

Collection and analysis of traffic accident data in Hanoi, Vietnam

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*Road safety data: collection and analysis
for target setting and monitoring performances and progress*

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Overview of traffic in Hanoi

- Population: 6,5 Million
- Population density: 1948 people/Km²
- City areas: 3 334 Km² (Roads- 7%, Parking areas – 1,2%)
- Total road length: 3 974 Km
 - Primary corridor: 346 Km
 - Secondary roads: 1 178 Km
 - Collector roads: 2 450 Km
- Vehicle population:
 - Motorcycles: 2 540 000 units
 - Private cars: 255 384 units
 - Buses: 1 200 units
 - Taxis: 9 000 units
 - Others: 1 300 000 units
- Modal share:
 - Motorcycles: 80%
 - Private cars: 3%
 - Buses: 10%
 - Others: 7%

Overview of traffic accidents in Hanoi for the last ten years (1998-2008)

Year	Incidents		Fatality		Injury	
	Number	Compare with last year	Number	Compare with last year	Number	Compare with last year
1998	2496	-14.4	283	-0.4	2976	-7.0
1999	2494	-0.1	291	2.8	2856	-4.0
2000	2444	-2.0	385	32.3	2670	-6.5
2001	2187	-10.5	476	23.6	2238	-16.2
2002	1873	-14.4	532	11.8	1759	-21.4
2003	1331	-28.9	460	-13.5	1138	-35.3
2004	1432	7.6	503	9.4	1284	12.8
2005	869	-39.3	448	-27.0	842	-45.6
2006	883	1.6	472	-5.4	826	3.6
2007	832	-0.6	457	3.3	712	25.4
2008	686	-18.0	428	-0.7	417	-12

Classification of traffic accident in Vietnam

- Only cases with above VND 500.000 in damages will be reported and investigated. Reported traffic accidents can be classified in 5 different types:
 - Traffic crash
 - Less serious accident: there is one serious injury, or many minor injuries. In these cases, troopers reach to the scene and set up an accident's file
 - Serious accident: there are more than 1 death or more than 2 serious injuries
 - Very serious accident in "very serious accidents", there are more than 2 casualties or more than 3 serious injuries
 - Fatal accident
- For the last 2 types, the examination is almost carried out by Social Order Investigation police, supported by traffic police. According to Vietnamese laws, some one is reported to be death in a traffic accident if he died within 24 hours. In fact, only those who died on scenes are counted while those died on the way to or in hospitals are counted as injuries.
- Monthly offline information (in USB or floppy disk) is sent to the General Affairs only presents "above 11% in damages" accidents, as regulated by the Ministry of Public Security. As a matter of fact, to estimate accidents with "above 11% in damages" is very difficult for on-scene police. Theoretically, injuries that need operating, more serious or fatal injuries are considered as "above 11% in damages" accidents.
- Hence, 5 among 6 types are processed as traffic accidents and filed to be examined. Investigation documents also consist of form 45 which is used for all 5 cases. In fact, many of accidents with above 11% in damages were not reported on the phone, or in offline information sent to the General Affairs Division.
- Delayed facility establishment has significantly obstructed the accidents' information flow.

Problems of collection and analysis of traffic accident data in Hanoi

- Accident data capture in Hanoi is still insufficient and analysis criteria have not been fully established. Data acquisition at Hanoi Traffic Police Division includes many steps and various kinds of information.
- in Hanoi, traffic safety management bodies' functions remain fragmental (distributed to many entities) and not converged. As a result, responsibilities for safety and accident statistics are also divided and remain trivial. These statistics have not been computerized yet. The Examination team are storing daily reports manually in notebooks/records
- Many of accidents with above 11% in damages were not reported on the phone, or in offline information sent to the General Affairs Division.
- Delayed facility establishment has significantly obstructed the accidents' information flow.
- There are a few police working on accident analysis. Traffic Police Division has managed to collect fundamental data of traffic accidents, while analysis used for safety measure introduction remains negligible
- Numbers of accidents and involving people are not exactly. Reports in this case can only present general information, but not with accurate data. In order to improve the situation, we need to change data capture and storing approaches

