



ADB-ASEAN Regional Road Safety Program

Country Report:

CR 3



**Road Safety in
Indonesia**



Asian Development Bank-Association of Southeast Asian Nations Regional Road Safety Program

Country Report CR 3: Indonesia

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ABBREVIATIONS

DRT	Directorate of Road Traffic
INP	Indonesian National Police
MOC	Ministry of Communication
MSI	Ministry of Settlements and Infrastructures
PDO	property damage only
RSA	road safety audit
SDRS	Sub-Directorate of Road Safety

NOTE

In this report, "\$" refers to US dollars.

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1 COUNTRY DESCRIPTION

1.1 General

Indonesia is an independent republic consisting of more than 13,500 islands, spreading over 3,000 miles (from east to west), located between 06°08' North and 11°15' South latitude, and from 94°45' to 141°05' East longitude. Indonesia's economy is growing and relies on the oil, gas, small-scale industry, and tourism sectors. Since 2001, Indonesia has been divided administratively into 30 provinces, including four new provinces: Banten, Gorontalo, Kepulauan Bangka Belitung, and Maluku Utara. The climate is tropical (hot, humid, and rainy), with two distinct

monsoon seasons: dry season (April–September) and rainy season (October–March).

Indonesia covers a total area of 9.8 million square kilometers (km²). As an archipelago, it comprises a sea area of 7.9 million km (including an exclusive economic zone), or 81% of the total area, and a land area of about 1.9 million km². It is also a country with many volcanoes and rivers. The total population of Indonesia, according to the 2002 *Population Census* is 217 million, with the rate of population growth at 1.49% during 1999–2000 (Table 1).

Table 1: Population, Area, and Economy

Population and Area	Land Area	1.9 million square kilometers
	Sea Area	7.9 million square kilometers
	Population (2002)	217 million
	Population Growth	1.49%
Economic Indicators	Gross Domestic Product	Rp411.1 trillion
	Per Capita National Income	Rp6.4 million

Source: BPS-Statistics Indonesia, 2001.

The growth of Indonesia's economy is 3.32%, based on gross domestic product, at 1993 constant prices, while the growth of non-oil and gas gross domestic product

was 3.98%. The positive growth also applies to per capita national income. It increases from rupiah (Rp) 5.7 million in 2000 to Rp6.4 million in 2001.

1.2 Road Transportation

The total length of Indonesian roads in 2001 was 361,800 kilometers, consisting of 26.3 thousand kilometers of national road, a 47.9 thousand kilometers of

provincial road, and the remainder is regency road (Table 2). Of these, 58.86% are asphalt-paved, 36.53% are not asphalted, and 4.61% are other types.

Table 2: Land Transportation

Road Responsibility	Length of Road (kilometers)
State	26,328
Provincial	47,877
Regency	287,577
Total	361,782

Source: BPS-Statistics Indonesia, 2001.

1.3 Legislative Framework

State Law No. 14/1992 on Road Traffic and Transportation is the only act regulating all aspects of road traffic and transportation. Basically, it is the last update to the Dutch colonial's traffic act in the 1930s, which was adopted by the Indonesian Government in 1951 and updated in 1965 (Law No. 3/1965). Currently, the new act is being prepared to cater to recent developments, especially to accommodate new concepts and technologies emerging in traffic management and engineering practices. The act is then manifested into four peraturan pemerintah (government regulations): PP No. 41/1993 on road transport, PP No. 42/1993 on vehicle inspection, PP No. 43/1993 on road infrastructure and traffic, and PP No. 44/1993 on vehicle and drivers. In line with these are Keputusan Menteri (minister's decrees) outlining the application of such regulations for certain matters. Some examples are KM No. 60/1993 on road markings, KM No. 61/1993 on road signs, and KM No. 62/1993 on traffic signals. National Act No. 13/1980 on roads regulates road standards, road hierarchical system, and classifications (covering public roads, private roads, and toll roads). To implement this act, PP No. 65/1985 on roads gives more detail on all aspects of roads.

The wave of decentralization in Indonesia began in the late 1990s. PP No. 22/1990 was enacted for traffic, regulating the transfer of responsibility from the central Government to local governments (i.e., municipal and provincial). The branch of the Ministry of Communication (MOC) at the local level was abolished and merged with the Local Office of Traffic and Transport Affairs, which is now known as the Local Office of Communication and exists at the provincial and municipal levels. Under this regulation, most traffic management and engineering matters are now the full responsibility of these offices. However, there exists a national forum where all these institutions sit together for coordination meetings.

2 ASSESSMENT OF ROAD SAFETY SITUATION

2.1 Road Accident Definitions

In Indonesia, road accidents are classified into four categories of severity or impact: fatal injury, serious injury, minor injury, and property damage only (PDO). These categories are defined below.

- (i) A fatal accident is one in which the victim dies, either on the spot or due to injuries sustained within 30 days of the accident.
- (ii) A serious injury is one in which the casualty suffers serious injuries and is admitted to a hospital and receives treatment for over 30 days.
- (iii) A minor injury is one in which the casualty requires medical treatment or is admitted to a hospital and receives treatment for less than 30 days.
- (iv) A PDO is a type of accident in which only damage to property is involved. The nature of the damage is expressed in monetary terms.

2.2 Road Accident Reporting

The Directorate of Road Traffic (DRT), within the Indonesian National Police (INP), is responsible for collecting and recording all traffic accidents nationwide. DRT is also responsible for data processing and preparing accident statistics. The data are mainly used by MOC and, to a lesser extent, the other related institutions as a reference for setting up programs. Accident investigation is a joint responsibility shared by INP and MOC. But, in most cases, only serious and fatal accidents are investigated.

A new accident data system known as 3L, which refers to Lahta Laka Lantas, or

Traffic Accident Data Processing, was introduced in the early 1990s, adopting Transport Research Laboratory data system. This system is then reinforced by the Transport Research Laboratory-produced traffic accident data processing package known as the microcomputer accident analysis package. This data system should be quite sufficient in providing useful information for analyzing accidents. However, the longer list of items in the data form seemed to discourage police officers in the field from recording. Several pilot projects were introduced to promote the new system involving many cities in various sizes, though sustainability seems to be questionable. Only 1 or 2 years after the pilot project was implemented, the new system reverted back to the conventional or old system (i.e., a manual system). This system has been tested at Bandung; Jakarta; Semarang; and Surabaya, Yogyakarta, Bali. Such a program is now being introduced in main cities in Sumatra (Medan, Pekanbaru, Padang, Palembang).

Every year, INP produces *Traffic Police in Figures*, which contains some analyses and evaluations of the role of DRT and quantified traffic situations in the nation. The report consists of population; number of vehicles; and registration, traffic violations, traffic accidents, driver's license issuance, and some analysis on accidents, including grouping people involved in accidents based on age, education level, and type of violation. No technical analysis of accidents is presented here. This report cannot be regarded as a way of presenting proper traffic accident statistics but rather as an INP report.

