep, etc.).

Fourth, vehicle factors often involve events such as tire blowouts, suboptimal brake function, metal fatigue resulting in damage to vehicle parts, use of worn-out equipment without replacement, and various other causes.

All of these factors are closely related to the technology used in the vehicle and the maintenance performed on it. To reduce the factor of vehicles as a cause of accidents, it is important to carry out regular maintenance and repair of vehicles. In addition, there is an obligation to conduct periodic testing of motorized vehicles. Factors that need to be considered in this testing include the road worthiness of the motorized vehicle, the overall condition of the motorized vehicle, the transmission system of the motorized vehicle, the condition of the tires, and other safety standards.

Vehicles can be a contributing factor to traffic accidents if they are not properly controlled, either due to inadequate technical conditions or the use of vehicles that violate the rules. Some of the causes of traffic accidents that can be caused by vehicle factors are:

1. Vehicle Equipment: Brake equipment is not working properly, e.g., brakes fail; Steering equipment is not working properly; Tires or wheels are in poor condition or tires are blown; Front or rear axles are broken.

2. Vehicle Lighting: It does not comply with lighting regulations; it uses lights that dazzle drivers of other vehicles.

3. The use of vehicles that do not comply with regulations, for example, vehicles are overloaded.

Fifth, there are other factors that also contribute to traffic accidents in addition to the previous four factors. One of them is natural factors, such as weather conditions that can affect the occurrence of accidents. Weather factors, such as rain, can affect driver visibility and vehicle performance. Smoke and fog can also impair visibility, especially in mountainous areas. Natural factors are things that we cannot fully control.

However, we can still take steps to minimize the casualties of accidents caused by natural factors. For example, in the event of floods, landslides or hurricanes, drivers must remain vigilant and take appropriate measures to deal with accidents caused by natural factors.



In Act No. 22 of 2009 on Road Traffic and Transportation ("Act No. 22 of 2009"), accident events are divided into several levels/categories as set out in Article 229 of Act No. 22 of 2009, which contains:

1. Light Traffic Accidents (are accidents that result in damage to vehicles and/or goods);

2. Moderate Traffic Accidents (are accidents that result in minor injuries and damage to vehicles and/or goods); and

3. Serious Traffic Accidents (are accidents that result in death or serious injury).

Based on the Explanation of Article 229 paragraph (3) of Act No. 22 of 2009, what is meant by "minor injuries" are injuries that cause the victim to suffer pain that does not require hospitalization or other than those classified as serious injuries.

Furthermore, based on the Explanation of Article 229 paragraph (4) of Act No. 22 of 2009, what is meant by "serious injury" is an injury that results in victims:

- a. falls ill and there is no hope of recovery at all or poses a mortal danger;
- b. incapable of continuing to perform the duties of the position or job;
- c. loss of one of the five senses;
- d. suffering from severe disability or paralysis;
- e. impaired thinking for more than 4 (four) weeks;
- f. the loss or death of a woman's womb; or
- g. injuries that require hospitalization for more than 30 (thirty) days.

This article will discuss the types of traffic accidents and the formulation of legal liability, an overview of traffic accidents in Indonesia, traffic law violations and motorist liability based on Act No. 22 of 2009, the elements of culpa crime in traffic accidents, the philosophical basis of motorized vehicle owners who do not commit traffic crimes given social justice, and legal liability for motorized vehicle owners in equitable traffic accidents. The section on types of traffic accidents and the formulation of legal liability needs to be comprehensively elaborated to provide a clear picture of the concept of legal liability that will be seen through the study of several different legal sources. The provisions on traffic law violations and accidents are comprehensively regulated through Act No. 22 of



2009. In order to understand more about traffic accidents, according to the author, it is necessary to understand what is meant by an accident in the list of terms used by the Central Bureau of Statistics which states:

"An accident is a collision or contact of a hard object or a liquid (chemical) object or gas, or fire coming from outside, to the body (body) of a person, resulting in death or disability or injury, the nature and place of which can be determined by a doctor."