The use of current forms of accident data collection- 45 Form

- The currently used report form (form 45) in Vietnam was established based on the United Kingdom's suggestions (Figure 2.3). This form contains about 50 data categories. Basic categories are as follows:
 - a. Essential information such as time, location, people involved
 - b. Road environment such as road type, road surface, traffic management
 - c. Driver's information such as age, sex, driving experience
 - d. Vehicle condition such as type, technical condition, technical inspection date
 - e. Reasons of accident such as behaviors before the accident happened, driving errors, alcohol levels
 - f. Casualties, injury levels
- Form 45 is used for collecting data of 5 cases mentioned above. In fact, many of accidents with above 11% in damages were not reported on the phone, or in offline information sent to the General Affairs Division and to be filled in the form.
- Required inputs in accident database vary from countries to countries, in accordance with utility purposes. Hence, there is no standard or model database, although it is a foundation for traffic safety measures. Thus, in data capture, it is necessary to have appropriate approaches and categories that can be effectively used in analysis.

Analysis of collected data for the period 1995-2007 (1)

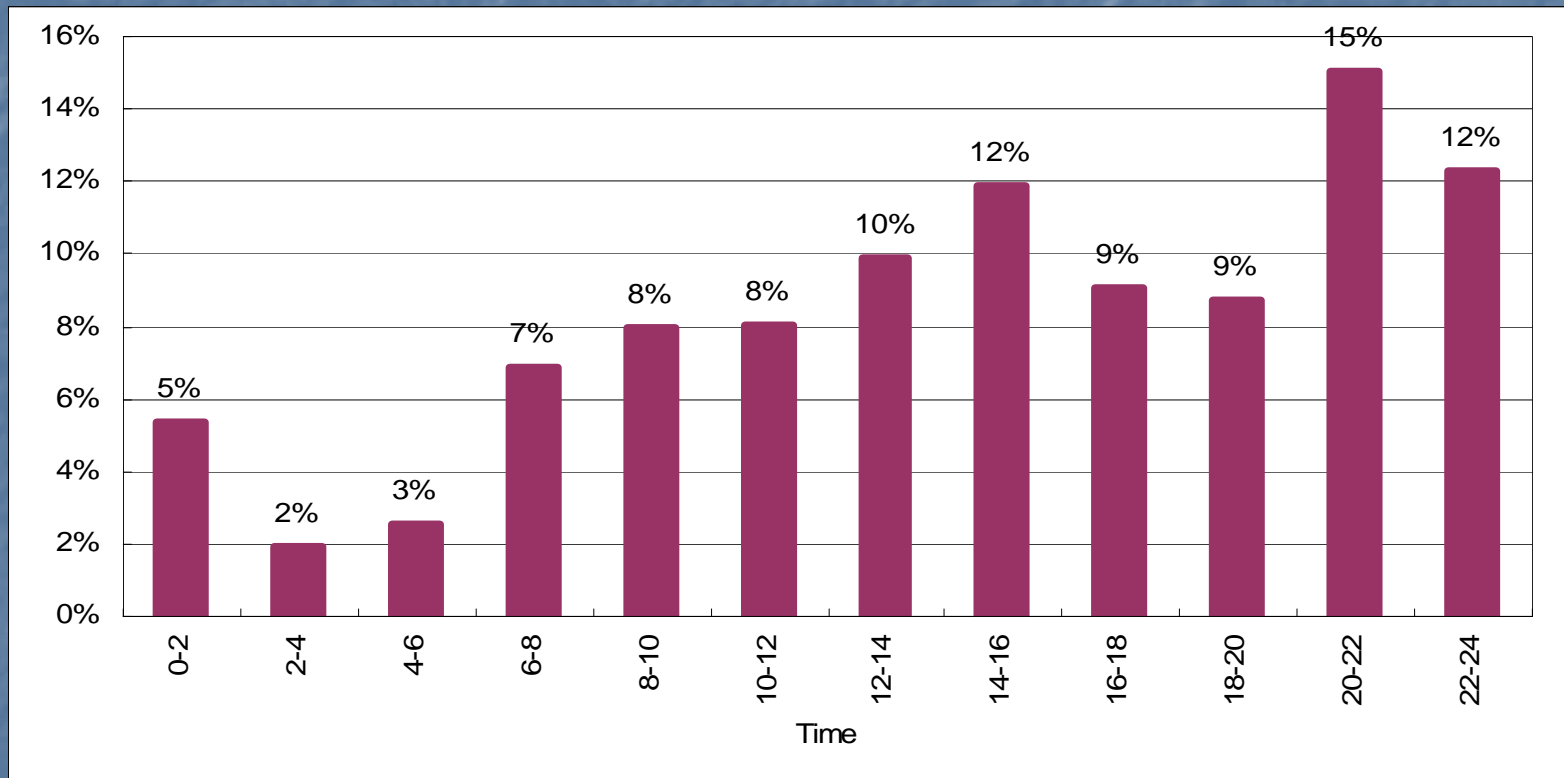
■ Analysis due to years and zones

District	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Ba Dinh	144	559	558	569	538	321	179	74	2	-	1	-	-
Hoan Kiem	272	626	548	438	426	469	462	396	167	155	57	40	18
Dong Da	262	505	275	201	215	212	218	172	128	119	75	23	-
Hai Bai Trung	286	754	631	359	176	385	236	128	119	117	86	46	-
Tu Liem	42	239	191	41	31	-	75	118	15	113	93	57	13
Thanh Tri	-	-	99	116	93	115	148	70	1	3	48	-	-
Gia lam	95	298	299	208	281	-	-	-	-	-	-	-	-
Dong Anh	7	75	132	123	-	-	-	-	-	-	-	-	-
Soc Son	2	6	3	1	-	-	-	-	-	-	-	-	-
Tay Ho	-	92	147	142	75	66	67	28	-	-	-	-	-
Other province	-	-	1	-	-	-	-	-	-	-	-	-	-
Army	-	-	63	153	-	-	-	-	-	-	-	-	-
Thanh Xuan	-	-	64	37	42	50	55	49	51	55	37	15	-
Cau Giay	-	-	-	-	1	6	84	129	3	82	45	49	16
Unknown	64	133	10	92	104	1	5	77	4	3	29	27	-
	1,174	3,287	3,021	2,480	1,982	1,625	1,529	1,241	490	647	471	257	47

The districts at city center are presented with higher number of accidents

Analysis of collected data for the period 1995-2007 (2)