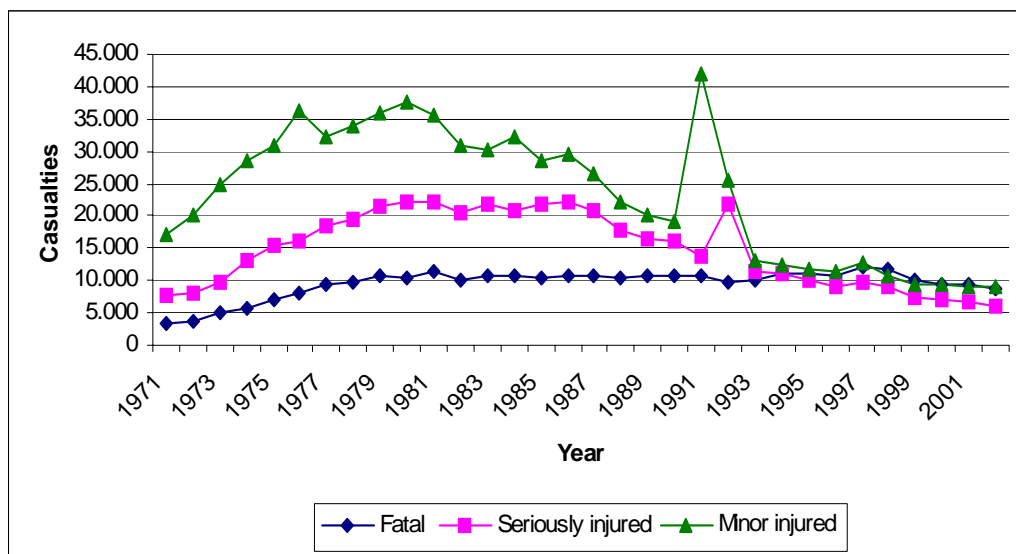
2.3 Coverage of Road Accident Reporting

All road accidents are required to be reported and will involve the role of traffic police, but reporting is not always done. For example, minor accidents and those that occur in remote areas or that are settled by the parties involved are usually

not reported. Police normally will record fatal or serious injury accidents or those involving serious traffic violations.

Figure 1 presents accident casualty data recorded by INP over the last 30 years. In the last 20 years, the number of accidents has decreased by 69%, in contrast with the 225% increase in the total number of vehicles. The decreased number of accidents resulted in an increase of 4% in fatalities. These data are suspect since no road safety improvement effort has been exerted. Further analysis and discussion indicate severe underreporting of cases.

Figure 1: Accident Casualty Trends



Source: Indonesian National Police.

2.4 Background Data

There are two other sources of traffic accident data, but the most commonly referenced database is one maintained by the traffic police. The national vehicle insurer PT. Jasa Raharja indirectly produces accident data as part of its efforts to compensate those who are killed or injured in road accidents. To claim compensation, a casualty must have clearance from the police. However, it is interesting to note that casualty data from

PT. Jasa Raharja are generally higher than those of the police. Hospitals, especially those with emergency sections, will normally record the patients systematically using the World Health Organization format. In this format, data on patients from road accidents can be extracted easily. Generally, the significant difference between police data and hospital data in number of deaths and casualties can be noticed.

Some institutes have tried to estimate and compare Indonesia's accident rate with those of some other countries. Table 3 shows the ratio of the types of injuries compared with the rate of fatalities, according to some sources (Downing 1997). According to the table, the 1995 ratio of fatalities to all nonfatal injury categories in Indonesia was 1:2. This figure is nearly the same as the one recorded by PT. Jasa Raharja. The figure for the same time in the United Kingdom was 1:85. Meanwhile, the figure estimated by HCM-1995 was 1:52 for all road sections. If the ratios provided in Table A1.1 in Appendix 1 are used, the estimates of the accident rates from each source are given in Table A1.2 in Appendix 1.

Based on this table, accident rates according to the national police and the national insurance company in 1995 are 32,904 cases and 44,760 cases, respectively. The discrepancy in these figures shows that almost 27% of cases were not likely to be reported. If one makes use of HCM estimates, underreported cases in 1995 would be about 96%.

2.5 Present Road Safety Situation

Referring to accident statistics, the road safety situation in Indonesia has improved over the years. The total number of road accidents in 2002 decreased, when compared with the previous year, by 4.10% (from 12,791 cases in 2001 to 12,267 in 2002). Accidents resulting in fatal injuries dropped approximately 8.00%, while the number of accidents resulting in serious injuries and minor injuries decreased by 9.72% and 2.74%, respectively. The number of PDO accidents, however, continues to increase. This may be because many accidents that do not result in injuries occur between vehicles on roads. Table 3 examines Road Accident Trends.

Table 3: Road Traffic Accident Trends

Types of Accidents	2001	2002	Percentage
Fatal	9,522	8,762	(8.00)
Serious Injury	6,659	6,012	(9.72)
Minor Injury	9,181	8,929	(2.74)
Property Damage Only (Rp)	37,616,839,000	41,029,930,000	8.32
Total	12,791	12,267	(4.10)

Source: Indonesian National Police, 2003.

Again, there seems to be a high ratio of fatalities to road accidents, probably caused by underreporting accidents, the high number of accidents involving buses loaded with passengers, and poor medical treatment. Other major factors that contribute to the large number of fatalities include the poor condition of many intercity roads, poor vehicle maintenance, and reckless high-speed driving of many bus and truck drivers.

The fatal and serious or minor injury accident rates per 10,000 vehicles in 2002 were 36% and 63%, respectively. The fatal and serious or minor injury casualty rate per 100,000 people are 403.8 and 688.5, respectively.

Among road users, motorcyclists are the most frequently involved in traffic accidents based on vehicle type. There were 8,016,414 accidents involving motorcyclists that accounted for 73.14% of the total of 24,632,330 accidents in 2002. This is an increase of 0.07% compared with the previous year, during which motorcyclists accounted for 73.07% of the total number of accidents. Table 4 examines accidents by vehicle type.

Table 4: Road Traffic Accidents by Vehicle Type

Vehicle Type	Year 2001		Year 2002	
	Number of Accidents	Percentage	Number of Accidents	Percentage
Passenger Car	3,261,807	15.38	3,868,579	15.71
Truck	1,759,747	8.30	2,015,347	8.18
Bus	687,570	3.24	731,990	2.97
Motorcycle	15,492,148	73.07	18,016,414	73.14
Total	21,201,272	100.00	24,632,330	100.00

Source: Indonesian National Police, 2003.

Table 5 shows traffic accidents based on road user age. Road users between the ages of 22 and 30 contributed the highest percentage (i.e., 33.43% in 2002 out of a total 13,433 people involved in road accidents), this is an increase of 0.34% compared with the previous year, which was 33.09%.

Table 5: Road Traffic Accidents by Age

Road Users Range of Age	Year 2001		Year 2002	
	People Involved	Percentage	People Involved	Percentage
5–15	333	2.60	421	3.13
16–21	3,146	24.58	3,496	26.03
22–30	4,235	33.09	4,491	33.43
31–40	3,166	24.74	3,090	23.00
41–50	1,433	11.20	1,458	10.85
51–60	486	3.80	477	3.55
Total	12,799	100.00	13,433	100.00

Source: Indonesian National Police, 2003.

