

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

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**THE EFFECTS OF ROAD TRAFFIC ACCIDENTS ON ECONOMIC
ACTIVITIES IN GHANA: A CASE STUDY OF THE TECHIMAN TOWNSHIP**

**A THESIS SUBMITTED TO THE INSTITUTE OF DISTANCE LEARNING,
KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
COMMONWEALTH EXECUTIVE MASTERS IN BUSINESS
ADMINISTRATION**

BY

ARTHUR GEORGE ESIBEY (BA. POLITICAL SCIENCE)

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CERTIFICATION

I hereby declare that this submission is my own work towards the CEMBA degree and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

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Students Name and ID	Signature	Date
Certified by		
.....		
Supervisor's Name	Signature	Date
.....		
Head of Department's Name	Signature	Date

DEDICATION

I dedicate this work to the Lord Almighty God and our savior Jesus Christ whose divine guidance has made it possible for me to successfully complete this programme and also to my lovely daughter and wife: Hulda and Mary.

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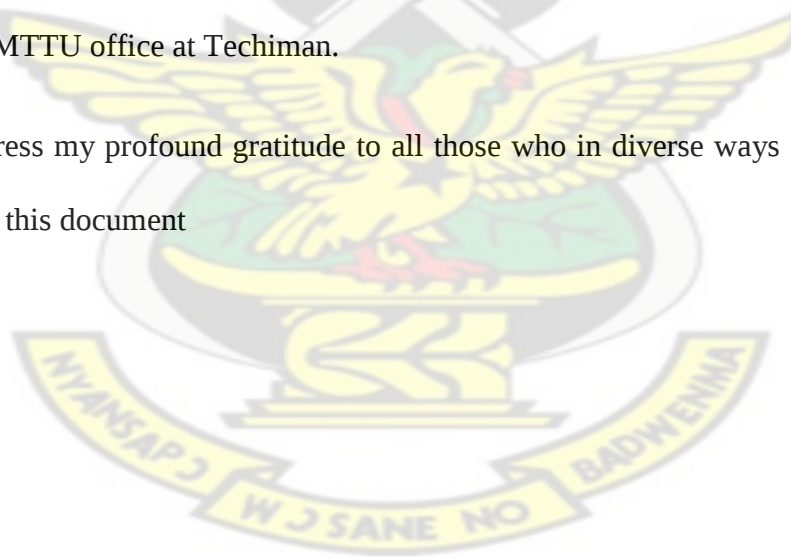
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ABSTRACT

The study “The Effects of Road Traffic Accident on Economic Activities in Ghana: A case study of the Techiman Township” was chosen in view of the increase in the recent spate of road traffic accidents in Techiman and Ghana as a whole. Techiman in the Brong Ahafo Region has been one of the fastest growing towns in the region and also in Ghana in terms of population and economy. The high population has been the result of its link to most parts of the country especially the three Northern Regions and Ashanti. It has also been the result of the commercial activities which is given prominence by the market considered to be the biggest in Ghana and also one of the well patronized markets in West Africa. The town is considered to be the commercial hub of the Brong Ahafo Region and has municipality status. The objectives of the study were to look at the effects of traffic accident on commercial activities, the causes of accidents in the town, how the various road users coexist and the training of prospective drivers. It was found out in the study that road traffic accidents really affected commercial activities as these accidents brought most businesses to a halt. The causes of traffic accidents were also outlined and revealed; and over speeding, fatigue, indiscipline of road users and relaxed law enforcement has been the leading ones. The following recommendations were made from the findings: There should be intensive education on the importance of insurance, traders should form groups in order to qualify for bank loans, the operation of mini-buses should be restricted and the DVLA should take over the training of drivers.