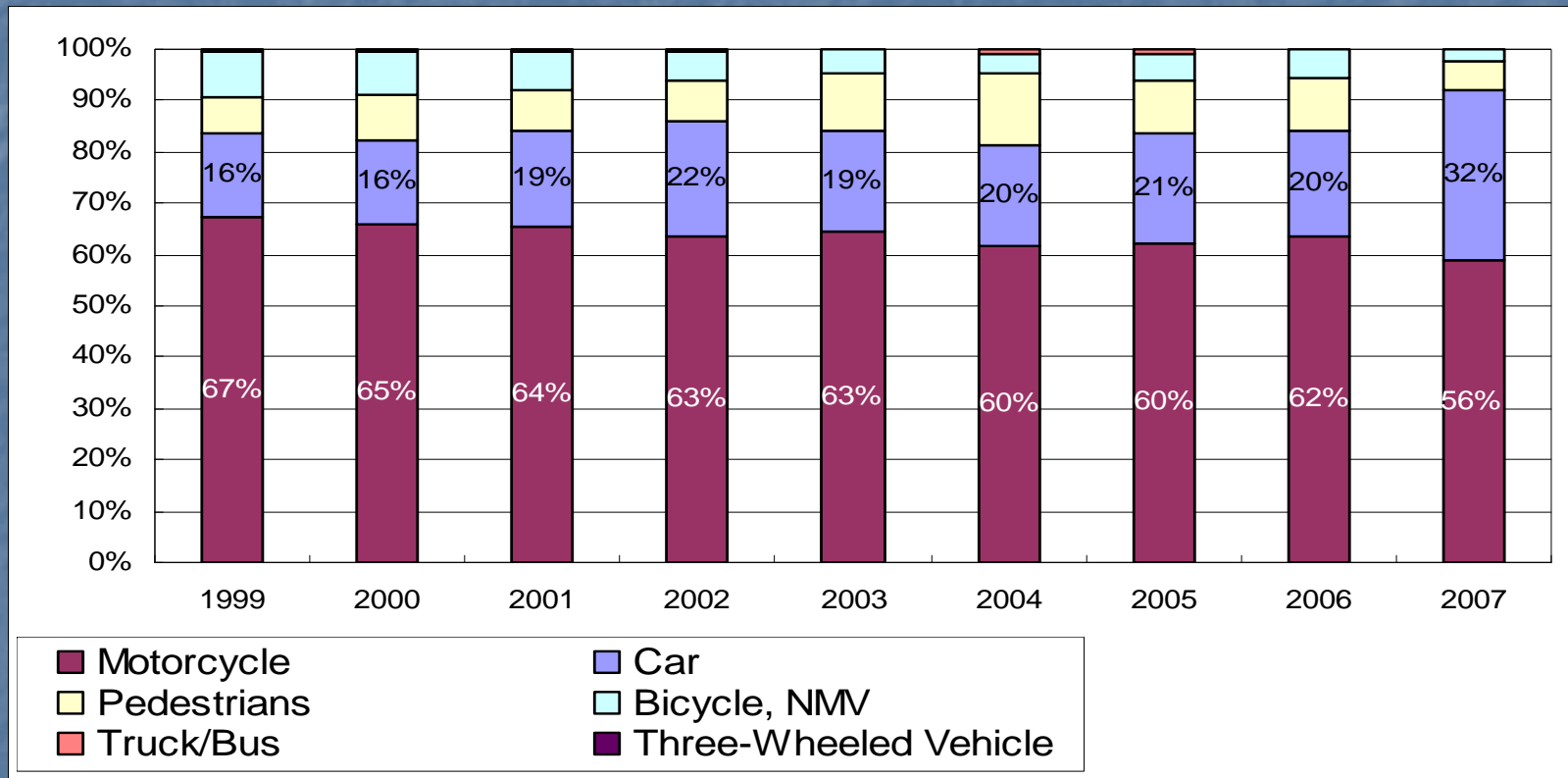
■ Analysis due to time of the day



The accidents are often occurred at the mid-day and mid-night

Analysis of collected data for the period 1995-2007 (3)