According to INP, people with senior high school as the last level of education attended shares the majority of people involved in road accidents. A staggering 47.99% out of 2,110,938 people involved in road accidents in 2002 were those who attended senior high school as their last-level of education. There is a noticeable increase of about 1.25% as compared with the previous year, in which 46.74% of people with a senior high school level of education were involved (Table 6).

Table 6: Road Traffic Accidents by Education Level

Road User's Level of Education	Year 2001		Year 2002	
	People Involved	Percentage	People Involved	Percentage
Elementary School	252,872	14.35	288,409	13.66
Junior High School	433,635	24.61	516,629	24.47
Senior High School	823,535	46.74	1,013,069	47.99
University	170,460	9.68	206,733	9.79
Dropout	81,347	4.62	86,098	4.08
Total	1,761,849	100.00	2,110,938	100.00

Source: Indonesian National Police, 2003.

2.6 Consequences

The accident rate on all Indonesian toll roads decreased 1.13% during January–August 2003, compared with that of the same period in 2002. The number of accidents in 2002 (up to August) was 2,381. Meanwhile, in 2003 (up to August), the record showed a slight drop to 3,351 cases. However, the rate of fatalities increased 10.36%, (i.e., 193 lives in 2002 against 213 lives in 2003).

Considering the rate of accidents per 100 million vehicles, one would find a decrease of 6.36%. In 2002, this rate reached 33.79, while in 2003 it slightly dropped to 31.64. These figures show that the percent increase of vehicle population is still lower compared with the percent increase of vehicle accessing toll roads (Jasa Marga 2004).

Accident Causes. Road accidents are considered one of the world's serious health problems. The same holds true for Indonesia. It is known that human factors are the main cause of road accidents (a factor in 91% of all cases). The other causes include vehicle factors (5%), road factors (3%), and environment factors (1%). Appendix 1, Table A1.3 examines accident causes.

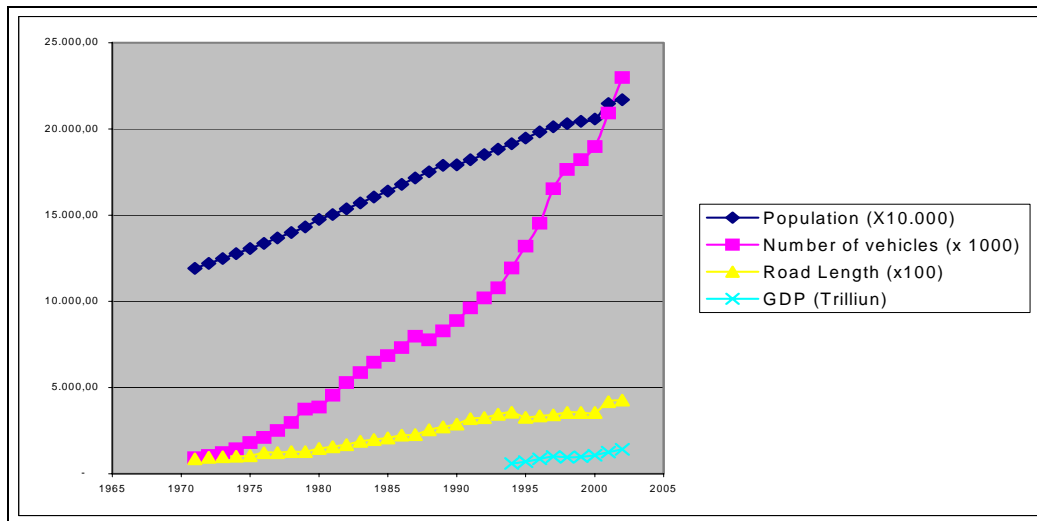
As was the case in previous years, the dominant cause of accidents in 2003 was also driver-related. Some 1,537 accidents (65.29%) occurred because of driver-related factors. Following driver-related factors are vehicle-related factors (31.82%), environment-related factors (2.38%), road conditions (0.30%), and unidentified factors (0.21%).

Looking deeper into driver-related factors, 888 accidents were due to a low level of readiness regarding anticipating situations, 412 accidents occurred because of drowsiness, 126 accidents were due to disobedience, 105 accidents were because of careless driving, and 6 accidents were due to drunken driving.

The dominant cause for vehicle-related factors was flat tires (444 accidents), followed by brake malfunctions (112 accidents), slippage (96 accidents), mechanical damage (53 accidents), engine damage (34 accidents), and other factors (10 accidents).

Underreporting. In the current system, underreporting rates are very high. Figure 2 shows the trends of some socioeconomic indicators. Indonesia's population stands at about 214.6 million and is growing at a rate of 1.6% annually. The gross domestic product is also increasing at about 3.32% annually, while the number of vehicles is increasing at a rate of 10.69%. The increasing number of vehicles is followed by the increasing length of roads (2.0%)

Figure 2 : Growth of Population, Vehicle Registration, Road Length, and Gross Domestic Product

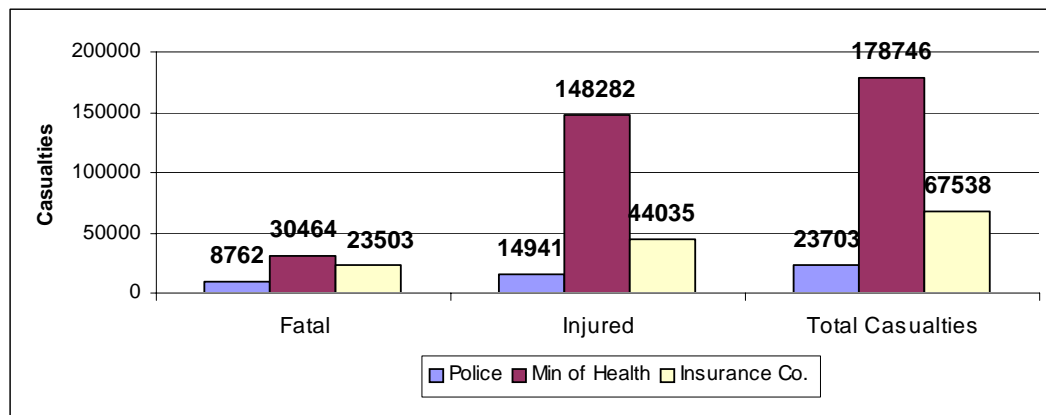


Source: Indonesia data.

Given the positive growth rates in all factors, which increase the potential for road accidents, and based on the experiences of most developing countries with similar trends, it is likely that road casualties should also increase over the years. However, the official accident data recorded by INP demonstrate an opposite trend. Comparison of accident data recorded by different institutions will explain the reason (Figure 3).

