ROAD SAFETY IN LAO PDR

By Ratanamany KHOUNNYVONG
Director General of Transport Department
Ministry of Communication, Transport, Post and Construction
Vientiane, Lao PDR
Tel: 856-21-412272 Fax: 856-21-41 5563/41 2250

Abstract: The density of the traffic has appeared day to day especially in the capital city and the secondary town of the country because of the number of vehicles has been increased very fast. But the driving and riding skill of the road users has not developed. On the other hand, the Rules, Regulation and Road Safety Devices have not been updated to the new condition of traffic. It is therefore increased the significant number of accidents. The road fatality rate in Lao PDR is amongst the worst of the South East Asian Nations of about 19 fatalities per 10,000 vehicles.
To further reduce the road accident fatality rate, it is necessary prior to set up the Road Safety Strategy. Accordingly to the traffic condition and the culture of the Lao PDR, the primary aim of this strategy is to reduce the incidence, severity and cost to the society of road accidents. This will be achieved the application of the three E's of road safety: Education, Enforcement and Environment. These are supported through effective coordination and research and evaluation.
The completion of these activities will certainly contribute to chance the driver behavior and of course reduce the number of road accidents in Lao PDR.

1. INTRODUCTION

Tragically, most of us know of at least one person who was killed or seriously injured in a road accident in Laos. Broadly speaking, every single day , at least one person is killed and 16 are injured in road accidents. These figures are almost 4 times higher than those 10 years ago, bringing in 1999's road death toll to extent 362. It expect undoubtedly that this figure will continue to increase dramatically unless much work is done. The Lao Government views this situation through the Ministry of communication, Transport , Post and construction views with concern and is making extensive efforts and working with various organizations to seek the root cause of accidents and the appropriate solutions toward the reduction of the deaths and injured person in road accident and need for the road safety improvement continuously These include undertaking a nationwide road improvement projects to upgrade the quality of roads every where. In other hand , early in year 2000, they enacted a comprehensive system of road and road safety laws. In addition to these, they have also produced a National Road Safety Strategy which will provide the framework for all future road safety initiatives in every relevant field including Education. Enforcement and Engineering.

2. OVERVIEW AND BASIC INFORMATION ON ROAD TRANSPORT

2.1 Road Networks System

Lao government through Ministry of communication, Transport , Post and Construction has heavily invested in the improvement of its Land Transport Infrastructure and Services. Each year, the government spends more than 40% of its national budget to upgrade and maintain
the road networks mostly concentrating on the reconstruction and rehabilitation of the
international links as well as the designated routes for ASEAN and GMS projects.
The road network in the country has the total length of about 23 206 km and are classified as the followings:

A .Divided roads :

1. National roads	6,914.90 km
2. Provincial roads	7,431.70 km
3. Urban roads	8,860.00 km

B . Type roads :

1. Paved roads	3,694.20 km
2. Gravel roads	6,737.70 km
3. Earth roads	12,774.70 km

Out of the total road network, only 3,694km are paved roads, 6,738km are graveled roads, and the remaining about 12,775 km are earth or tracts which are trafficable only in the dry season.

2.2 Road Transport System:

2.2.1. Road Transport:

There are in total of 187,041 vehicles of which 11,277 are trucks and buses; 27,683 light vehicles and the remaining are motorcycles and tricycles.

Vehicles ownership for last 10years by type of vehicles passenger cars, buses, commercial vehicles, motorcycles.

Table 1: Lao Vehicle Population 1990-1999

Year	Motorcycle	Tuk Tuk	Car	Truck Bus	Total
1990	57.878	897	13.285	7.861	79.921
1991	64.694	942	14.264	7.949	87.849
1992	71.734	992	15.156	8.087	95.969
1993	78.566	1.788	16.426	8.155	104.935
1994	90.517	2.676	17.943	8.500	119.636
1995	104.879	3.833	20.508	9.387	138.607
1996	120.373	4.163	21.971	9.975	156.482
1997	132.552	4.215	23.698	10.162	170.627
1998	141.678	4.235	25.575	10.581	182.069
1999	143.846	4.235	27.683	11.277	187.041

Remarks : this Statistics do not include the vehicles of the police, military, heavy Equipment and bicycles.

