

ROAD TRAFFIC SAFETY IMPROVEMENT PROGRAM IN LAOS

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1. INTRODUCTION.

During the last nearly 3 years number of killed in the road accidents in Laos was rising continuously (from 3330.in 1996 to 4146 in 1998) after the friendship bridge Lao-Thai had built, Which was directly linked to the motorization growth year by years from Asia countries . Even the next future two years will be increased number of vehicles caused by finished 2nd Mekong bridge in Pakse. (fig. 1)

Therefore the government and local administration have the legal responsibility for the functions associated with road safety. Especially for the construction and maintenance of the roads, inspection and license of vehicles, traffic education, traffic enforcement and control . The greatest problem is the management of these functions. They are dispersed between the state and local level, the private and public sectors as well as between individual and social understanding.

2. CHARACTERIZATION OF EXISTING SITUATION IN ROAD TRAFFIC.

The amount of accidents and persons killed or injured increased-year by years, road traffic safety in Laos didn't correspond to Asian level . The amount of killed persons in the country is critically high. Considering that the behaviour of road users doesn't correspond to the demands of traffic laws , the level of motorization in Laos is lower than in Europe or than Asian countries. The quality of roads is uninterruptedly deteriorating , it can be expected that the amount of the vehicles and their run will increase , the older and the process of collapse of road network will go on . That can worsen road traffic safety and ecological situation in Laos. (fig. 2, 4)

Road accidents occur due to the actions of road user ,technical condition of vehicles and environment . According to statistics the relative contribution of these factors is distributed in following way: (fig. 6)

- 60 % behaviour of road users
- 4 % environment
- 20 % technical condition of the vehicles
- 6 % behaviour of road users combined with environment
- 10 % condition of the road (didn't separated the lanes)

For international comparison, the number of person injured and killed can be related to the number of vehicle. In Laos about 36 person injured and killed per 1000 vehicles in the road accidents. In Vientiane municipality alone, the capital city of Laos which has roughly about 57 % of total numbers of vehicle of the country has the road accident about 3298 cases or about 79 % of the total cases. (fig. 4, 5)

In 1997 about 52 % of all accidents is a collision between a vehicles and unprotected road users (pedestrian, cyclist, motor cyclist). During the recent years there is a relative increase in the amount of accidents caused by a collision of vehicle and motorcycles, and the motorcycles and motorcycles.

It's dangerous to cycle on Laos road. The collision of vehicles and cyclists, motorcycles and cyclists have the most serious repercussions. Mostly it's the fault of cyclists, but lately the relative number of accidents caused by drivers starts to increase. Therefore it's actual problem to separate cyclists from other vehicles (bicyclist lanes and routes, etc.)

The main violations are driving under the influence of alcohol and speeding or choosing a wrong speed. Great many accidents are caused by drivers who don't have driver's licenses. That indicates to the necessity of elaborating and putting to practice an effective traffic control system which will be then performed by the road traffic police or other institutions according to the law.

Darkness increases danger to road users especially to the lives of pedestrians and cyclists. As a rule accidents in darkness are very serious, and the amount of them increases. Road equipment (horizontal and vertical marking, road lighting etc.) is of great significance in the diminishing of the accidents level of seriousness. It means that a complex of measures which would warrant a safe moving in darkness to road users must be worked out and realized. (fig 3). The level of seriousness of the accident increases with the deterioration of road surface condition, the most dangerous is moving along slippery roads. So measures to stop further collapse of road network and to perform road maintenance according to the requirements of traffic safety must be carried out.

3. GOAL OF THE PROGRAM AND MEASURES TO ACHIEVE THEM.

3.1 Prognosis according to run.

It's presumed every year the number of vehicles and number of road accident will rise by 10 % to 11 %. The run till the year 2002 will double (the minimum).

