THE ROAD TRAFFIC ACCIDENT SITUATION IN GHANA

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ABSTRACT

Despite the immense contribution of road transportation to the rapid development of most developing countries, it has now become a socio-economic problem. The rapid rise in the number of automobiles has contributed to increased traffic accident deaths and injuries every year. In Ghana, co-ordinated efforts to reduce traffic accidents have been geared towards educational campaigns, traffic law enforcement and low-cost engineering measures but indications are that road accident fatalities continue to rise. This report analyses the status of the traffic injury accidents in Ghana in 1991 following the inception of the World Bank sponsored Ghana Road Safety Programme in 1988.

Specific conclusions of the analysis include the following:

- The average fatalities per 10,000 vehicles is about 2.4 times or 16 times higher than what pertains in Botswana in Africa or Great Britain in Europe respectively.

- Pedestrian fatalities alone account for nearly 48% of all the traffic accident fatalities in Ghana.

- There are pronounced regional differences in accident characteristics. For example, despite the general rise of 3.6% in traffic accident fatalities at national level, significant road safety improvements have been experienced in about five (5) of the ten (10) regions in Ghana.

- About 70% of all road accident fatalities occur in rural areas, compared to 30% in urban areas.

Overall, it can be stated that multifaceted accident countermeasures must be applied to help bring about road safety improvement in Ghana.

1.0 INTRODUCTION

Road transportation, despite its immense contribution to rapid development of societies has now become a socio-economic problem. The consequence of road traffic accidents continues to be a drain on the scarce financial resources of the developing as well as developed nations. However, the road safety situation in developing countries unlike that in Western Europe and North America, appears to be worsening (Jacobs and Wendy, 1978; Jacobs and Fouracre, 1977).

In 1988, as part of the World Bank sponsored Transport Rehabilitation Programme (TRP), the government of Ghana initiated the Ghana Road Safety Project (GRSP) to address the worsening road safety situation. Under the programme, an Accident Data Collection and Analysis Unit was set up at the Building and Road Research Institute (BRRI) of the Council for Scientific and Industrial Research (CSIR), Ghana, to collect and analyse road accident data so that the nature of the problem could be identified for subsequent application of appropriate accident countermeasures.

In recent years, road safety awareness has been created in Ghana through numerous campaigns directed to the public through radio, television, newspapers, workshops and seminars. Nonetheless, it is unfortunate to note that, sometimes such campaigns are carried out with questionable significance in relation to the real road safety problems that the road user needs to be aware of. This paper therefore highlights the road accident situation in Ghana with the view to elucidating the nature and characteristics of the road traffic accidents for a more effective and systematic approach to the prevention of road accidents.

2.0 DATA COLLECTION AND ANALYSIS

In Ghana, the Police have a traditional duty to visit every accident site and record the accident details. Throughout August 1992, the various designated Police Stations were visited by the BRRI staff to transfer the accident details onto an Accident Data Form designed by Ross Silcock Partnership, United Kingdom (Ross Silcock Partnership, 1990). The accident data collected was then coded and stored in a micro-computer for subsequent analysis.

For this report, only road accidents involving personal injury were analysed with the help of MAAP5 accident analysis package developed by the Transport Research Laboratory (TRL), United Kingdom, on ordinary micro-computer systems.

3.0 RESULT

3.1 Trends in Road Traffic Accidents in Ghana

The general road traffic injury accident characteristics in Ghana for the period 1988 to 1991 are shown in Table 1. There is an upward trend in the number of recorded accidents in Ghana, rising sharply from 4,355 in 1988 to 5,165 in 1990 and then dropping slightly to 4,949 in 1991 thereby registering a growth rate of between 4.3% and 6.5%per annum.

The number of road accident fatalities as well as injuries recorded during the period also appeared to rise consistently, signifying the nature and magnitude of the road safety problem in Ghana. However, the fatality rate in terms of fatalities per 10,000 vehicles which is a measure of exposure to risk suggests a downward trend from a level of 118 in 1988 to 77 in 1991, giving an average of about 88 fatalities per 10,000 vehicles for the four-year period. This average figure is however very high when compared with other

developing and developed countries. For example, the figure is about 2.4 times or 16 times higher than what pertains in Botswana or Great Britain respectively (Jacobs, G.D., 1986).