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ABBREVIATIONS



PSV	–	Public Service Vehicles
NRSC	–	National Road Safety Commission
DVLA	–	Driver and Vehicle License Authority
GPRTU	–	Ghana Private Road and Transport Union
GRSC	–	Ghana Road Safety Commission
MTTU	–	Moto Traffic and Transport Unit
NMT	–	Non Motorized Transport
DMV	–	Division of Motor Vehicle
NTSB	–	National Transport Safety Board
ERP	–	Economic Recovery Programme
ECOWAS	–	Economic Community of West African States
GIA	–	Ghana International Airlines
WHO	–	World Health Organization
NGO	–	Non Governmental Organization
GTR	–	Gross Register Tons
MRT	–	Metric Register Tons

- IR – Inter Regional
- SSATP – South Saharan African Transport Plan
- DSP – Deputy Superintendent of Police

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CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The aim of most African governments is to improve their economies and become examples of efficient, economic and social management implementers on the continent. Since transportation is an important component of the much desired economic development contributor, African governments have resorted to improving road networks in their countries. Politicians, planners and policy makers have major task of formulating and implementing the best transport plan that would expand their regions, urban and rural areas. Good transport system at lower cost has the capacity to reduce travel time which is a very good factor in improving the quality of business in a given area. Efficient transport improves the accessibility of an area. Accessibility plays an important role by offering more customers through an expanded market area, by making distribution more efficient (in terms of cost and time), or making it easy for more people to reach workplaces Jean-Paul (2007). This has the ultimate potential of improving the productivity of the country or city and thus the overall economy.

In Ghana just like any other Sub-Saharan African country where other means of transport are not well developed, there is over dependence on road transport. There are also inefficiencies in the management of the other means of transport thus making it difficult to achieve the intended desire for economic development. A study conducted in four cities, Dakar, Douala, Kampala and Nairobi in Africa showed that there have been regulations requiring regular inspections of Public Service Vehicles (PSV) yet it is clear

that inspection is at best casual, and many vehicles are visibly in poor condition Kumar (2005). Consequently, transport services cannot be very reliable, hence posing a lot of problems including road traffic accidents.

Techiman as the commercial capital of the Brong Ahafo Region in Ghana has high density of vehicles leading to a common feature of traffic congestion in most parts of the town. This could be attributed to the overdependence on the road transport system as the sole means of transport in the town due to the non-existence of the other means such as rail and air transport. Techiman roads have been under considerable pressure due to the number of vehicles and the level of activities. This goes to emphasize the assertion by Jean-Paul, and Slack, (2007) that road transportation is characterized by acute geographic disparities in traffic and it is not uncommon that 20% of the road network supports 60 to 80% of the traffic. This observation is expanded by the fact that developed and developing countries have important differences in terms of the density, capacity and the quality of road transport infrastructures.

The road infrastructure at Techiman has not been properly developed and planned. And looking at the rate of growth of population and the number of vehicles, in the town if proper planning measures are not put in place a time will come that the rate of accident and congestion in the town would be extremely difficult to control. This study, therefore, discusses how these accidents affect commercial activities in the town and how best to avoid them.

1.1 Statement of the Problem

Road infrastructure is counted among the most important in the development of urban centers in both developed and developing economies. However, the picture in the developed economies is quite different as the other means of transport notably rail and air is highly developed. In the developing countries especially Africa, there has been over concentration on road transportation. This is due to the fact that the other transport networks are not well developed. Jean-Paul and Slack (2007) provide some advantages of road transportation as low vehicle costs and also has the unique advantage of providing door to door services for both passengers and freight. In spite of these advantages, accidents on roads all over the world is on the increase, gluttonously devouring a lot of human souls and destroying property which is difficult to quantify in monetary terms.

According to the World Health Organization (2005), worldwide deaths from road traffic accidents have risen from approximately 999,000 in 1990 to 1.2 million in 2002. This is projected to increase to 2 million by the year 2020. The projected figure represents an average of 3,000 people being killed daily in road traffic accidents globally. It is important to note, however, that while all regions of the world are affected by road traffic accidents, developing countries bear a much greater burden than do their relatively more developed counterparts.