It is well recognized that because of the different agencies involved and different jurisdictions, underreporting traffic accidents by police is a serious problem. An efficient road accident data system is not available in Indonesia. Moreover, hospital records are not reconciled with police records. Figure 4 indicates a severe level of underreporting: police record only reported accidents, the insurance company only records claims, and hospitals cannot capture all fatalities occurring at accident scenes and after hospitalization.

Figure 3: Comparative Data from Different Sources

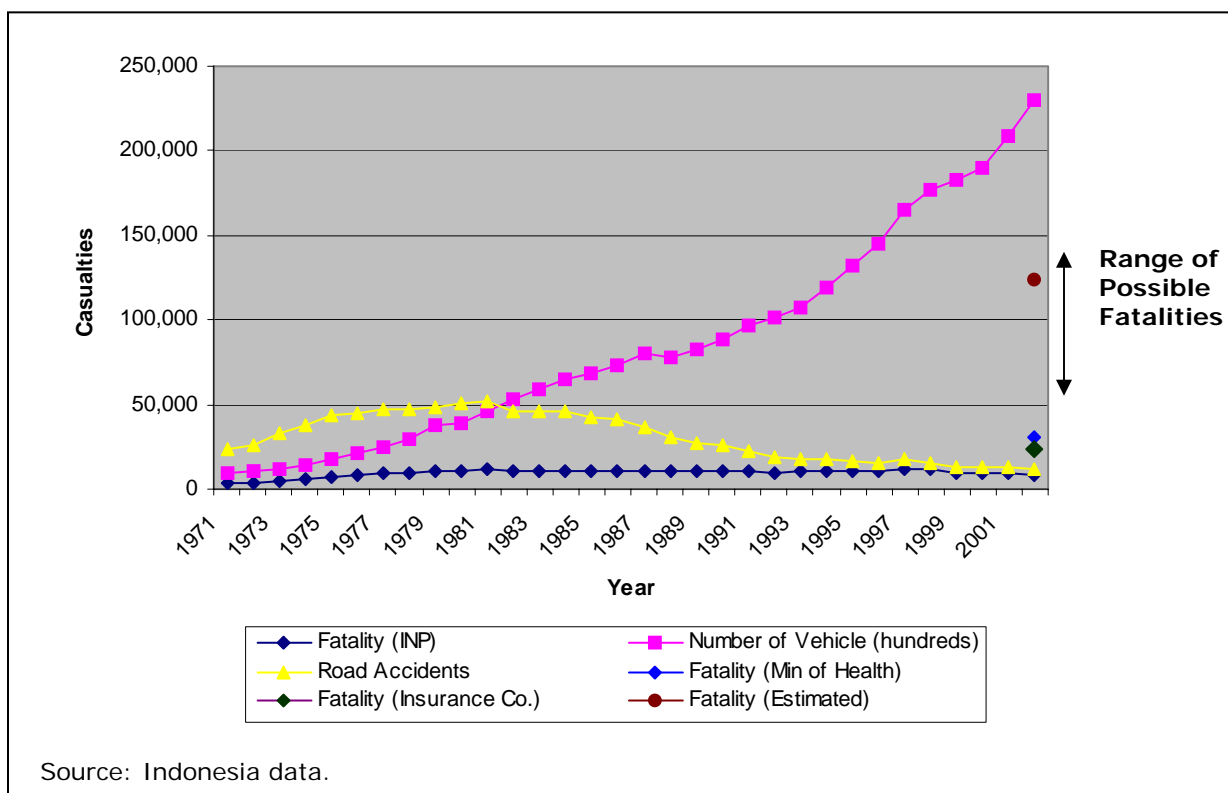


Source: Indonesia data.

It is estimated that the actual number of casualties is much higher than the reported number. Using an extrapolated number of casualties recorded at hospitals, by the insurance company, and by the police (based on the Yogyakarta case), the number of fatalities resulting from road accidents in Indonesia reached about 123,812 in 2002. The Ministry of Health recorded the number of fatalities as 30,464 in the same year.

With an assumption that the Ministry of Health's data could represent all inpatient fatalities, while the Yogyakarta extrapolation could represent inpatient and outpatient fatalities, the range of possible fatalities in Indonesia is between those two figures. Figure 4 demonstrates the statement.

Figure 4: Fatalities



For this reason, there exists gross underreporting on the number of fatalities. This problem is expected to be more serious for other types of accidents

(i.e., injury and PDO). With certain adjustment factors, the estimated accident profile is shown in Table 7.

Table 7: Casualty and Accident Estimates

Accident Type	Reported (by INP)	Estimated
Fatal	8,762	30,464
Injured	14,941	1,083,577
Total Casualties	23,703	1,114,041
Total Accidents	12,267	918,471

INP = Indonesian National Police.
Source: Consultant Analysis, 2004.

3 RESPONSIBILITIES AND ACTIVITIES IN ROAD SAFETY

3.1 Ministry of Communication

MOC is responsible for developing and regulating all modes of transport (i.e., civil aviation and air transport, sea transport, and land transport), telecommunications and post, and also meteorology and search and rescue.

The main function is to set the strategies and policy directions for the transportation in and out of Indonesia. The Sub-Directorate of Road Safety (SDRS), within DRT and under the Directorate General of Land Transport, has the duty to implement road safety at the national level. For the local level, it is the duty of the Office of Communication at provinces and municipalities. In line with decentralization, the role of MOC, especially in land transport, gets smaller as most of its responsibilities have been handed over to the local level. Road safety, however, is not a prime interest of the local offices, as they are more concerned with traffic and congestion management and public transportation. So, in general, road safety is not of prime importance nationally or locally.

SDRS is a small subdirectorate with a total of 16 staff. It has two sections: Safety Management and Drivers' Capacity Improvement. Regular activities include public transport driver training and awards, in collaboration with the Indonesia Motorists Association; and a public campaign, in collaboration with police and PT. Jasa Raharja. The typical annual budget is approximately Rp200 million (\$22,000).

There are two running projects that have a safety element: (i) Sumatra Region Road Project (SRRP) focuses on black spot investigation and mitigation and (ii) Road Transport Network and Safety Planning,

which has a safety campaign as a component.

3.2 Ministry of Education

Under the current arrangement, the Ministry of Education has no obligation to ensure that road safety is taught in its curriculum for all levels of education. Traffic education is not even an extracurricular subject. In some cases, preschool or kindergarten establishments initiate some extra lessons on traffic safety, such as crossing roads and introducing basic road signs. But, this is rare. Some schools, especially at the primary level, have been in collaboration with local police to undergo Polisi Keselamatan Sekolah (school safety police). Some pupils are trained to do some police functions, especially to assist in controlling traffic circulation near or around schools.

3.3 Ministry of Health

The Ministry of Health is responsible for ensuring that the health care of the Indonesian people meets required standards. The ministry is also responsible for providing affordable health care to Indonesian citizens. To do this, most hospitals are equipped with emergency units that handle patients needing immediate treatment, including casualties from road accidents. To expedite medical assistance at the scene, most hospitals have reasonable ambulance services, but normally some payment is needed. The Red Cross also provides ambulance services for a reasonable payment.