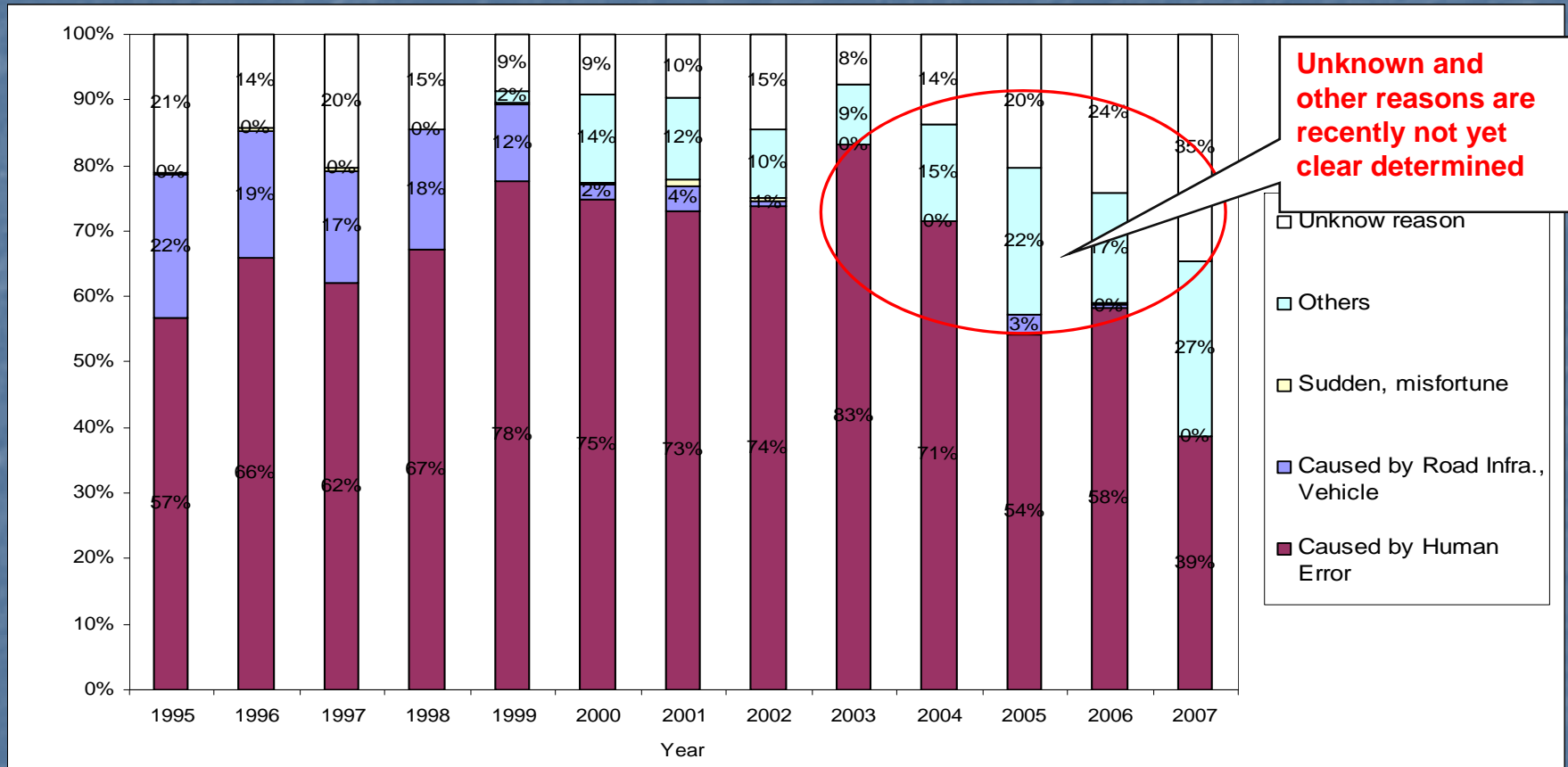
■ Analysis due to mode of transport



- Motorcycle related accident takes highest number
- Accidents by cars have been increased
- Accidents relate to pedestrians need to be taken in control

Analysis of collected data for the period 1995-2007 (4)