The Global Burden of Disease study undertaken by the WHO, Harvard University and the World Bank showed that in 1990, traffic crashes were assessed to be the world's ninth most important health problem. The study forecast that by the year 2020 road crash would move up to third place in the table of leading causes of death and disability facing the world community.

WHO(2004) estimates that global losses due to road traffic injuries are probably close to 518 billion U.S dollars and are likely to cost governments between 1 percent and 3percent of their GDP (Ansari, Akhdar, Mandoorah et al., 2000, Jacobs, Aeron-Thomas and Astrop, 2009). It is estimated that developing countries currently lose in the region of 100billion dollars every year. This is almost twice as much as the total development assistance received worldwide by the developing countries. These losses undoubtedly inhibit the economic and social development of developing countries.

The situation, however, is not different in Ghana. According to officials of the National Road Safety Commission (2009) between 1,500 and 2,000 persons die annually through road accidents. Also 165m U.S dollars of Ghanaian tax payers money is wasted annually because of these road accidents. This has serious social and economic implications that can slow down the pace of development in the country.

Socially, victims of road accidents undergo physical pain and disfigurement due to traumatic injuries; physical disabilities (temporary and permanent) which prevent normal activities, like walking and working. Innocent children are often direct victims of road mishaps and many become orphaned from these accidents. This imposes harsh social conditions made much worse in a country without social security benefits.

Economically, road accidents bring a lot of financial problems due to wrecked property, medical care, auto repair or replacement, and lost time from work, death of friends or family members, some are the breadwinners.

Scarce medical and technical resources are used up at the crash site and in hospital, limited foreign currency is used up importing dressings, drugs and vehicle parts. Road

casualties, whether dead or injured, represent a cost to society amounting to billions and an incalculable human cost.

This is a cause for concern that needs to be addressed. This study aims at helping to find the causes of road traffic accidents and its effects on economic activities.

1.2 Objectives of the Study

This section seeks to look at the research objectives of the study that informed the sort of research questions asked which is very fundamental in any study. Specifically, the study seeks to:

1. Determine the effects of road traffic accidents on economic activities.
2. Identify the major causes of the numerous traffic accidents in the town.
3. Find out how the various road users co-exist on the streets of the town.
4. Investigate how prospective drivers are trained and the processes involved in qualifying to drive in Ghana.

1.3 Research Questions

The research questions which were raised from the main objectives of the study included the following:

1. Do road accidents affect economic activities?
2. What are the major causes of the numerous traffic accidents in the town?
3. How do the various road users co-exist in the town?

4. How are prospective drivers trained and what do they go through before becoming qualified to drive in Ghana?

1.4 Overview of the Research Methodology

The information used in this research was through both primary and secondary sources. The primary data was gathered through questionnaires and interview with traders and heads of institutions like the Driver and Vehicle License Authority, Ghana Private Road and Transport Union, Ghana Road Safety Commission and Motto Traffic and Transport Unit of the Ghana Police Service in the town.

The secondary data were obtained from textbooks, articles, journals, magazines, newspapers, handouts, annual reports and internet.

1.5 Significance of the Study

To start with, the study will be of immense benefit to road users as the findings from the research will go a long way to educate all road users be it drivers/motorists, cyclists and pedestrians on what to do in order to minimize accidents. This is so in view of the fact that it would be explicitly stated in the findings what each road user should do in order to co-exist effectively without any problem.

Similarly, the study will be of immense benefit to students, researchers and institutions. For example, it will serve as a teaching material to some lecturers who want to research into the causes of road accidents and its impact. In addition, prospective researchers and students can use it as a secondary data and part of their literature review.

Finally, Government and policy makers will find this study useful as some of the findings in the study will inform their decisions as far as policy formulation and implementation is concerned.