Some accident or trauma research may be conducted periodically to analyze the type or severity of casualties. However, the research is still generally in the context of medical sciences, instead of being related to accident types or analyses. The link between the Ministry of Health and MOC has not been evident, and joint activities do not exist.

The hospital recording system generally complies with World Health Organization standards, which give a clear distinction to patients or victims of road accidents. But such data are not easily accessible to public. Local health offices generally manage hospital data, but in most cases only public hospital data are managed. Many private hospitals do not send their data to this office.

The Ministry of Health is also concerned with some elements of driver safety (i.e., public transport driver safety), but this is related to occupational health. The ministry looks at driver health and skill to assure driver safety in carrying out duties.

3.4 Traffic Police

INP has a duty to enforce all government regulations, tackle all crimes, rule violations, and uphold criminal penalties. It must also maintain road traffic order, complete road traffic accident reports, collect these from all provinces, record the information gathered, and produce an annual report.

In line with this, INP headquarters in Jakarta administers 26 provincial police offices throughout the country, totaling 215,548 officers in 2002. Out of this, 24,352 officers (11.30%) are traffic police. The administration of traffic police is under the Directorate of Traffic Police at headquarters and in provincial police offices. Apart from enforcing traffic regulations, INP is also responsible for vehicle registration and driver's license issuance.

Police are generally more concerned with traffic violations as part of their enforcement duty. They are not really concerned with traffic safety. Their understanding and hence capacity for traffic safety management is minimal. There is one scheme that they run (i.e., the strictly enforced zone scheme). In almost every city, a stretch of 1–3 kilometers of main road is declared a strictly enforced zone. But the scheme is

not very effective because the message is that a driver should only drive lawfully in special zones. Moreover, police consistency in enforcing rules cannot be guaranteed. It is now commonly heard that the level of violation is comparably high and that the police do not enforce the law adequately.

3.5 Ministry of Settlements and Infrastructures

This Ministry of Settlements and Infrastructures (MSI) is responsible for national infrastructure, including the provision of roads. The ministry sets road standards, arranges for public road provision, including toll roads. For the provision of toll roads, there is one regulating body, which is called Jasa Marga. Jasa Marga is a public company that owns the right to develop toll roads in collaboration with the private sector.

Similar to MOC, MSI, in most cases, has handed over the implementing functions of road provision, including road rehabilitation and maintenance, to the offices of Settlement and Infrastructures at the provincial and municipality levels. In some places, these are office called the public works office.

Basically, MSI is responsible for providing road infrastructure that meets the road standards. Meanwhile, MOC is responsible for operating the traffic traversing over such infrastructure. It is widely known that these two ministries do not coordinate their programs well enough to ensure the safety of the road network throughout the nation.

A road safety audit (RSA) is not a common practice in Indonesia. In fact, undergoing an RSA is not mandated or even recommended. Identification of black spots is conducted by MOC. Currently, there is an ongoing project to prepare an RSA for Indonesian roads.

3.6 Driver Training Centers

Driving schools are run by private companies or individual establishments. It is not compulsory for a driver's license applicant to attend driving school before taking a driving test. Those who need to learn to drive, especially beginners, normally will take such a course. The problem is that the instructors are not normally certified. This could be counterproductive to creating a safe driving attitude.

3.7 National Vehicle Insurer: PT. Jasa Raharja

Under National Act No. 33/1964 on a fund to cover passenger accidents (on a public transport vehicle) and Act No. 34/1964 on a road accident fund, the insurer is authorized to administer such funds. PT. Jasa Raharja is under the Ministry of Finance. Under Act No. 33, each public transport passenger should pay a premium-like fee, called the "mandatory subscription" fee, for each ride. Similarly, under Act No. 34, each vehicle is to pay a "mandatory contribution" fee annually, based on vehicle type, along with vehicle tax. The fee is typically around Rp25,000 (\$2.50) for a motorcycle and Rp75,000 (\$8.00) for an automobile.

PT. Jasa Raharja is to administer the two premium-like funds and compensate each public transport vehicle accident victim and people injured or killed in road accidents. The insurer has a head office in Jakarta, 26 branches in each province, 60 representatives in various cities, 307 customer service specialists at vehicle registration offices throughout the country. It has 1,261 staff nationwide.

The current compensation rates are Rp10 million (\$1,200) for fatalities or permanent disabilities (\$1,200) and a maximum of Rp5 million (\$600) for injuries with hospital treatment. To make a claim, a victim should follow an administrative procedure and get police

approval. Some evidence indicates that there is generally a loss of 15–25% before receiving compensation.

3.8 Emergency Services

Most hospitals and local chapters of the Indonesian Red Cross provide ambulance services to victims. In Indonesia, ambulance service can be accessed by dialing a Red Cross emergency number (118) or directly contacting hospitals. There is no integrated ambulance access system, and Red Cross ambulances may not be equipped with adequate paramedic support, whereas hospital ambulances maybe. But hospital ambulances are less accessible to the public because they use individual phone numbers for access.

There is no standard duration for ambulances to arrive at accident scenes. Due to congestion, especially in big cities, and the high level of sidewalks, ambulance arrival times generally are slow. In many cases, accident victims are carried by ordinary vehicles (e.g. automobiles) to the nearest hospital.

Most hospitals and big clinics provide emergency services. But, in most cases, because there is no national insurance system, a patient may not get immediate treatment when there is no clear financial backup. This is very undesirable for accident victims because they may need immediate medical attention. The current PT. Jasa Raharja insurance system does not secure immediate hospital treatment because an injury or fatality will get coverage only after an application is made and granted—and it can only cover a maximum hospital bill of Rp5 million.

3.9 Universities

Some big universities in Indonesia own a research center specializing in road safety. At least there are two centers: University of Indonesia, Jakarta (Department of Civil Engineering) and Gadjah Mada University in Yogyakarta (Centre for Transportation and Logistics Studies). Apart from these,

there is the Research and Development Centre for Roads in Bandung, which is affiliated with MSI.

3. 10 Private Sector

The involvement of the private sector in road safety is still minimal. There are three big private organizations: ORGANDA (association of road transport haulers), GAIKINDO (association of automotive industries), and AISI (association of motorcycle industry), as well as some smaller organizations (e.g., association of automotive spare parts industry, insurance industry, and tire industry). There are some big oil industries, including British Petroleum, Pertamina, and Caltex. So far, there is no significant involvement from these private establishments in promoting road safety.

3. 11 Nongovernment Organizations

There are some nongovernment organizations working in the transportation sector, such as JARTRANS (Jaringan Transportasi-Transportation network), MTI (Indonesian Transport Society), Consumers' Association, and Pelangi. But many of those normally focus on public transport and pollution issues. There is the Traffic Garden Foundation in Bandung, founded in 1955 by a former police officer, which dedicates itself to traffic education for children and to running a traffic park in the heart of Bandung. This park is unique in size and is active in training schoolchildren on traffic safety in the Bandung and West Java areas.