Meanwhile, what is meant by an accident in Article 1 number 24 of Act No. 22 of 2009 is:

"An unexpected and unintentional road event involving a vehicle with or without other road users that results in human casualties and/or property damage".

Next, we will discuss the perspective of accidents and the liability of legal subjects in traffic accidents from various legal sources.

2. Research Methods

This research was a type of normative research or literature study, namely research related to a series of data collection processes by reading, and recording research materials.³ While the approach method used was the statutory and conceptual case approach method carried out by the author by looking at the legislation. The primary materials in this research were:

a. Criminal Code;

b. Act No. 34/1964 on the Compulsory Insurance Fund for Road Traffic Accidents ("Law 34/1964").

c. Act No. 22 of 2009 on Road Traffic and Transportation ("Law 2/2009").

d. Law Number 23 of 2007 on Railways ("Law 23/2007").

e. Government Regulation No. 18 of 1965 Concerning Provisions for the Implementation of the Road Traffic Accident Fund Regulation ("PP No. 18 of 1965").

f. Government Regulation No. 37 of 2017 on Road Traffic and Transportation Safety ("PP 37/2017").

³ Mestika Zed, Metode Penelitian Kepustakaan, Yayasan Obor Indonesia, Jakarta, 2008, p. 3.



g. The Regulation of Chief of Indonesian National Police No. 15 of 2013 concerning Traffic Accident Handling ("PerKapolri 15/2013").

Secondary materials were books and journals related to traffic accidents and legal liability.

3. Results and Discussion

3.1. Traffic Law Violations and Driver Liability Under Act No. 22 of 2009 Concerning Road Traffic and Transportation

A traffic accident according to Article 1 point 24 of Act No. 22 of 2009 is an unexpected and unintentional road event involving vehicles or other road users that results in human casualties and property damage.

The occurrence of traffic accidents is influenced by several factors, these factors seem to work together as a cause of traffic accidents. It gets worse when the people themselves don't seem to care about the safety of their lives, as evidenced by the fact that many motorcyclists are reckless without wearing helmets or car drivers who underestimate the usefulness of seat belts.

The fault of the driver of a vehicle can often be summarized as not using the traffic rules. For example, he does not signal a turn, or he does not drive in the left lane, or at an intersection does not give priority to other vehicles coming from the left, or runs the car too fast beyond the speed limit specified in the traffic signs. The existence of an accident is a factor of driver error in the absence of caution and negligence in driving the vehicle.

Regarding liability in the event of an accident is regulated in Article 311 (Act No. 22 of 2009), namely:

"(1) Every person who intentionally drives a motorized vehicle in a manner or condition that is dangerous to life or property shall be punished with imprisonment of not more than 1 (one) year or a maximum fine of IDR 3,000,000.00 (three million rupiah).

(2)In the event that the act as referred to in paragraph (1) results in a traffic accident with damage to vehicles and/or goods as referred to in Article 229 paragraph (2), the perpetrator may be punished with imprisonment for a maximum of 2 (two) years or a maximum fine of IDR 4,000,000.00 (four million rupiah).

(3) In the event that the act as referred to in paragraph (1) results in a traffic accident with minor injuries and damage to vehicles and/or goods as referred to



in Article 229 paragraph (3), the perpetrator shall be punished with a maximum imprisonment of 4 (four) years or a maximum fine of IDR 8,000,000.00 (eight million rupiah).

(4) In the event that the act as referred to in paragraph (1) results in a traffic accident with serious injuries as referred to in Article 229 paragraph (4), the perpetrator shall be punished with a maximum imprisonment of 10 years (ten) years or a maximum fine of IDR 20,000,000.00 (twenty million rupiah).

(5) In the event that the act as referred to in paragraph (4) results in the death of another person, the perpetrator shall be punished with a maximum imprisonment of 12 (twelve) years or a maximum fine of IDR 24,000,000.00 (twenty four million rupiah).