Road transport is the dominant mode of transport in the country covering more than 80% of the total freight and passengers and the remaining are shared by air and water transports.

There are in total of 102 road transport enterprises in the country of which 44 with 5861 trucks and 37 with 3463 for good and passenger transport enterprises respectively.

Table 2: Statistic of Volume of goods and passengers

Items	Year	Volume of goods		Volume of passengers	
		tones	T.km	Passengers	P.km
1	1990	0, 55	97,70	12,58	383.22
2	1991	0, 47	53,00	5,08	491.00
3	1992	0, 60	69,00	6,89	469.00

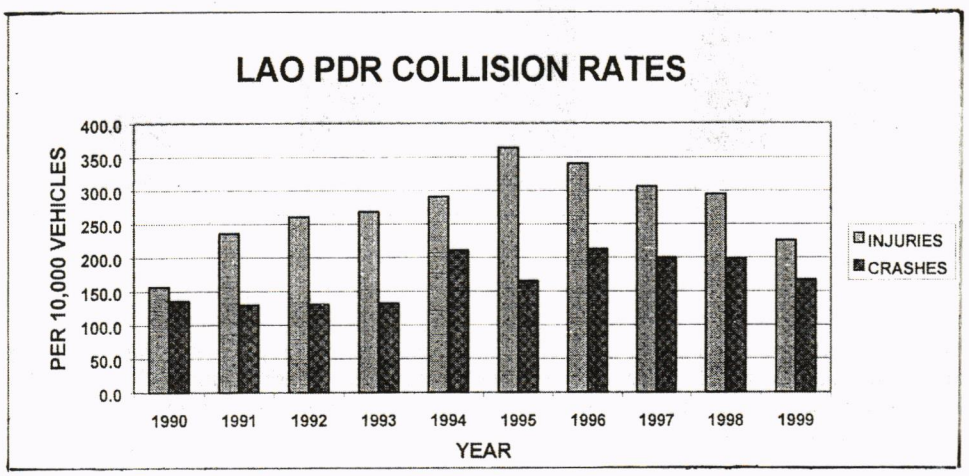
4	1993	0, 89	120,25	7,19	503.36
5	1994	0, 61	56,41	7,76	626.43
6	1995	0, 95	81,56	13,11	784.94
7	1996	0, 97	103,50	17,55	1,213.34
8	1997	1,02	94,69	18,00	1,200.50
9	1998	1,00	105,36	18,53	1,207.94
10	1999	1,22	121,14	22,51	1,289.90
11	2000	1,44	199,27	22,71	1,910.41

3. ROAD ACCIDENT

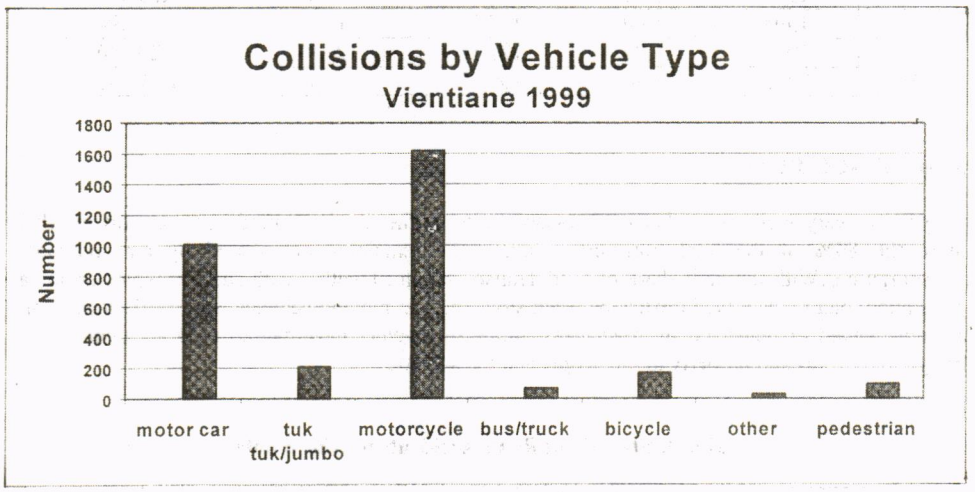
As you are very well aware that road transportation is the dominant mode of transport which is more the 80% of the total transport volume. The remaining are shared by air and water transportation .With the high share of road Transportation , together with sudden explosion in car population, bad roads mixed traffics between slow and fast moving vehicles, and traffic regulations are not obeyed or neglected by road users, these all together have caused road accidents which bring loss of lives and property to the people and the society.