TABLE 1: SUMMARY OF ROAD INJURY ACCIDENT CHARACTERISTICS IN GHANA: 1988 – 1991

ACCIDENT STATISTICS	YEAR			
	1988	1989	1990	1991
No. of Accidents	4355	4776	5165	4949
Fatalities	916	947	918	981
Injuries	9082	9867	10033	9240
No. of Vehicles Involved	5376	6004	6621	8051
*Population ($x10^6$)	13.757	14.134	14.522	14.920
** Licensed Vehicles	97544	115586	123892	126644
Fatalities per 10,000 Inhabitants	0.66	0.67	0.63	0.66
Fatalities per 10,000 Vehicles	118	82	74	77

Source: *Ghana in figures 1992 by Statistical Services, Accra, Ghana
**Ministry of Transport and Communication's Bulletin, January-December 1992, and projected by 20% to cover Government vehicles etc.

3.2 Regional Accident Characteristics

The road traffic accidents and casualty distribution in 1991 for the ten(10) regions of Ghana have been shown in Table 2. The 1991 road accident data when compared with the 1989 data showed an increase of about 3.6% for the whole country. The picture was however not the same for all the regions. For example, there were significant road accident reductions during the two-year period for Brong-Ahafo, Northern, Upper East, Upper West, Volta and Western Regions. The road accident trend was however upward for Ashanti (+6.4%), Eastern (+9.5%), Central (+11.4%) and Greater Accra (+19.5%) regions during the same period.

Considering the number of persons killed through motor accidents in Ghana in 1991 alone indicates that, the worst regions were Greater Accra, Ashanti and Eastern. However, road safety deterioration, viewed over the two-year period 1989-91, was rather horrendous in Volta Region (+61.4%), followed by Ashanti Region (+45.2%), Central Region (+38.0%) and then Greater-Accra Region (+6.8%). Nonetheless, there were road safety improvements in terms of decreases in fatalities in five of the regions during the two-year period namely, Upper West (-48.2%), Western (-44.4%), Upper East (-42.5%), Northern (-12.8%) and Brong-Ahafo (-10.2%). It is obvious from Table 2 that there are regional differences in the accident situation in Ghana.

Table 3 further reinforces the fact that there are regional differences in accident characteristics in Ghana. Whereas the most dominant road user groups at risk in Ghana in

general were pedestrians, followed by bus occupants and then car occupants, the situation was however different in the various regions. For example, the road user groups most at risk in the Northern and Upper West regions were Heavy Goods Vehicles occupants and bicycle/motorcycle users respectively as against pedestrians in the Greater Accra region and bus occupants in the Central region. Road safety improvement efforts should therefore be reflective of such regional differences in accident characteristics so as to bring about the desired reductions in accidents as well as to ensure cost-effective implementation of countermeasures.

TABLE 2: ROAD ACCIDENTS AND FATALITIES BY REGION – 1991

REGION	INJURY ACCIDENT	COMPARED WITH 1989	PERSONS KILLED	COMPARED WITH 1989
		% Change		% Change
1. Ashanti	713	+6.4	183	+45.2
2. Brong-Ahafo	367	-15.2	96	-10.2
3. Central	390	+11.4	98	+38.0
4. Eastern	856	+9.5	183	+ 0.0
5. Greater Accra	1591	+19.3	187	+6.8
6. Northern	113	-5.0	41	-12.8
7. Upper East	110	-6.0	23	-42.5
8. Upper West	44	-42.1	13	-48.0
9. Volta	275	-20.4	92	+61.4
10. Western	490	-14.5	65	-44.4
All Regions	**4949**	**+3.6**	**981**	**+3.6**

TABLE 3: THE THREE (3) MOST DOMINANT ROAD-USER GROUPS AT RISK IN THE VARIOUS REGIONS OF GHANA – 1991

REGION	ROAD USER GROUP AT RISK		
	1st Order	2nd Order	3rd Order
1. Ashanti	Pedestrian (32.2%)	Bus Occupants (27.5%)	Car Occupants (18.8%)
2. Brong Ahafo	Car (22.0%)	Bus (19.6%)	HGV (17.2%)
3. Central	Bus (33.4%)	Pedestrian (20.8%)	Car (19.2%)
4. Eastern	Bus (25.4%)	Car (21.9%)	Pedestrian (20.9%)
5. Greater Accra	Pedestrian (38.5%)	Car (25.5%)	Bus (16.3%)
6. Northern	HGV (48.0%)	Car (14.0%)	Bicycle/Motorcycle (9.7%)
7. Upper East	Bicycle/Motorcycle (26.7%)	Pick-up (21.2%)	HGV (12.9%)
8. Upper West	Bicycle/Motorcycle (24.6%)	HGV (20.0%)	Pick-up (20.0%)
9. Volta	Bus (31.0%)	Pedestrian (18.0%)	Pick-up (17.5%)
10. Western	Pedestrian (26.0%)	Car (24.5%)	Bus (20.1%)
WHOLE COUNTRY	**Pedestrian (25.7%)**	**Bus (22.7%)**	**Car (20.8%)**