There is an association of Indonesian motorists, but its role is only organizing car rallies and issuing international driving licenses. Recently, Indonesia enacted a law on customer rights. Consumers' organizations are now more active in promoting the rights of road users to have a safe road operating environment.

4 CONSTRAINTS

4.1 Legislative

The current Road Traffic and Transport Law No. 14/1992 is practically derived from the Dutch colonial era, with some adjustments. Many articles are outdated. Road safety as a concept is not introduced within. Basic traffic elements are addressed, such as road infrastructure, traffic rules, and vehicles (including testing and drivers).

Road infrastructure. Road infrastructure is in good condition nationwide. The serious problem is associated with road space encroachment. Pedestrian facilities are normally misused by street vendors or parked motorcycles, forcing pedestrians to walk on the roads. In some cases, market activities may use part of the road, narrowing the effective width used by traffic. Road signs and markings are not adequate and not effectively used.

Traffic control devices, such as traffic signal controls, are generally made from old technology. A traffic actuated control system is not in use. Inappropriate signal settings create long queues and delay, putting pressure on drivers to behave impatiently, especially among motorcyclists.

Curbs sometimes can be as high as 40 centimeters and create impediments for vehicle escape when allowing emergency vehicles to pass. In many cases, emergency help, especially in big cities, comes late due to congestion and no allowance for emergency vehicle passing.

Traffic rules. A mix of traffic, motorized and nonmotorized, is common in Indonesia. Traffic does not operate in good order. Lane discipline is low, and even nonexistent for motorcyclists. Motorcycles, making up the majority in the traffic fleet, dictate how traffic behaves. They create small or very small gaps, causing a very critical situation

leading to accidents. There is no special guidance for motorcycle riding, bicycle riding, or other nonmotorized means of transport.

Since roadside activities generally disturb traffic operations, the keep-left principle does not work. In many cases, traffic tends to follow the keep-right principle, to avoid roadside disturbances.

Speeding is a serious problem for road safety. Compliance to speed limits does not exist. Motorcycles, even with small engine capacities (from 80 cubic centimeters to 125 cubic centimeters), can run easily above 60 kilometers per hour. They are speeding most of the time. Coupled with rather poor maintenance, this causes dangerous situations that leads to accidents.

Vehicles. There are about 27 million motorized vehicles, and around 70% are motorcycles. Vehicle tests and regular checks every 6 months apply only to commercial vehicles (i.e., trucks and public transport vehicles [buses and taxis]), which account for only around 20% of motorized vehicles, minus motorcycles, or around 6% of the vehicle population.

Currently, vehicle testing is handled only by government transport offices at the regency level. The availability of equipment is one problem, and the inadequacy of testing due to corruption is a more serious problem. Many unfit vehicles pass the tests after paying money, which leads to fatal accidents, such as those involving buses and trucks. Low discipline at railway crossings leads to fatal accidents. The Government plans to implement vehicle testing for all motorized vehicle. A government regulation is now being prepared.

Drivers. Many drivers have little knowledge of road traffic, as indicated by

Sutomo (1999). This is because many drivers obtain licenses without passing an exam. Many drivers pay to avoid theory and on-road driving tests. These are dangerous drivers. Coupled with low-level and corrupt enforcement by the police, many drivers even drive without a license, especially motorcyclists.

Public transport and goods transport in Indonesia is fully privatized. Vehicle crews normally bear the big financial risk. Thus, drivers normally race for passengers, creating a dangerous driving environment. Accidents involving public transport vehicles are common. Further, vehicles are normally not in a good condition, and many accidents result from mechanical malfunctions.

4.2 Institutional

One major drawback among institutions in Indonesia is poor coordination which sometimes occurs even within a single institution. Providing infrastructure is the duty of the Ministry of Infrastructure, and traffic and transport operation is the duty of MOC. In many cases, poor coordination between the two slows improvement of hazardous locations as small-scale infrastructure works and traffic management schemes usually are needed to do this.

One serious part in the institutional setting is the role of the police. After more than 6 decades under a military setting, police became civilian police in 2000. But, so far, communication is still a big problem with the police. Consequently, coordination is absent because of the low participation of the police. Police are also notoriously known for bribery.

The Transportation Safety National Committee under MOC has a limited role, being too technical, and only reports to MOC. Its role is limited to investigation and does not involve planning, management, or coordination. Its limited budget is also a constraint, even to just

carrying out its main duties, let alone coordinating related institutions.

4.3 Technical

The Ministry of Infrastructure has produced adequate publications on designs and technical standards and has the capacity to provide standardized infrastructure. What is lacking are standards and guidelines regarding traffic operations to ensure a high level of safety. Traffic codes are not widely referred to by drivers. There is no clear relation between the contents of traffic codes and driver testing materials. Traffic codes are outdated and cater only to automobiles and larger vehicles. Motorcycles and nonmotorized vehicles are not clearly coded. Hence, the orderly traffic in the codes can never materialize.

4.4 Education and Campaigns

Campaigns and socialization programs on traffic safety are still rare and are only conducted incidentally. Very limited funding is available for such activities and is probably the obstacle to having them routinely programmed. Partnership with private sectors has not been intensively explored.

In contrast to this are motorcycle advertisements on television, in many cases showing high-speed riding or dangerous maneuver scenes. This seems to be the opposite of the aim of the campaign (i.e., to promote proper driving).

4.5 Cultural and Social Values

Traditionally, road traffic safety was considered an individual matter. A driver should bear his or her own risk when entering the traffic flow. Even the current law regulates traffic this way. So, when a person is involved in an accident, this is considered a risk that every driver takes. Being involved in an accident is even regarded as a person's fate that cannot be changed. Consequently, raising awareness

is rather difficult, especially among people in medium- and low-income groups. Raising awareness among educated people and those with high incomes may be much easier.

Indonesia is a country turning from agriculture to the early stages of industrialization. Movements in the rice fields are very informal, even without rules. When a typical farmer begins riding a motorcycle, a cultural shock can occur. This is what happens in many places in Indonesia. To make matters even worse, no traffic education is generally given in ordinary schools. People learn traffic rules by watching or experiencing vehicle movement on the streets, without police ever educating drivers. This phenomenon needs serious treatment.

5 BEST PRACTICES

5.1 Legislative

Wearing helmets was recommended in 1987 and became mandatory in 1988. But mandatory helmet wearing did not become widely known until Act No. 14/1992 was passed. The compliance rate in urban areas is relatively good (70–80%) and a bit lower in rural areas. Mandatory seat belt wearing for front seat passengers and drivers was introduced in 1992 but postponed until 1998. In 1998, the regulation was relaxed from mandatory to strongly recommended and, eventually, on 5 November 2003, it was made officially mandatory. The regulation states that all front seat passengers and drivers of motorized vehicles must wear safety belts that comply with the Indonesian National Standard. The same thing applies to standardized helmets for motorcycles.

INP conducts a kind of shock therapy to educate the public and reinforce regulations in many of Indonesia's major cities. This is done by penalizing on the spot any motorcyclist who violates a regulation. Operations take place almost everywhere inside the cities.