Often encountered in some criminal traffic accidents is hit-and-run. It is generally a term with the understanding that the perpetrator, in this case the driver of the vehicle, leaves the victim of a traffic accident and does not stop the vehicle he is driving. The driver of a vehicle involved in a traffic accident as stipulated in Article 231 of Act No. 22 of 2009, namely:

"1. The driver of a motorized vehicle involved in a traffic accident must: a. Stop the vehicle he/she is driving

b. Provide aids to the victim;

c. Report the accident to the nearest Police Office; and

d. Provide information relating to the accident.

2. Drivers of motorized Vehicles, who due to force majeure are unable to carry out the provisions referred to in paragraph (1) letter a and letter b, shall immediately report themselves to the nearest Indonesian National Police."

Thus, the driver of a vehicle due to force majeure cannot stop the vehicle or provide assistance to the victim when a traffic accident occurs. Force majeure in this case means that the situation at the scene of the accident can threaten the personal safety of the driver of the vehicle, especially from the angry mob and the condition of the driver of the vehicle who is helpless to provide assistance. Driver negligence is something that is difficult to avoid, but it is important to always be vigilant when driving by limiting the factors that can cause traffic accidents.



Based on the provisions of Article 311, Act No. 22 of 2009, it can be seen that the subject in the regulation of the article is "every person who drives a vehicle", so the position of motorized vehicle owners who are not involved in traffic accidents should not be held liable in any form.

3.2. Driver Liability Under the Criminal Code

The fault of the driver of a vehicle who commits negligence that results in death can be said that the person has committed a criminal offense. In relation to this issue the element of negligence plays an important role, the issues of negligence in the Criminal Code (KUHP) have been regulated in Chapter XXI of Book II starting from Article 359 to Article 361. Criminal sanctions for vehicle drivers whose negligence causes death are regulated in Article 359 of the Criminal Code, namely:

"Any person who through negligence causes the death of another person shall be punished by a maximum imprisonment of five years or a maximum light imprisonment of one year".

R. Soesilo in his explanation said that: "the death of a person here is not intended at all by the defendant, but the death is only the result of the defendant's lack of care or negligence".⁴ Thus, the perpetrator of the crime of traffic accident resulting in death is the driver of the vehicle because the act committed is against the law. The unlawful nature shows the fault of the driver of the vehicle in the form of negligence or in other words, the action is reprehensible and the perpetrator is aware of the action taken.

The criminal penalties in cases of traffic accidents that cause death are regulated in Article 359 of the Criminal Code: "Any person who through his fault causes the death of any person shall be sentenced to imprisonment for a term of five years or to light imprisonment for a term of up to one year."

Criminal sanctions for vehicle drivers whose negligence causes death are regulated in Article 359 of the Criminal Code, namely: "Any person who through negligence causes the death of another person shall be punished by a maximum imprisonment of five years or a maximum light imprisonment of one year". Based on these criminal provisions, it can be seen that the subject element in a criminal offense is "whoever" commits the criminal offense, so the position of motorized vehicle owners who are not involved in traffic accidents should not be held accountable in any form.

⁴ R. Soesilo, Kitab Undang-Undang Hukum Pidana (KUHP) Serta Komentar-Komentarnya Lengkap Pasal Demi Pasal, Politea Bogor, 1988, p. 248.



3.3. Driver Liability Based on Law Number 23 of 2007 concerning Railways

With the development of land transportation in Indonesia, various problems will arise. One of the problems that often occurs is the case of traffic accidents involving trains and motorized vehicles at railroad crossings. For example, there is an accident between a train and a four-wheeled or two-wheeled vehicle.

Criminal responsibility for traffic accidents in railway cases is guided by the provisions of Article 124 of Law Number 23 Year 2007 concerning Railways which states:

"At intersections between railroad tracks and roads, road users must give precedence to railway travel."