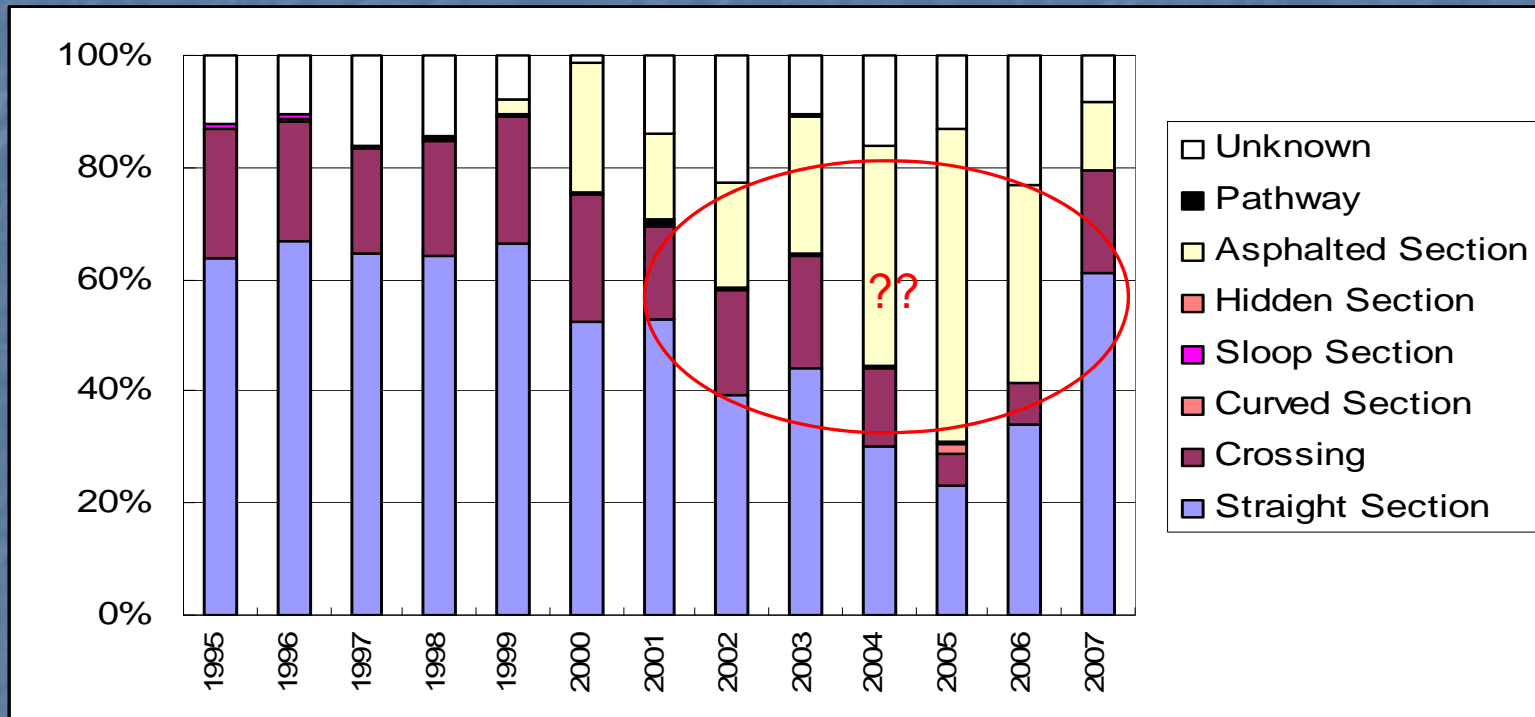
■ Analysis due to reasons



- Accidents caused by human errors are presented with highest number
 - Accidents with unknown and other reasons are remained with high number
- This would be relate to insufficient data collecting system.

Analysis of collected data for the period 1995-2007 (5)