However, the benefits of such measures in Indonesia will depend on the characteristics of its accidents and casualties, and, in some cases, on the degree of road user compliance with traffic legislation. Thus, for example, a regulation that enforces seat belt use would only lead to a small reduction in casualties if there were few automobile-related accidents or if most drivers and passengers ignore the regulation. Prohibiting overloaded vehicles and improving vehicle design would potentially reduce accidents and casualties in Indonesia.

5.2 Institutional

Some sectors or organizations have played an important role in improving road safety. Unfortunately, no significant movement in the institutional context can be mentioned. MOC in the mid-1990s established Komite Nasional Keselamatan Transportasi (Transportation Safety National Committee) in response to an airplane crash killing over 150 people. This committee focuses on investigating airplane crashes. Lately, it also investigates railway accidents but not road accidents. This committee reports to the minister. It has a limited budget of around Rp200 million (\$25,000) per year. It is evident that this committee can perform its duties and independently investigate accidents despite the limited budget. This is done by collaborating with universities.

As a sole expressway and tollway company, Jasa Marga manages and operates all toll roads in Indonesia. It has an accident recording and investigating unit that works better than the police. Hence, it has a good road accident data system. But since it runs only a total of around 600 kilometers of toll roads, it cannot affect the national recording system.

PT. Jasa Raharja, the national insurance company, spent some part of its revenue to help police and MOC improve signs, information distribution, and publicity campaigns.

5.3 Technical

To reduce the accident rate, Jasa Marga has undertaken many measures. The measures include, among others, actions against vehicles running below minimum and above maximum speed limits, and vehicles or trucks carrying excessive or untidy loads, or loads that scatter along the roads. In cooperation with the police, Jasa Marga also penalizes vehicles taking on or dropping off passengers on tollways. People living along tollways are also asked to cooperate.

Having implemented mandatory safety belt use (front passenger and driver) from November 2003, most vehicles are now equipped with seat belts. New vehicles are now fully fitted with safety belts (front and rear) and many are equipped with SRS airbags for front seat passengers.

5.4 Education

It is important for road users to be educated about road safety in the first place. In Indonesia, numerous approaches have been taken, through the education system and through parents, so children could be advised on road safety. Clearly, there is a need to improve road safety education. As many remote cities in Indonesia have a low number of people attending school, it is important that education through community programs is considered, as well as through the education system. Overall, the results demonstrated the importance of training on real roads and the need for frequent and supervised practice on local roads close to where children live.

A national road safety education program should be developed and teachers need to be given guidelines on what and how to teach, so that the important concepts of road safety can be conveyed effectively to children at a relatively early age. To meet these requirements, the Government has ordered teachers of preliminary school to junior high school to train and teach the students through the Polisi Keselamatan

Sekolah (school safety police) program. In the program, children are taught how to handle traffic flow and cross the street safely in their school area. This educates people on the importance of road safety.

This scheme lacks proper methodology in teaching young children because often material used is not suitable, and police lack the necessary skill. The scheme may help the police but not improve road safety knowledge among children.

6 RECOMMENDATIONS

6.1 Legislative

Law No. 14/1992 on road traffic and transportation is outdated and could not cope with fast development in this area, especially road safety. More modern national road safety management should be defined in the new law, including driver's license system reforms, the role of police, accident data management, vehicle testing and funding, and the role of motor insurance. A more comprehensive law on transportation systems may be needed to integrate the safety concept across various modes of transport.

The Government should promote the role of local governments to get them much more involved. Road safety should be emphasized as an investment, rather than expense which may enhance the competitiveness of the region, especially in increasing attraction of visitors and tourists.

6.2 Institutional

Strengthening intersector cooperation to improve road safety is recommended. A memorandum of understanding was signed by five cooperating institutions, including the Department of Communications, Department of National Education, Department of Public Health, Department of Settlement and Infrastructures, and INP, with which seven articles are considered. The articles comprise education about rules and etiquette on the roads that should be introduced to youngsters as early as possible; providing information on traffic situations, traffic codes and regulations, law enforcement, road infrastructure standards; providing emergency facilities; and fund-raising to support road safety. Cooperation should and would continue with a road safety action plan.

To maximize the effect of the collaborative effort, it is timely to establish a national

road safety council directly under the president or vice-president. It may be by upgrading the existing National Transportation Safety Committee, to be under the president and not under the minister of communication. At least, for the short term, a presidential decree or instruction can be issued so that a legal framework for interinstitutional cooperation could be established.

It is equally important to bring the safety issue to the desk of the House of Representatives, which in Indonesia has strong political power, can push the issue, and receives proportional attention and responses.

6.3 Technical

Requiring all motorized vehicles to undergo a test should be done soon. For this, significant private participation is expected, which may improve business and competition and reduce corruption.

There is a need to reform goods and public transport operation so that drivers are protected against financial risk, which brings about dangerous driving behavior.

Speeding, especially among motorcyclists, needs immediate action to reduce the high accident risk. A strict fine system for speeding is appropriate. Road safety audits ought to be introduced at the early stage to improve infrastructure that in many cases is still substandard.

6.3 Education and Campaigns

Traffic accidents are also correlated with motorist discipline. However, the recent situation shows that education level does not necessarily correspond to discipline level. Many motorists feature low discipline, regardless of educational level. This indicates the need to introduce road traffic safety-related subjects in the curriculum of all levels of education and to

put emphasis on the preschool level. This fact also emphasizes the importance of publicity campaigns to raise public awareness. It is, however, essential to

6.4 Cultural

Social experts and sociologists should be encouraged to be actively involved in road safety management, so that an alternative sociocultural approach can be developed to improve the education, training, and campaign system. This was successful in

focus on young drivers, especially motorcyclists and public transport and goods transport drivers.

the national family planning program in the 1980s, involving social leaders, religious leaders, and traditional practices, and it is sensible to use a similar approach to declare road safety a national program and invite as much involvement from various parties as possible.

Appendix 1 Reported Road Accidents and Other Statistics

Table A1.1: Various Ratios between Casualties and Fatalities

Source	Injury Level to Fatality Ratio				
	Fatal (1)	Serious (2)	Minor (3)	Injuries (2+3)	Damage
Indonesian National Police (1995)	1	0.9	1.1	2	—
Indonesia Insurer (1995)	1	—	—	2	—
United Kingdom (1937)	1	8.0	26.0	34	—
United Kingdom (1995)	1	13.0	72.0	85	—
Indonesia (all roads) HCM (1995)	1	13.0	13.0	52	59
Indonesia (Bandung) HCM (1995)	1	20.0	116.0	136	559

Source: Andrew Downing 1997.