In 1999 there will be

550 killed (relative error $dx = 10\%$)

4560 accident ($dx = 10\%$)

6490 injured ($dx = 10\%$)

In 2002 there will be

660 killed ($dx = 10\%$)

5470 accident ($dx = 10\%$)

7780 injured ($dx = 10\%$)

So this method show that the number of road accident in Laos will increase and losses by them. In 1998 the losses about 110,000 USD (dx - 10 %),in 1999 will be about 122,000 USD, but about 132,000 USD in 2002.

3.2 The level of road traffic safety desired to reached.

The level of road traffic safety would approach that of asian countries if the numbers of accidents, the number of injured and the number of killed to diminish by 5 - 6 % every year starting from 2000.

Then in 2002 the number of killed will be about 540 (dx = 10 %), the number of accidents will be about 4480 (dx = 10 %), the number of injuries will be about 6370 (dx = 10 %).

4. PRINCIPAL AND SUPPLEMENTARY MEASURES FOR SUCCESSFUL IMPLEMENTATION OF THE PROGRAM.

4.1. Road users' check-up .

4.1.1. Control of driving under the influence of alcohol .

Performer :Road police and other institutions according to the law.

- ♦ 1999 Working out of legal basis , providing with alcometers and personnel training .
- ♦ 2000 Gradual implementation of this measure .

Outcome : diminishing of number of alcohol caused accidents

Effectiveness: decreasing of losses Caused by road accidents.

4.1.2. Speed control .

Performer: Road Police.

Date of realization:

- ♦ 1999 working out of legal basis, supplementary purchase of speed check radar's, personnel training
- ♦ 2000 implementation of this measurement

outcome:diminishing of the number of speeding Caused accidents

Effectiveness: decreasing of losses Caused by road accidents .

4.1.3. Control of other violations .

- ♦ Traffic surveillance from a moving police car .
- ♦ Surveillance of unprotected road user .
- ♦ Others .

Performer : Road police and other institutions according to the law.

Date of realization : For all time running .

Out come : Prognosis - diminishing of the number of accidents

Effectiveness: decreasing of losses caused by road accidents .

4.2 Speed limitation in residential areas .

- ♦ Speed limitation in residential areas to 50 Km/h and lifting this limitation on less dangerous roads .
- ♦ Speed limitation with the help of speed humps in dangerous spots.
- ♦ Speed limitation by carrying out reconstruction of road elements e.g. introducing of roundabouts .

Performer : The road traffic safety Directorate (RSCC) .

Date of realization :

- ♦ 1999 working out of legal basis, designing of traffic signs' location, Purchasing of traffic ;
- ♦ 2000 implementation of this measure.

Out Come : diminishing of the number of accidents caused by speeding in residential areas.

Effectiveness : decreasing of losses caused by road accidents.

4.3 Different road safety campaigns .

- ♦ annual road safety weeks .
- ♦ anti-alcohol campaigns .
- ♦ campaigns for environment friendly transport.
- ♦ campaigns safety first .
- ♦ Others .

Performer : all institution connected with problems of the road traffic safety .

Date of realization : according to the date of wooden campaign .

Outcome : improving of road traffic safety .

Effectiveness : decreasing of losses caused by road accidents .

4.4 Road users' education and training .

4.4.1 Road safety education for children .

Performer : educational establishment collaborating with RSCC .

Date of realization :

- ♦ Educational programme covering pre -school and school age level and teaching methods for acquiring traffic laws must be worked out .
- ♦ Road safety educational Programme must be introduced in all schools .

Outcome : diminishing of the number of accidents caused by children

Effectiveness: decreasing of losses caused by road accident.

4.4.2. Drivers' training.

- ♦ education and training of new drivers ;
- ♦ drivers' Vocational training (transportation of dangerous materials...)

Performer: educational establishments collaboration with RSCC.

Date of realization: for all the time running.

Outcome: diminishing of the number of accidents caused by new drivers

Effectiveness: decreasing of losses caused by road accidents.

4.5 Rescue service and social care for the injured .

4.5.1 Foundation of rescue service .

Performer: Ministry of welfare .