1.6 Limitations of the Study

Every research work is saddled with some problems and this one is of no exception. Among the limitations of the study are the following. First, recall of events was a problem to some of the respondents. Coupled with this is the fact that, getting the consent from the respondents was a hell of problem as most of them have low level of education and did not understand why such information was being requested from them.

Again, shuttling between Sunyani and Techiman to administer the questionnaires became a big problem, as sometimes I had to leave whatever I was doing at the work place. It was also a bit risky as the Sunyani-Techiman road is noted for serious accidents.

Also, it came to a time that money to be used in going up and down became a problem as the bursary that I had wanted to depend on delayed in coming. In addition, getting certain vital information from the heads of the institutions that I interviewed became a problem as they were unwilling to do so.

1.7 Organization of the Study

In all the study covered five main chapters. Chapter one looks at the background of the study, statement of the problem, objectives of the study, research questions, overview of the research methodology, significance of the study, the delimitations of the study, the limitations and finally the organization of the study.

Chapter two touched on review of available literature. In chapter three, the study methodology is presented while chapter four focuses on presentation and discussion of results. Chapter five deals with summary of findings, conclusions and recommendation of the study.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

There is a major problem of extensive literature on the impact of road accidents on economic activities. However, the few that have been written by various authors have dilated extensively on transport infrastructure and law enforcement. Attempts were also made to look at the influence of the interactions between the road, driver and vehicle in road traffic crashes and the role of driver fatigue in commercial road transport crashes. More attention was also given to transportation in Ghana and road safety.

2.1 Transport Infrastructure

Transport infrastructure development has been generally seen as one of the most important aspects in the expansion of urban areas even though they have their own set back to growth. According to the Online Etymology Dictionary, the word infrastructure has been used in English since at least 1927, originally meaning “The installations that form the basis for any operation or system”. Transport infrastructure is the basic physical and organizational structures needed for the operation of vehicles such as buses, cars and trains Grubber (1990). There are different types of transport infrastructure which include road and highway networks such as (bridges, tunnels, culverts, retaining walls), airports including air navigational systems and railways including terminal facilities such as (rail yards, train stations) among others.

Investment in the transport infrastructure has positive effects on the cost of movement of goods and people in an urban area, region or a country thus improving the prices of goods and services. Reduction in generalized transport cost leads to an increase in productivity in firms which manifest itself in change in value added and in turn lead to growth in gross domestic product in the region or country concerned Rietveld and Bruinsma (1999). Rietveld and Bruinsma again identify another benefit of investing in urban road infrastructure as the reduction in the travel time of household members. This reduction gives people better opportunity to in joy more leisure time for increasing their range of consumption activities for traveling to destinations further away or for working longer Rietveld and Bruinsma (1999).

Traditionally, the focus of urban transportation has been on passengers as cities were seen as locations of utmost human interactions with intricate traffic patterns linked to commuting, commercial transactions and leisure/cultural activities. Yet, cities are also locations of production, consumption and distribution, activities linked to movements of freight Rodrigue (2007).

On European cities, the European Commission discusses the problems caused by transport and traffic. The question of how to improve mobility while at the same time reducing congestion, accidents and pollution is a common challenge to all major cities in Europe which is addressed based on the circumstance of a city. This goes to emphasis the fact that congestion and accidents are not only common to cities in developing countries but also in advanced countries. The only difference could be seen in the level of planning in the various cities.

An important feature of transport infrastructure could be observed in the service provision which is unequally distributed in space. Accessibility concept could represent these differences in service level (Rietveld and Bruinsma, 1999). Thus while some areas in a city could be easily assessable, others may have accessibility problems. All suburbs may not enjoy equal transport services provided in a given city hence the need for better transport planning to enhance equal accessibility for all parts of the city. Research has shown that new roads have induced new traffic in the same way as removing road space can cause road traffic to disappear. Traffic does not behave like “liquid” which maintain a constant “volume” but rather like “gas” that expands and contracts to fill the space provided for it Kenworthy (2006).