■ Analysis due to type of road

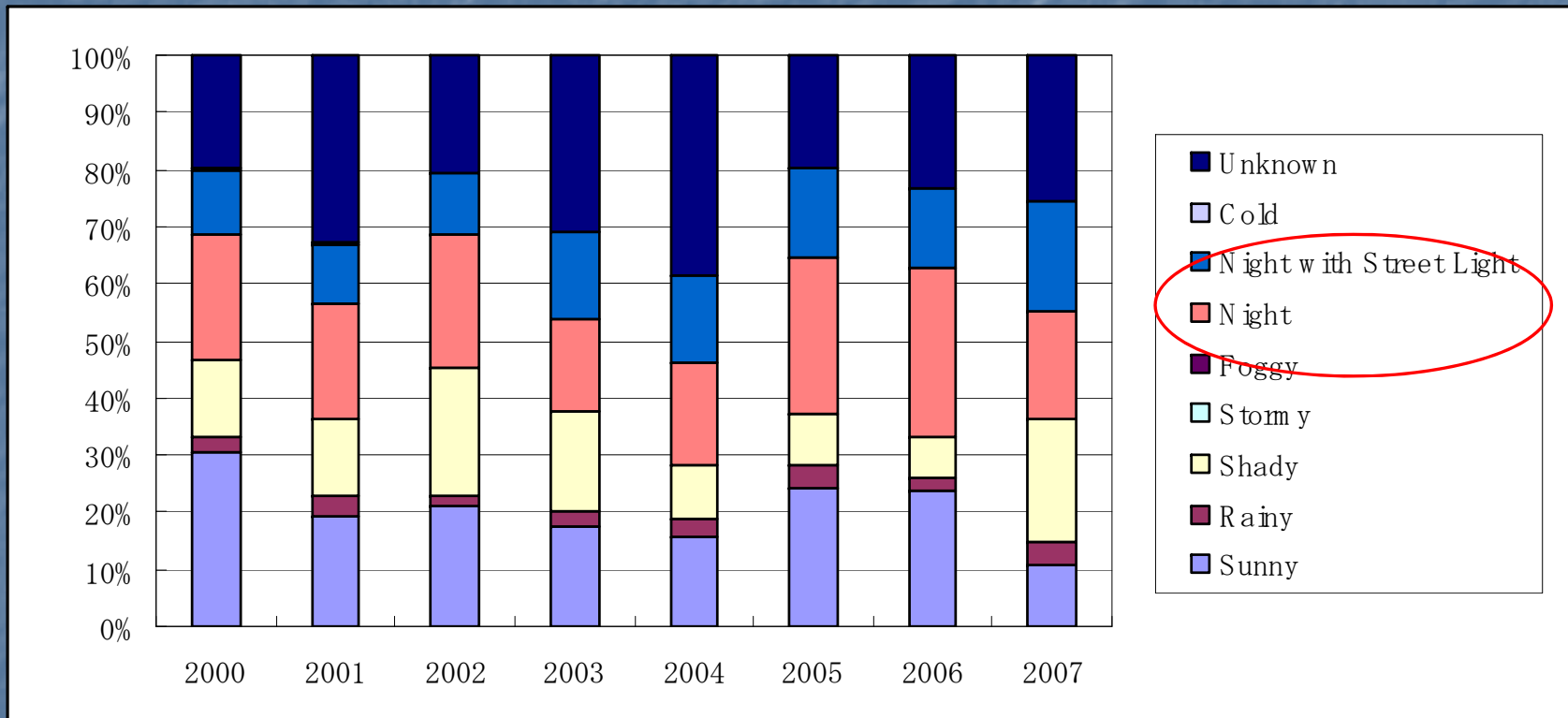


-Accidents are happened at straight and crossing sections

-Accidents happened at asphalted sections remained with higher number
Since 2000 – Is it comes with road constructions quality or drivers errors

Analysis of collected data for the period 2005-2008 (6)