Furthermore, according to Article 114 of Act No. 22 of 2009, which states:

"At level crossings between railroad tracks and roads, vehicle drivers must:

a. Stop when the signal has sounded, the railroad crossing has started to close, and/or there is another signal;

- b. Give precedence to trains; and
- c. Give primary right of way to the vehicle that crosses the railways first."

So based on these provisions, vehicle users are expected to give priority to trains when passing through railroad crossings.

According to Moeljatno, the concept of responsibility can be interpreted as the existence of guilt and involves elements that allow the perpetrator to be responsible for his actions. Criminal liability can arise from both intentional acts and acts involving negligence.⁵ There is no reason that can preclude criminal liability. Thus, if a person is proven not to fulfill these elements, then the perpetrator can be held criminally responsible.

It should be noted that in order to establish a person's criminal liability, it must first be established that his or her conduct is unlawful. If his actions do not violate the law, then there is no reason to establish his guilt, which means that the actions cannot be condemned. Based on the description above, a person's ability to be responsible is one of the requirements for criminal liability. A person is considered to have the ability to be responsible if he is mentally healthy,

⁵ Moeljatno, Kitab Undang-Undang hukum Pidana (KUHP), PT. Bumi Aksara, Jakarta, 1983, p. 127



meaning that he can realize that his actions violate the law and can control his own will in accordance with this awareness.

That in accordance with the provisions of Article 124 of Law 23/2007 states that "At the intersection between the railway line and the road, <u>pemakai jalan wajib</u> <u>mendahulukan perjalanan kereta api</u>" (in Indonesian language). So that in the event that the road user (motorized vehicle driver) is negligent in driving so as not to stop when the signal has sounded, the railroad crossing has begun to close, and/or there are other signals, then in the event of an accident the driver of the motorized vehicle must be held responsible. This rule confirms that it is driving behavior that the law seeks to regulate in order to prevent traffic accidents. Thus, the owner of the motorized vehicle cannot be held liable.

3.4. Driver Liability Based on The Regulation of Chief of The Indonesian National Police Number 15 of 2013 Concerning Traffic Accident Handling

The Regulation of Chief of The Indonesian National Police No. 15/2013 concerning Traffic Accident Handling ("PerKapolri 15/2013") has regulated the implementation of accident handling for the police as an effort to control the increasingly high number of accidents. The practice in the field begins when the public reports or complains about a particular incident. In this case, several officers will immediately go to the scene of the incident to examine the report and conduct an investigation at the scene of the crime (TKP). After that, the police will make a report and conduct a detailed examination before giving a decision regarding the parties involved in the accident, as well as taking the next actions.

Handling traffic accidents involves a variety of systems thinking and implementation, both within the police and cross-sectoral cooperation between agencies related to the causes of traffic accidents. Social approaches are used, such as providing direct appeals to the public, controlling motorized vehicles through raids to ensure the completeness of vehicle standards, and improving services in the process of making driving licenses so that prospective drivers meet the appropriate requirements. The causes of traffic accidents are very diverse, ranging from driver error or negligence to a lack of supervision from the local government in regulating the quality and quantity of road management in the region.⁶

⁶ Hendro Saptono, Rinitami Njatrijani, K. N. A., 2017. Pelaksanaan Asuransi Sosial Pada PT. Jasa Raharja (Persero) Terhadap Korban Kecelakaan Lalu Lintas Di Kota Semarang. Diponegoro Law Journal, [Online] Volume 6(2), p. 1-17. https://doi.org/10.14710/dlj.2017.17050 [Accessed on: May 16, 2023].



This of course must be responded to by police officers in order to maintain order and enforce traffic criminal law. Based on the Regulation of the Chief of the Indonesian National Police Number 15 of 2013 concerning Procedures for Handling Traffic Accidents Article 8 and Article 10 are as follows:

"1. Traffic Accident Reporting Every police officer in the traffic sector is equipped with a communication device that is connected to the Integrated Police Service Center, and can be contacted at any time for 24 (twenty-four) hours. So that when there is information about an accident, it will be followed up immediately.