HGV = **Heavy Goods Vehicle**

3.3 Road Casualties in Ghana

3.3.1 Road Casualties by Class of Road User

Compared with other road user categories, pedestrians alone accounted for about 48% of all fatalities and about 26% of all road accident casualties in Ghana. Based on the percentage share of fatalities for the different road user groups in Ghana, the pedestrian deaths in motor traffic accidents are about 4.9 times that of the car occupants and 3.6 times that of the bus occupants. This reveals that the pedestrian is generally at risk in traffic in Ghana. The proportions of bicycle and motorcycle casualties are low compared with most European countries (Lamm, R. and Choueiri, E. M., 1991).

TABLE 4: DISTRIBUTION OF ROAD ACCIDENT VICTIMS BY CLASS OF ROAD USER AND FATALITY INDEX

ROAD USER CLASS	PERSONS KILLED		PERSONS INJURED		TOTAL		FATALITY INDEX
	No.	%	No.	%	No.	%	%
Pedestrian	458	47.7	2137	23.6	2595	25.9	17.6
Bus occupant	127	13.2	2143	23.6	2270	22.6	5.6
Car occupant	93	9.7	2005	22.1	2093	20.9	4.4
HGV	106	11.0	799	8.8	905	9.0	11.7
Mummy truck	70	7.3	700	7.7	770	7.7	9.1
Pick-Up	40	4.2	709	7.8	749	7.5	5.3
Bicycle	33	3.4	272	3.0	305	3.0	10.8
Motorcycle	16	1.7	236	2.6	252	2.5	6.3
Tractor	16	1.7	53	0.6	69	0.7	23.2
Others	1	0.1	15	0.2	16	0.2	6.3
Total	**960**	**100.0**	**9069**	**100.0**	**10029**	**100.0**	9.6

HGV = Heavy Goods Vehicle

Fatality index, which is a ratio of fatalities to the total number of casualties resulting from accidents, has also been adopted as a measure of risk for the various road user categories. Based on the fatality index it can be seen from Table 4 that the **pedestrian** is at risk as well as users of **tractor, Heavy Goods Vehicle** and **bicycle** as modes of transport. Indeed, the pedestrian and pedal cyclists are highly vulnerable in traffic in Ghana.

3.3.2 The Age Distribution of Casualties

The age groups used in the report (see Table 5), are indicative of the different stages in life: pre-school, 0-5; primary school, 6 - 10; secondary school, 11-15; university students and youth, 16 - 25; bulk of the workforce, 26-60; and senior citizens, over 60 years. Children below the age of 16 years constituted 14% of all road casualties and 29% of all those killed in road accidents in Ghana. Other recent studies (Afukaar, F.K., 1996; Mock, *et al.*, 1996) indicated that most of the children involved in road accidents were pedestrians knocked down by vehicles while crossing the road.

TABLE 5: ACCIDENT SEVERITY BY AGE

AGE	PERSONS KILLED		PERSON INJURED		ALL CASUALTIES	
	No	%	No.	%	No.	%
0-5	68	9.6	180	2.5	248	3.1
6-10	93	13.2	413	5.7	506	6.3
11-15	47	6.6	333	4.6	380	4.8
16-25	113	16.0	1756	24.1	1869	23.5
26-60	345	48.8	4387	60.2	4732	59.3
Over 60	41	5.8	209	2.9	250	3.0
Total	**707**	**100.0**	**7278**	**100.0**	**7985**	**100.0**

It can be seen that over 18% of all child casualties were fatal whilst the equivalent value for adults over 25 years was about 8%. Children in traffic are therefore generally at greater risk of being killed in an accident than adults. About sixty per cent of all casualties belonged to the working class. These data prove the seriousness of the economic loss to the community, and the urgency of remedial measures to be taken to curb the frequent occurrence of accidents.

3.3.3 Casualty distribution by number of vehicles involved in crashes

Table 6 shows that about 55% of all injury accidents occurred as single vehicle crashes, resulting in about 69% of all casualties and 75% of all fatalities. This was followed by accidents involving 2-vehicles only (43.2%, N=3475), resulting in about 29% casualties and 22% fatalities.

It can also be seen that 10.6% of all single vehicle casualties are fatal, the corresponding value for 2-vehicle crashes is 7.3%.