Transport infrastructure has been seen as an effective means of reducing poverty in a given region or country. According to Liu (2005) policy oriented economists including Hirschman and Meyer have cautioned that it would be risky and wasteful to invest in transport infrastructure ahead of economic growth. Nevertheless, the role of transport is very obvious when it is not present. The World Bank (2007) observes that both inadequate and congested urban transport system is as damaging to city economies and harms both rich and poor. Therefore, a poverty-focus transport policy requires among others to replace uncontested monopoly in the provision of public transport with regulated competition which is likely to decrease costs and increase supply to poor people. It is also required to regulate the informal transport sector which needs to be framed with their impacts on poor people carefully taken into account, lest the poor be the losers in the anti-congestion drives. These would alleviate the transport burden on the poor.

According to the World Bank (2007) both operating costs and quality of service of street-based public transport modes strongly depend on the characteristics of the traffic flow. This requires that a continuing attention must be paid to traffic management in order to improve the performance and maximize the existing urban road infrastructure; selectively give public transport vehicles the priority of use, ranging from the right of quick passage at intersections to exclusive-use of lanes for high-volume service corridors and judiciously add to the road network, with designs by anticipating the priority for passenger transport modes.

In cities of developing countries there is always stiff competition between buses and Para transit service and mostly the latter tend to over shadow the former. In their discussion on buses and Para transit service, Halcrow et al (2000) mentioned that there is available evidence that Para transit competes effectively with buses. It costs per passenger-kilometer, hence fare in a competitive market, are no higher than for buses, and it is preferred by passengers, being easier to access (stopping anywhere), more frequent, easier to get on and off, and being faster (it weaves through the traffic better than buses).

Hence it is not surprising that Para transit which is an alternative mode of flexible passenger transportation that does not follow fixed routes or schedules progressively takes over from bus services, and in many cities this has happened and Para transit is the main workhorse, with buses marginalized.

The issue of non-motorized transport if well planned could help transportation in African cities. However, such facilities are not adequately provided thus exposing pedestrians to numerous accidents. In most cases they compete with vehicles for space on the streets.

In a survey conducted by Pendakur (2005) in some East African cities, Dar es Salaam and Nairobi were considered as large cities with population of just fewer than 2 million. It was observed that these are cities with long trips, high travel times, high cost of transport, and the absence of proper infrastructure facilities for walking and cycling, and persistence of poverty of the vast majority of the population. Nearly half the trips (47 percent) are by walk and a little more than 40 percent by public transport, the majority of which were by minibus Pendakur (2005). Guitink et al (1994), almost all rural transport in Sub-Saharan Africa is non-motorized and head and back-carrying by women and children dominate. In spite of the fact that Non-Motorized Transport (NMT) users are the majority in many places, they are often neglected in the design and modernization of transportation infrastructure. For instance, new construction and upgrading often does not provide physical infrastructure (e.g., overpasses or shoulders) for existing NMT users, sometimes resulting in higher NMT-automobile accident rates, longer travel times, for NMT users, or even a complete elimination of NMT traffic.

Cities in Sub-Saharan Africa have certain common features due to the poverty level and the means by which transport is provided. Pendakur provides some of these features in South Saharan African Transport Plan (SSATP) Working Paper No. 80 as:

- a. The majority of urban trips are still by walk.
- b. The small-scale private sector is the majority supplier of urban transport services and is under-capitalized and fragmented.
- c. The regulatory system governing public transport is inadequate and ineffective in meeting the demand.

- d. The roads are in poor condition with high traffic accident rates.
- e. The skill levels of planning and regulatory personnel are inadequate or nonexistent.
- f. Low/poor enforcement of traffic laws due to corruption and inadequate human and financial resources.

It concludes that generally, traffic conditions are chaotic with street vendor's occupying an average of 25 percent to 35 percent of road space, worsening an already bad situation.