Table 3: Statistic of Road Accidents for the Whole

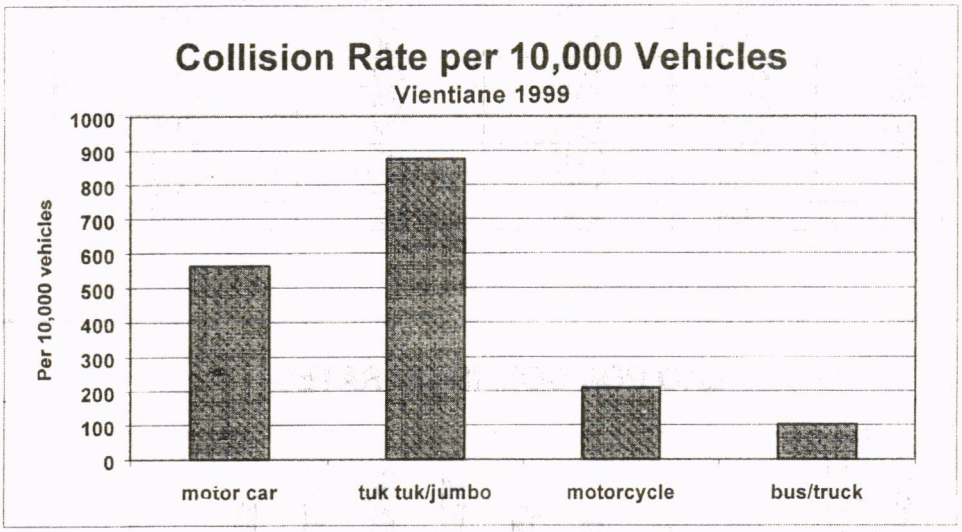
Year	Number of Accident	Number of Persons Injuries	Number of Persons killed	Number of Damaged Vehicles
1990	1.090	1.250	99	1.087
1991	1.145	2.075	105	1.150
1992	1.261	2.498	152	1.284
1993	1.394	2.814	166	1.377
1994	2.517	3.479	200	3.754
1995	2.291	5.050	298	5.213
1996	3.330	5.334	328	5.198
1997	3.407	5.240	357	5.434
1998	3.617	5.369	332	5.959
1999	3.159	4.265	362	4.985