■ Analysis due to condition of weather

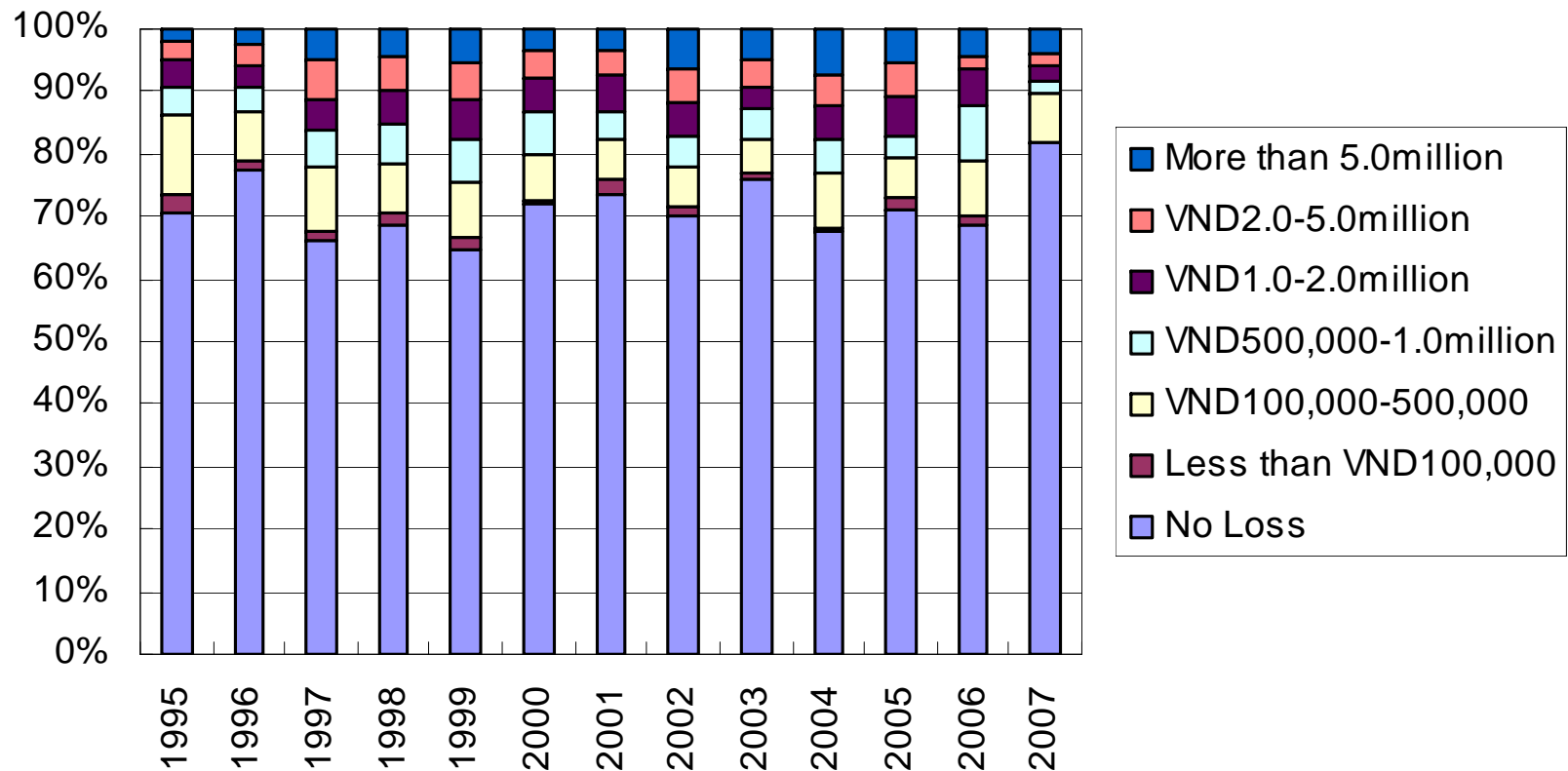


-Accidents are presented with dramatic trend concerning weather conditions

- There is still number of accidents with unknown reasons – Data collection problems ?

Analysis of collected data for the period 1995-2008 (7)

■ Analysis due to lever of damage



The cases are reported with no loss take a high rate (more than 60%)
The question is the way to calculate of loss is correct?

Action plan to improve collection and analysis of traffic data collection in Hanoi

- Institutional improvement
- Improvement of 45 form
- Improvement of network that connect the in-charge agencies and support the transferring and sharing of data.
- Training for the staff

**Thank you for
your attention!**