Date of realization: 1999 working out a conception

Outcome: decreasing of the level of road accidents' seriousness.

Effectiveness: according to the conception .

4.5.2 Obligatory social insurance of injured for the possessors of overland vehicle .

Date of realization:

- ♦ Working out of legal basis (performers - Ministry of finances , ministry of welfare Ministry of communication and transport , Post and construction MCTPC).
- ♦ Introduction of obligatory social insurance of the injured

Performer: insurance companies .

Outcome and effectiveness: social insurance of the injured .

4.6 Improvement of road condition and organization of traffic flow .

- Improvement of road condition .
- Control of road condition and engineering structures .
- Designing of traffic flow organization in black spots .
- Reconstruction of junctions .
- Setting of traffic signs according to the rules about the location of technical means for road traffic organization .

Performer: MTCPC and municipalities .

Date of realization: for all time running .

Outcome : reducing of the number of accidents caused by bad and road condition on out of towns road .

Effectiveness: decreasing of losses caused by road accidents

4.7 Improvement of road traffic safety in darkness .

- Use of reflecting materials in road marking .
- Speed limitation on road and urban roads .
- Use of reflecting materials for pedestrians and bicyclists .

Performer : Department of communication and transport (DCTPC) public organization and road users .

Date of realization:

- working out of legal basis and implementation of the measure

Outcome: diminishing of the number of accidents in darkness

Effectiveness: decreasing of losses Caused by road accidents.

4.8 Vehicles' technical in section.

Performer: RTSD

Date of realization:

- Introduction of vehicles' technical inspection lines in Vientiane(by Computer) .
- Introduction of vehicles' technical inspection by computers lines in each provinces .

Outcome: diminishing of the number of accidents caused by collision of motorcyclists, and vehicles.

Effectiveness: decreasing of losses Caused by road accidents.

5. CONCLUSION.

The road traffic safety level in Laos roads is lower than in Asian and European countries the number of killed is critically high.

The expenses caused by road accidents in 1998 were 110,000 USD .

In case of implementing the measures described in Programme , the number of accidents can be decreased about 5 % every year starting from 2000 .

To achieve the advanced goal :

- Road traffic safety council subordinate to the cabinet must be founded to coordinate all the activities .
- It's necessary to find financial sources to carry out the subprogram
- Road traffic safety informative system must be formed to obtain credible information .
- It's necessary to perform continual investigations and to use the obtained conclusions for the improvement of road traffic safety .

The effective implementation of the program and subprogram as well as taking adequate measures may decrease the losses , but in the case of not implementing the road traffic safety Programme the number of accidents may increase .

REFERENCE.

a) Accident statistics

Road traffic accident (1998), Department of Road Traffic MCTPC, Vientiane.mun.

b) Papers presented to conference

Traffic Safety Management (1997), training program, Sweden, 18 August - 19 September 1997.

c) Other document

Vientiane road accident data (98,99), reported 9, Mars 1999. Police Department, Road Traffic Safety Co-ordinating Committee.

**VEHICLE STATISTICS IN LAOS
1993-1998**

	1993	1994	1995	1996	1997	1998
Motocycle	78566	90517	104879	120373	138449	156321
Motortricycle	1788	2676	3833	4163	4410	5122
Motorcar	16462	17943	20508	21971	22960	23298
Bus	1648	1658	1673	1673	1684	1950
Truck	6507	6842	7714	8122	8312	8841
Total	104,971	119,636	138,607	156,302	175,815	195,532