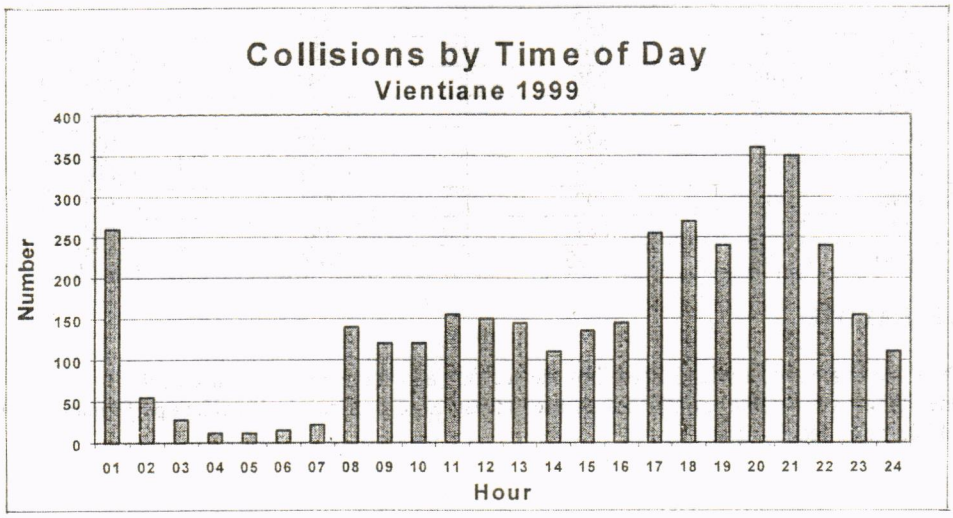
Within the overall statistics, significant data in more detail is available for Vientiane Municipality. This allows specific road safety improvement opportunities to be identified. Motorcyclists appear to be significantly represented in crash involvement, followed by cars and derivatives then tuk-tuks/jumbos.



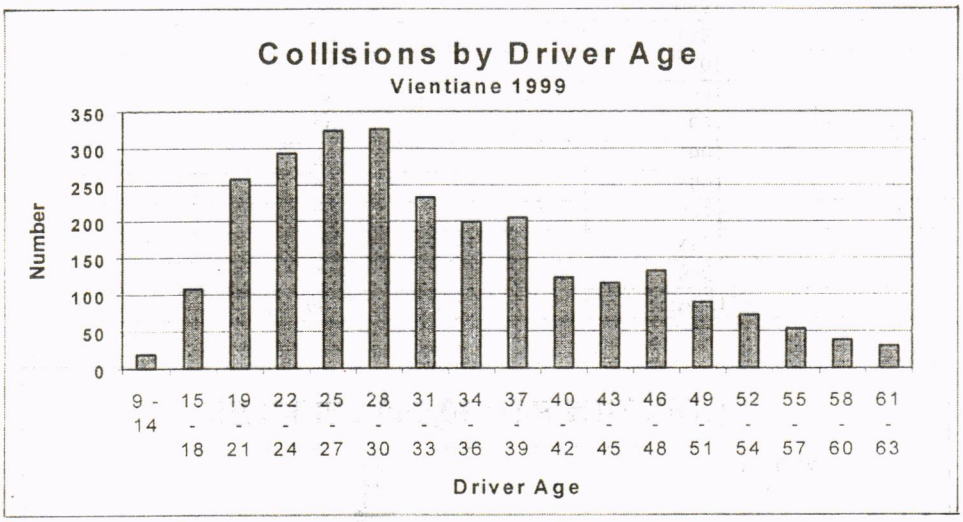
On the basis of crashes per vehicle the picture is somewhat different.



Therefore, while a significant road safety effort directed towards motorcyclists is warranted, drivers of cars and tuk-tuks/jumbos should not be ignored. Examination of crash occurrence by time of day in Vientiane shows many late at night. Observations by Lao people and visitors to the country suggest that this may be due to drink driving.



The chart below shows crash involvement by age of driver for Vientiane Municipality.



Younger drivers appear to be over-represented but the 25 to 30 year old age group is involved in the highest number of crashes.