TABLE 6: CASUALTY DISTRIBUTION BY NUMBER OF VEHICLES INVOLVED IN CRASHES

NO. OF VEHICLE	ACCIDENTS	VEHICLES INVOLVED	CASUALTIES			TOTAL	%
			Killed	Serious	Slight		
1	4326	4326	742	2546	3719	7007	68.6
2	3475	6950	213	1016	1687	2916	28.6
3	28	642	23	89	146	258	2.5
4 or More	28	116	4	7	21	32	0.3
TOTAL	**8042**	**12034**	**982**	**3658**	**5573**	**10213**	**100.0**

3.3.4 Casualties in Urban and Rural Areas

About ten per cent of all road accident casualties in Ghana were fatal and 36 per cent were serious (see Table 7). About 40 per cent of all road casualties occurred in the urban environment whilst the remaining 60 per cent occurred on roads in rural areas.

From Table 7, it can be inferred that about 70.2% of all fatalities occurred on roads in rural areas of Ghana, and just about 29.8% on urban roads. Furthermore, it can be seen that about 8 per cent of all casualties in urban areas were fatal whilst the equivalent value in rural areas was over 11 per cent.

TABLE 7: INJURY SEVERITY IN URBAN AND RURAL AREAS

LOCALITY	FATAL		SERIOUS		SLIGHT		TOTAL	
	No.	%	No.	%	No.	%	No.	%
Urban	289	29.8	1348	37.1	2394	43.2	4031	39.7
Rural	682	70.2	2285	62.9	3150	56.8	6117	60.3
TOTAL	**971**	**100**	**3633**	**100**	**5544**	**100**	**10148**	**100**

4.0 CONCLUSIONS AND DISCUSSION

The analysis has shown that the road accident situation in Ghana requires immediate attention. The number of road accidents continues to rise for the whole country and an average fatality rate of 88 fatalities per 10,000 vehicles is rather high compared with some countries in Africa and Western Europe. For example, the traffic fatality rate is about 2.4 times or 16 times higher than what pertains in Botswana in Africa or Great Britain in Europe respectively.

There are pronounced regional differences in accident characteristics in Ghana. Policy makers and road safety administrators must therefore be aware of the nature and characteristics of the accidents for each region in order to adopt the most appropriate remedial measures to bring about the desired reductions in accidents at national level as well as to ensure cost-effective implementation of countermeasures. Indeed targeted and

coordinated approach to the designing of accident reduction interventions and accident prevention strategies holds the key to road safety improvement in Ghana.

Pedestrian deaths represent the single largest category of motor traffic related deaths in Ghana. Pedestrian fatalities accounted for about 48% of all road traffic accident fatalities in Ghana. The percentage share of fatalities for pedestrians (48%) is 4.9 times that of the car occupants and 3.6 times that of the bus occupants. The pedestrian as a road user is highly vulnerable and generally at risk. The pedestrian must therefore be a key target group for the prevention of accidents in Ghana. Proven low cost preventive measures such as separation of pedestrian pathways from vehicle routes, greater use of pedestrian Zebra crossing and traffic signals, and improved urban roadway lighting must be applied (Ross, Baguley, Hills, *et al*, 1991; Forjuoh and Li, 1996).

About 70% of all road accident fatalities occurred on roads in rural areas, compared to about 30% of fatalities in urban areas. Generally, 10% of all road accident casualties in Ghana are fatal, which is high compared with countries in Western Europe. There is however evidence that fatalities could be reduced in developing countries by improving medical facilities. In particular, an improved ambulance service would do much to ensure that lives are saved (Jacobs and Wendy, 1978). An improved communication network will also help to ensure that lives are saved.

Single vehicle crashes, including those of pedestrians, represented on an average about 75% of all fatalities. Due to the type of accident involving single vehicles, the proportion of those killed is about 3.5 times higher than those involving 2-vehicle crashes.

Children below the age of 16 years constituted 29% of all those killed in road accidents in Ghana. Over 18% of all child casualties were fatal whilst the equivalent value, for adults over 25 years, was about 8%. Children in traffic, particularly child-pedestrians, are generally at greater risk of being killed in an accident than adults. The safety of child pedestrians should be paramount in the prevention of accidents. Road safety education and road safety clubs should be promoted in schools to improve children's understanding on safe road crossing practices, pedestrian conspicuity at night, judgement of vehicle approaching speeds, etc. Urban planning must be used as a tool for road safety in urban areas and road safety research should be accorded high priority in developing countries to address road safety needs.

Integrated and systematic approach to the implementation of road safety measures is a sine qua non in road safety improvement in Ghana.

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