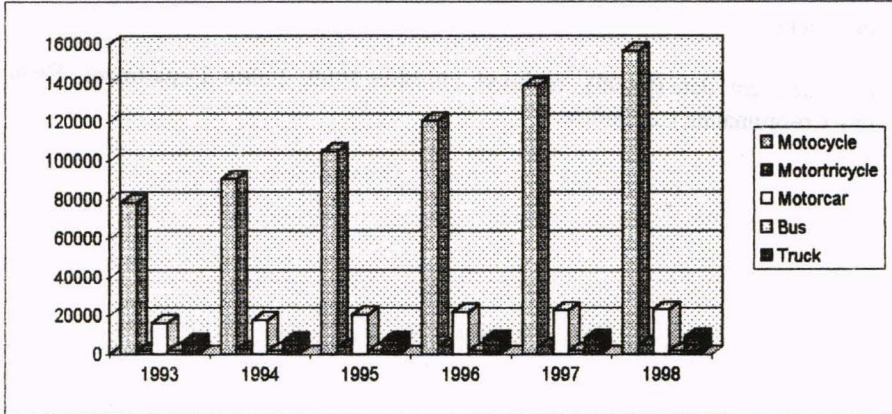


fig: 1

**STATISTICS TRAFFIC ACCIDENT FOR WHOLE COUNTRY
1994-1998**

	1994	1995	1996	1997	1998
Number of accident	2,517	2,291	3,330	3,720	4,146
Injuries	3,497	5,050	5,334	5,812	5,903
Fatalities	200	298	328	456	503
Number of vehicle damages	3,754	5,213	5,198	4,108	5,116

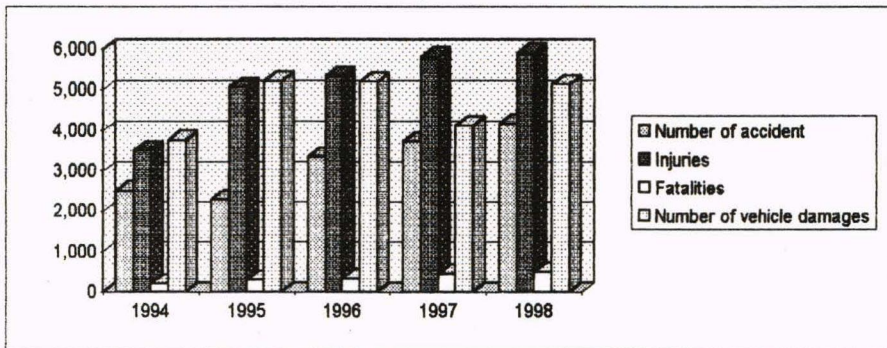


fig: 2

ACCIDENT TIME

Time	Period	%
Morning	0 - 6.00 h	20%
Daytime	6.00 - 18.00h	10%
Nighttime	18.00- 23.00h	70%

Morning	20%
Daytime	10%
Nighttime	70%

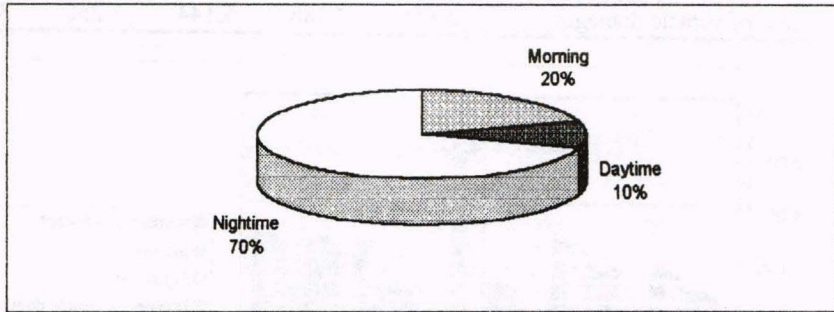


fig: 3

KILLED AND INJURED PER 1000 VEHICLE (data: 1997)