Table 4: Estimated Damage Costs

Year	Persons Injuries Cost	Persons Killed Cost	Damaged Vehicles Cost	TOTAL
1990	375	99	1.304	1.778
1991	622	105	1.380	2.107

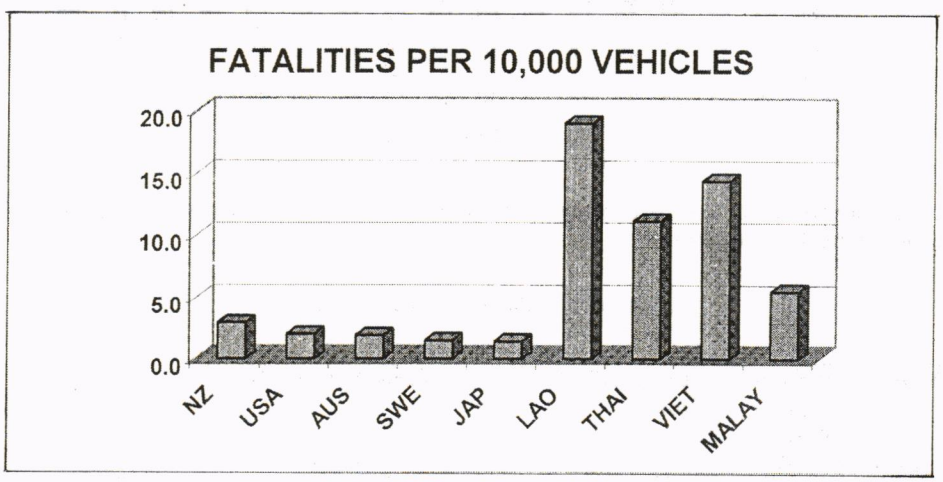
1992	749	152	1.540	2.442
1993	844	166	1.652	2.662
1994	1.104	200	4.505	5.809
1995	1.515	298	6.255	8.068
1996	1.600	328	6.238	8.166
1997	1.572	357	6.521	8.449
1998	2.800	593	8.531	11.925
1999	2.414	682	7.196	10.292
Total	13.598	2.980	45.122	61.700

4. FARALITIES

The Road fatality means death caused by the accident and at the time of the accident.
One of the most reliable and universally used measures of national road accident performance is the vehicle based fatality rate.

Table 5: Number of persons killed

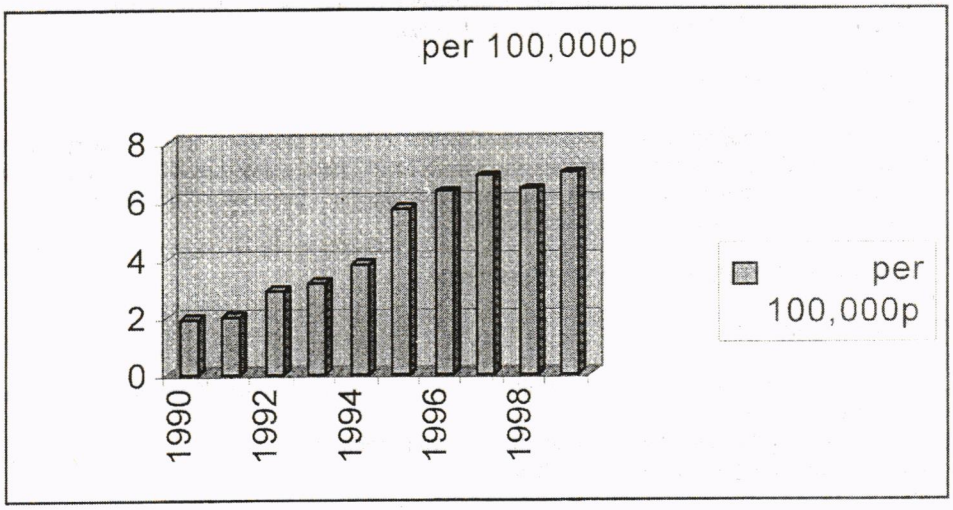
Items	Year	Number of Persons killed
1	1990	99
2	1991	105
3	1992	152
4	1993	166
5	1994	200
6	1995	298
7	1996	328
8	1997	357
9	1998	332
10	1999	362
11	TOTAL	2.399



Traffic safety is now becoming an urgent and big issue of the Government. For our information, the statistics on road accidents are the followings:

While crashes and fatalities continue to increase in the Lao PDR they are not increasing as fast as the numbers of vehicles on the roads. This means that the fatality rate per vehicle is improving.