Table A1.2: Casualties Composition from Various Sources

Source	Casualty Composition				
	Fatal (1)	Serious (2)	Slight (3)	Injuries (1+2+3)	Damage
Kepolisian Indonesia (1995)	10,990	9,952	11,862	32,804	—
Asuransi Indonesia (1995)	15,080	29,680		44,760	—
United Kingdom (1937)	16,485	131,880	428,610	576,975	—
United Kingdom (1995)	16,485	131,880	1,186,920	1,335,285	—
Indonesia (all roads) HCM (1995)	16,485	214,305	462,915	873,705	889,720

Source: Andrew Downing 1997.

Table A1.3: Road Accident Statistics (1981–2002)

Year	Total Case of Road Accident	Casualties (people)				Traffic Conditions		
		Death	Serious Injury	Minor Injury	PDO (thousand)	Population (millions)	Number of Vehicles (thousands)	Road Length (thousand kilometers)
1979	48,557	10,882	21,427	35,810	—	143.5	—	129.1
1980	50,743	10,456	22,264	37,507	—	147.2	—	146.5
1981	51,387	11,456	22,264	35,507	5,485,483	150.4	5,248	157.3
1982	46,571	10,105	20,343	31,057	5,997,777	153.7	5,348	168.3
1983	46,096	10,862	21,909	30,232	6,929,629	157.1	5,876	188.1
1984	45,466	10,881	20,946	32,307	7,817,023	160.5	6,455	198.5
1985	42,082	10,283	21,762	28,533	7,541,573	164.0	6,822	207.4
1986	41,638	10,692	22,184	29,395	8,633,995	167.9	7,288	224.2
1987	36,756	10,809	20,987	26,582	10,116,109	171.6	7,426	227.3
1988	30,388	10,456	17,946	22,322	10,386,539	175.2	7,771	254.9
1989	26,984	10,726	16,420	20,255	11,523,481	178.9	8,244	271.2
1990	25,741	10,887	16,036	19,220	13,466,314	179.2	8,851	288.7
1991	22,587	10,621	13,749	41,906	13,151,248	182.2	9,611	319.4
1992	36,028	12,600	21,703	25,431	15,261,363	185.3	10,198	325.4
1993	17,323	10,038	11,453	13,037	14,713,540	188.3	10,785	344.9
1994	17,469	11,004	11,055	12,348	16,544,269	191.5	11,929	356.9
1995	16,510	10,990	9,952	11,873	17,745,422	194.8	13,209	327.2
1996	15,291	10,869	8,968	11,379	18,479,963	198.3	14,530	336.4
1997	17,101	12,308	9,913	12,699	21,291,715	201.4	16,535	342.7
1998	15,097	11,778	9,022	10,857	27,259,567	202.5	17,125	355.4
1999	12,769	9,954	7,398	9,502	32,999,635	203.3	18,224	356.0
2000	12,649	9,536	7,100	9,518	36,280,980	205.8	18,975	356.0
2001	12,791	9,522	6,659	9,181	37,616,839	207.3	20,927	361.8
2002	12,267	8,762	6,012	8,929	41,029,930	212.0	22,985	—

PDO = property damage only.

Source: Indonesia data.

Appendix 2

Table A2.1: Road Safety Performance (1971–2002)

Year	Road Accident		Fatality		Injury		Fatality Index (%)	Fatality to Accident Ratio
	Cases per 100,000 People	Cases per 10,000 Vehicles	Cases per 100,000 People	Cases per 10,000 Vehicles	Cases per 100,000 People	Cases per 10,000 Vehicles		
1971	3,417	97,921	761.8	21,830	3,841	110.1	16.5	0.223
1972	3,030	87,085	657.5	18,896	3,344	96.1	16.4	0.217
1973	2,934	78,451	691.5	18,486	3,319	88.7	17.2	0.236
1974	2,832	70,440	677.9	16,858	3,317	82.5	17.0	0.239
1975	2,565	61,690	626.8	15,074	3,065	73.7	17.0	0.244
1976	2,479	57,129	636.7	14,670	3,071	70.8	17.2	0.257
1977	2,141	49,495	629.8	14,555	2,771	64.1	18.5	0.294
1978	1,734	39,105	596.7	13,455	2,298	51.8	20.6	0.344
1979	1,508	32,732	599.6	13,011	2,050	44.5	22.6	0.397
1980	1,436	29,083	607.6	12,301	1,967	39.8	23.6	0.423
1981	1,239	23,501	582.9	11,051	3,054	57.9	16.0	0.470
1982	3,030	87,085	657.5	18,896	3,344	96.1	16.4	0.217
1983	2,934	78,451	691.5	18,486	3,319	88.7	17.2	0.236
1984	2,832	70,440	677.9	16,858	3,317	82.5	17.0	0.239
1985	2,565	61,700	627.0	15,100	3,065	73.7	17.0	0.24
1990	1,437	29,100	608.0	12,300	1,967	39.8	23.6	0.42
1991	1,240	23,500	583.0	11,100	3,054	57.9	16.0	0.47
1992	1,021	18,600	530.0	9,600	2,544	46.2	17.2	0.52
1993	920	16,100	533.0	9,300	1,300	22.7	29.1	0.58
1994	912	14,600	575.0	9,200	1,221	19.6	32.0	0.63
1995	848	12,500	564.0	8,300	1,120	16.5	33.5	0.67
1996	771	10,500	548.0	7,500	1,026	14.0	34.8	0.71
1997	849	10,300	611.0	7,400	1,123	13.7	35.2	0.72
1998	1,239	23,501	582.9	11,051	3,054	57.9	16.0	0.470
1999	1,021	18,553	530.0	9,628	2,544	46.2	17.2	0.519
2000	920.2	16,063	533.2	9,308	1,300	22.7	29.1	0.579
2001	912.1	14,644	574.6	9,225	1,221	19.6	32.0	0.630
2002	847.7	12,499	564.3	8,320	1,120	16.5	33.5	0.666
2003	771.0	10,524	548.1	7,480	1,026	14.0	34.8	0.711

Source: Indonesia data.

Table A2.2: Road Safety Profile (2002)

Involved in Accidents												
Item	Passenger Automobile		Truck		Bus		Motorcycle					
	Public	Private	Public	Private	Public	Private						
		1,654	2,706	1,092	2,791	1,084	130	8,518				
	all		all		all		all		all			
	24.26%		21.60%		6.75%		47.39%					
Cause	Human		Vehicle		Road		Environment					
	11,121	90.66%	675	5.5%	374	3.05%	97	0.79%				
Driver's License Category	A		B2		B1		C					
	2,529	23.29%	1,275	11.74%	2,644	24.35%	4,412	40.63%				
Driver's Age	5-15		16-21		22-30		31-40		41-50		51-60	
	42	3.13%	3,496	26.03%	4,491	33.4%	3,090	23.0%	1,458	10.85%	477	3.55%
	1				1	3%			8		7	
Driver's Level of Education	Elementary School		Secondary School		High School		University					
	2,160	16.40%	4,236	32.16%	5,738	43.57%	1,036	7.87%				

A = license for driving passenger cars with maximum of 8 passengers, BI = license for driving trucks, buses, BII = license for driving long, articulated vehicles, tractors, trailers, C = license for riding motorcycles with engine capacity >= 50cc.

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