Laos	36
Vietnam	70
Jordan	34
Nepal	26
Cambodia	15
Thailand	13
Indonesia	10

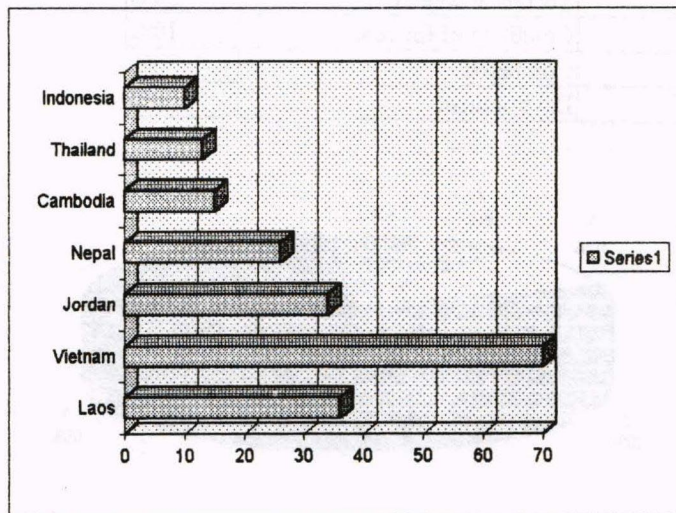


fig: 4

**STATISTICS TRAFFIC ACCIDENT FOR VIENTIANE MUNICIPALITY
1994-1998**

	1994	1995	1996	1997	1998
Number of accident	1,606	1,917	1,771	1,826	3,298
Injuries	2,355	2,906	2,454	2,526	2,393
Fatalities	106	137	107	128	129
Number of vehicle damages	2,774	3,388	5,144	3,258	3,388

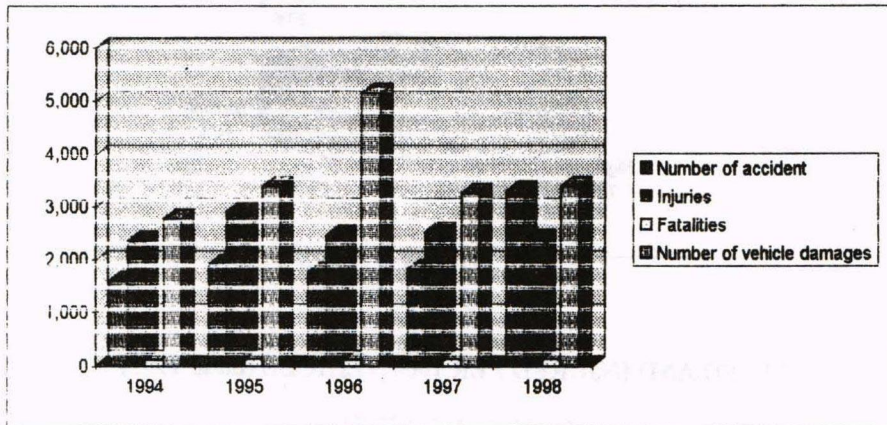


fig. 5

STATISTICS RELATION OF THE ROAD ACCIDENTS FACTORS

Factors	%
Behaviour of road users	60%
Technical condition	20%
Condition of the road	10%
Combined	6%
Environment	4%

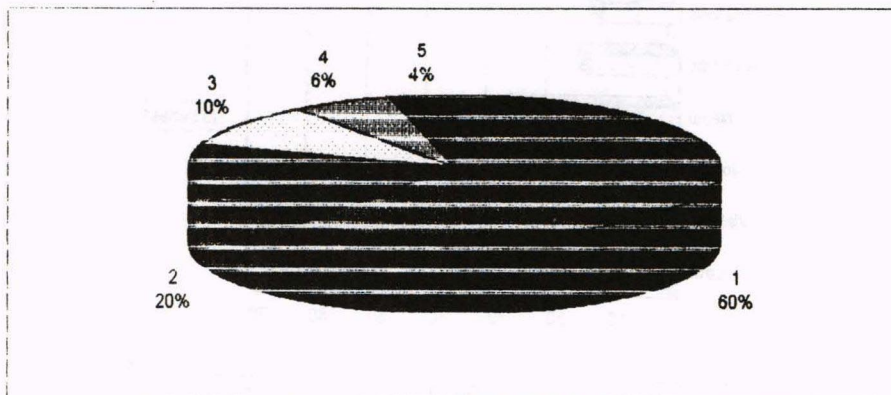


fig. 6