LAO PDR FATALITIES PER 100.000 PERSONS



The rates of crashes and injuries per 100,000 persons are also improving

5. PERFORMANCE ASSESSMENT

The Divisions of communication ,Transport, Post and Construction in the provinces DCTPC are responsible for monitoring the performance. So far they are only using the report of the police after the accident has been occurred, there is no special tool to monitor the performance. DCTPC has also to review the performance regularly in term of forming a provincial Committee consisting of the officers from DCTPC, Police and the provincial administration. The provincial performance review will be reported by the committee to the Department of Transport.

6. ROAD SAFETY MANAGEMENT

6.1 Reporting system

The only source of accident information comes from the police. The Department Transport reduces the form for recording the accident performance and sends through the division the divisions of communication, Transport, Post and Construction in the provinces to the police. The police has to report month the DCTPC weekly the performance and DCTPC summaries and reports to the department of transport. So far there is no computerized link between the department of transport, DCTPC and police. The data are stored in manual file. The statistics of accidents are published through Radio, TV, Poster, Booklets, meeting, Seminar depending on fund and opportunity available.

6.2 Organization

The organization in charge of planning and implementing of road safety measure are the Department of Transport (DOT) under the Ministry of Communication Transport Post and Construction (MCTPC) , DCTPC , Ministry of Interior (MOI) police division in provinces. DOT is responsible for issuing rules measures of the traffic safety in term of decree, notice, regulations based on the Transport law, the traffic law and the road law. DOT controls and facilitate DCTPC, coordinate with MOI in order to regulate the traffic according the rules and measure and reduce accidents. DCTPC is the implementing agency who works closely with the police in the provinces. DCTPC is responsible to facilitate the requirement of the traffic safety. Police does the enforcement and facilitate the traffic to reduce traffic congestion.

6.3 Budget for road safety

There is no special budget for road safety out of for the salary of the officer and necessary office stationary. But DOT has coordinated with the Transport companies, Insurance companies, NGO and international institution to do traffic safety activities together in term of publication by posters, booklets, seminar or arrangements of road safety day.

7. ROAD SAFETY MEASURES AND PRACTICES

7.1 Enforcement

There is so far no report system on tickets issued. The report on type of violation has been summarized as follows :

- Not properly or technically suitable vehicles to be used in public roads
  (eg. no lights no signals, even some with no brakes)
- Over loading (passengers sit on the roof of the bus)
- Drunk drivers
- No driving licenses
- Over speed specially young drivers on motorcycles.
- Overtake on the wrong driving side or cut corners.
- Neglect or disobey the traffic signals.
- No prior signals where to go or to turn left-right

7.2 Legislation

In order to effectively and efficiently control and regulate both the domestic and international roads, road transport operations and road traffic, the Lao Government has inaugurated the road Transport Law, Road law and Road Traffic Law which approved by the National Assembly on 12/4/1997; 3/4/1999 and 8/4/2000 respectively.

The maximum speed limit is 40 km/h in the urban areas, 60 km/h for motorcycles, trucks and buses in the rural area and 80km/h for cars in the rural areas.

The compulsory helmet bearing is determinate in the traffic law, but so far there is no implementation yet. It needs to develop the article mentioned on helmet bearing and Specification involved.

The seat belt is still free to be used due to the number of old vehicles without built-in seat belt. Drunk driving is not allowed by law.

7.3 Education

The education on traffic safety has so far done irregularly. The only way of educating people that we consider as regular education is the seminar before examining for driving license.

After the effectiveness of the traffic law, DOT has coordinate with the Ministry of Education to prepare the curriculum of the traffic safety to be educated in all school levels. Now some documents of curriculum are in draft.