2. Visit the scene of the crime immediately. Upon receiving a report as referred to in Article 8, the Integrated Police Service Center officer shall immediately inform the report to the nearest police officer and/or Traffic Accident Unit for immediate action.

3. Helping Accident Victims When at the scene it is required to immediately take first aid steps, and if there are human victims then, the traffic police are required to contact the nearest hospital.

4. Investigation of Traffic Accidents Investigators conduct an assessment of the results of the crime scene to determine whether or not there are elements of a criminal offense in a Traffic Accident as a basis for investigation. The Traffic Accident Investigator submits the results of the progress of the investigation to the victim or the victim's family through a Notification Letter on the Progress of Investigation Results (SP2HP)."⁷

Furthermore, in the procedure of processing the crime scene of a traffic accident, then in accordance with the provisions of Article 29, PerKapolri 15/2013 which states that "The police will conduct an examination of the physiological and psychological conditions of the driver. *This is done to determine the content of addictive substances in the blood and to measure the level of fatigue due to lack of rest.*"

Thus, it can be seen that in conducting the examination stage, the focus is on the condition of the driver, so that if later it is proven that there are criminal elements, the driver will be named as a suspect.

⁷ Ardelia, Adam Idris, Melati Dama. 2017. Studi Peraturan Kapolri No 15 Tahun 2013 Tentang Penanganan Kecelakaan Lalu Lintas Di Kantor Kepolisian Resor Balikpapan. eJournal Ilmu Pemerintahan, 2017, 6 (1): p. 411-424



4. Conclusion

Based on the description of the various laws and regulations discussed previously, it can be concluded that the regulation of traffic legal liability imposed on motorized vehicle owners as stipulated in Article 14 of PP No. 18 of 1965 has not fulfilled the principle of justice. This is in accordance with the research results where all elements of criminal liability in traffic accidents are charged to the driver of the vehicle and do not involve the owner of the motorized vehicle at all.

5. References

Act No. 22 of 2009 on Road Traffic and Transportation ("Law 2/2009").

- Act No. 34 of 1964 on the Compulsory Insurance Fund for Road Traffic Accidents ("Law 34/1964").
- Ardelia, Adam Idris, Melati Dama. 2017. Studi Peraturan Kapolri No 15 Tahun 2013 Tentang Penanganan Kecelakaan Lalu Lintas Di Kantor Kepolisian Resor Balikpapan. eJournal Ilmu Pemerintahan

Criminal Code;

- Government Regulation No. 37 of 2017 on Road Traffic and Transportation Safety ("PP 37/2017").
- Government Regulation No. 18 of 1965 Concerning Provisions for the Implementation of the Road Traffic Accident Fund Regulation ("PP NO. 18 OF 1965").
- Hendro Saptono, Rinitami Njatrijani, K. N. A. 2017. Pelaksanaan Asuransi Sosial Pada PT. Jasa Raharja (Persero) Terhadap Korban Kecelakaan Lalu Lintas Di Kota Semarang. Diponegoro Law Journal

Law Number 23 of 2007 on Railways ("Law 23/2007").

- Mestika Zed. 2008. Metode Penelitian Kepustakaan, Yayasan Obor Indonesia, Jakarta
- R. Soesilo. 1988. Kitab Undang-Undang Hukum Pidana (KUHP) Serta Komentar-Komentarnya Lengkap Pasal Demi Pasal, Politea Bogor
- The Regulation of Chief of Indonesian National Police No. 15 of 2013 concerning Traffic Accident Handling ("PerKapolri 15/2013").



Warpani. 1999. Pengelolaan Lalu Lintas dan Angkutan Jalan. Bandung: ITB

World Health Organization. 2013. 'Keselamatan Pejalan Kaki: Manual Keselamatan Jalan Bagi Pengambil Keputusan Dan Praktisi'. World Health Organization