7.4 Engineering

The Lao government considers the road sector as spearhead. Each year this sector has been invested around 40% of the national budget. Since 1980 the road has been improved and upgraded to international standard.
The problem that we face with is the traffic engineering. Due to the project type, the road construction with foreign fund has been completely designed, which also consist of traffic signs, marks and others facilities for the traffic safety. But the project using domestic fund has been designed with only some necessary traffic signs, marks because of lacking of fund.

The black spots improvement has been done very little, only during the road is rehabilitated.

Table 6: Road Lengths by province

Province	Road Networks			
	Paved	Gravel	Earth	Total
Vientiane Municipality	359.4	825.6	216.7	1401.7
Phongsali	133.8	344.1	171.6	649.5
Luangnamtha	160.8	60.1	475.5	696.4
Oudomxai	316.0	98.5	605.8	1020.3
Bokeo	16.4	120.6	488.6	625.6
Luangphabang	494.0	281.8	483.9	1259.7
Houaphan	317.0	261.8	659.0	1237.8
Xaignabouri	21.6	519.5	1120.9	1662.0
Xiangkhouang	237.4	248.5	1162.6	1648.5
Vientiane	357.0	470.8	324.9	1152.7
Borikhamxai	347.1	290.7	503.6	1141.4
Khammouane	179.0	513.2	795.1	1487.3
Savannakhet	448.0	638.3	750.0	1836.3
Saravan	78.0	556.5	1866.0	2500.5
Xekong	51.6	176.5	186.5	414.6
Champasack	169.6	851.5	1439.9	2461.0
Attapu	7.5	248.6	847.2	1103.3
Xaisomboun	0.0	231.0	676.9	907.9
Total	3694.2	6737.6	12774.7	23206.5

Table 7: Road Condition Summary

Condition	Rating	National Sealed	National Macadam	National Gravel	National Earth	Provincial Sealed	Provincial Gravel	Provincial Earth
Roughness (14065 km)	Smooth	2091	0	112	6	80	106	0
	Medium	495	108	503	0	47	988	0
	Rough	435	513	1289	1250	18	1529	4471
Rutting (14040 km)	<10 mm	2138	7	158	6	97	128	0
	10 - 40 mm	640	101	1026	68	44	1828	56
	> 40 mm	265	512	721	1182	4.5	666	4416
Cracking (3805 km)	No Cracks	2413	0	NA	NA	121	NA	NA
	< 5%	317	150	NA	NA	20	NA	NA
	> 5%	310	470	NA	NA	4	NA	NA
Patching (3810	No Patch	1546	108	NA	NA	17	NA	NA
	< 5%	1329	114	NA	NA	129	NA	NA
	> 5%	168	398	NA	NA	0	NA	NA

7.5 Driver licensing

Rider with minimum age of 15 years permit to ride motorcycle by maximum power of 110 cc, motorcycles with power above 110cc may be ride by rider with minimum age of 18 years.

The drive with minimum age of 18 years permit to drive tricycle car, truck. But for passenger transport, the driver may have minimum age of 25 years.

There are 2 way for graduate driving license:

1. Self learning and training, then applying for driving examination.
2. Learn at the driving school with the curriculum of 3 months, then applying for driving examination. The instructor at the driving school is approved by DOT.

7.6 Emergency medical service

The Emergency medical service can be only available at provincial level and in the big city. But there is no specific service for accident, only general emergency medical service.

7.7 Vehicle inspection

DOT issues the standard of vehicles. All imported vehicles should be technically approved by DOT.

The vehicle registration requires the import license by the ministry of Commerce, The technical prove by DOT and the document of the custom.

The vehicle registration is done by the DCTPC with the unique procedure and documents for the whole country.

7.8 Research

There is so far no institution out of DOT, which carrying out research in the field of the traffic safety.

8.PRIORITIES AND FEASIBILITY OF POTENTIAL MEASURES

It can be seen from the statistic that road accidents bring sadness, agonies and losses of lives and properties to the society. Therefore there is no better ways than to take a preventive measure as well as remedy all the defaults to minimize and climate all the causes that lead to road accidents for the better living of the social .

As mentioned earlier, Our government has seriously concerned about the increasing number of road accidents and has launched a nationwide campaign in improving road traffic safety which can only be achieved through an interactive process involving many actors . The main focus of the campaign is to concentrate in the fields of " 3 Es " namely :

- Education
- Enforcement
- Environment

Without improvement in each of these key areas in parallel, the efforts in one of them may fail for example , road improvements without education of the road users will not result in reduction in the number of accidents . On the contrary, better roads may result in higher speeds and more serious accidents. The following considerations have been made with this background:

1. **Education**
   - Introduce traffic safety as a general subject in the school curriculum starting from primary school up to secondary school level
   - Train the personnel involved in the traffic safety such as traffic police force, road design engineers and road construction engineers.
   - Lessons in driving school and tests for drivers' license
   - Information and campaign through posters, newspapers, magazines, TV and radio broadcasts with the participation of the private sectors.

2. **Enforcement**
   - By traffic police
   - Vehicles inspection
   - Safety helmets (seat belt fasten)

3. **Environment**
   - Road infrastructure – included all road furniture to meet road safety requirement
   - Urgently modify the black spots .
   - Put signals (and light in night time) any repairs or works done on roads

To focus the attention and awareness of the society to traffic safety needs a lot of effort and time. Previously, SIDA of Sweden has provided assistance to take an initiative study and campaign on traffic safety in the capital city Vientiane Municipality. The findings and campaign have laid a systematic approach to improve the already chaotic situation to a better level. But the assistance had phased out because of funding constraints. Nevertheless, the campaign has continued even with financial scarcity. with the assistance from the Government of France, new traffic lights have been provided and installed at the most urgent and critical locations. According to the information given by the French Embassy, the French Government is considering to extend its assistance to provide more traffic lights in the near future aiming to relieve the accidents at the busy junctions and with the assistance from the Government of Japan.

9. SEEKING FOR DONOR SUPPORT

To built the awareness of the society to road traffic safety needs a lot of effort and the time and to solve the problems , Lao. P.D.R. needs both Technical Financial supports from the Government of

Japan. In the fields of " 3 Es ", some actions have been carried out and have attained some levels of development as shown in the following :

1. Education :

. Traffic safety lessons in schools
. Road traffic Safety garden in schools
. Lessons and test for driver's license
. Information and campaign (Radio & TV broadcasts)
. Observance of traffic regulation
. Use of safety belts and safety helmets

2. Enforcement :

. Traffic laws and regulations
. Speed limits
. Alcohol tests
. Roadside check
. Traffic volume control
. Requirement for driver's health
. Regulations for vehicle equipment & function
. Vehicle Registration and taxation
. Vehicle Inspection
. Requirement for helmets

3. Environment :

. Road accidents reporting system
. Surface Road register
. Traffic volume register
. Pavement register
. Coordinated road accidents statistics
. Location of " black spots "
. Road standard design
. Traffic reorganization in existing areas
. Separation of unprotected road users
. Analyses of proposals for road improvements
. Road marking
. Road signs
. Traffic lights
. Street illumination
. Use of reflective protection materials by pedestrians and bicyclists.

10. CONCLUSION

Author has found that Road Safety in Lao PDR is a great difficult work and can not be solved shortly by one authority concerned but need concerted efforts from all parties in the society as whole. Especially an urgent assistance is needed from the international community, international institutions and donor countries to assist in alleviating the road accidents.

REFERENCES

a) Annual report on statistic data of transport Department; Road and Bridge Department , Ministry of Communication, Transport, Post and Construction.
b) Planning and Technical Division (DOT) 1998/9 Road Statistics Book.
c) Road condition and inventory data received from Beca International.