2.2 Law Enforcement

Law enforcement poses problems in major cities across the world. However, African cities have greater problem especially for traffic related offences due to inadequate personnel and the level of training. Thus there is the problem of law enforcement especially in the area of traffic offences and organized crime. Zaal (1994) reviewing literature on traffic law enforcement, gives different means of ensuring traffic safety. He made a distinction between Selective and Integrated traffic law enforcement saying studies suggested the need for some type of random allocation of resources with weightings given to high volume, high accident roads.

Explaining further Zaal states that selective enforcement techniques requires the examination of traffic and accident data to identify and prioritize accident locations including the time of day of high risk taking behavior. Integrated enforcement ensures that a range of illegal road user behaviors targeted all at the same time can maximize the use of available policing resources and ensures that all traffic laws are equally enforced. Both methods are used in Ghanaian cities but the former is more visible with personnel of

the Motto Traffic and Transport Unit of the Ghana Police (MTTU) being deployed at various intersections and traffic congestion zones to enforce the law.

In spite of the urgent need for traffic law enforcement in cities, most police personnel do not want to take part in traffic policing due to its hazardous and life threatening nature. According to the Global Road Safety Partnership (2004) traffic policing is often not appreciated by the police themselves since traffic patrolling involves routine exposure to both air pollution and the outdoor elements, and can be both dull and hazardous work. An example is given of Bangladesh in 2002, where road crashes accounted for two-third of the police killed in the line of duty.

Various African countries take different steps to combat crime in major cities. South Africa has what is referred to as Metro Policing. Durban is the first city in South Africa to have established a metro police service under the new legislation. It has been referred to as an amalgamation of the old City Police with traffic department and some by-law enforcement components of the other local council in the Durban metropolitan area, Rauch (2004). Hence due to the problems caused by traffic offenders, that department was placed directly under the city police. In Ghana, law enforcement is controlled by the Ghana Police Force with special responsibility for traffic policing given to the MTTU.

In his book review, Holder (2004) suggest steps to control traffic offences as limiting driving to speeds that are appropriate and safe for the present road environment. Also, he suggests the facilitation of the detection an enforcement of speed limits and alcohol levels of drivers in low income countries with the use of radar guns and breathalyzers. He, however, questions the integrity of the law enforcement agency saying frequent roadway

patrols and vigorous enforcement of these and other laws that govern dangerous driving and vehicle condition are constrained by limited resources and corruption. Corruption has gained root in law enforcement in low income countries where officers cover up traffic offenders. Asingo and Mitullah (2005) write that the enforcement of traffic laws in Kenya is impaired by traffic police that is blotted with corruption. According to them 2002 and 2003 reports by Transparency International-Kenya, ranked the police as the most corrupt government agency. Many are of the view that poor remuneration has been the major cause of corruption among law enforcement officers. Dogbe (2008) in a report in the Daily Graphic in Ghana was of the view that, it is the near 'hopelessness' of the police man (in terms of salary, accommodation, general service conditions) that has led to the actions of a few personnel and the general conclusion that police personnel just love to take bribes. He recommends a massive police reform that will inure to the benefit of the personnel themselves and the citizenry and also the need for better, reliable, effective and efficient communication system for the police service to improve their performance.

2.3 Influence of the Interactions between the Road, Driver and Vehicle in Road Traffic Crashes

The interaction between the road, the driver and the vehicle greatly influence the incidence of road traffic crashes. The driver's ability, driving experience and conditions under which he/she drives may not account for all cases of crashes attributable to the driver. The driver interacts with road design elements, vehicle components and technological gadgets in the vehicle, some of which pose challenges to the driver and makes driving unsafe. These can also contribute to road traffic accidents. On the other

hand the vehicle also may interact with the road, and in one way or the other, make driving unsafe.

In the United States for example, about one-third of all fatal traffic accidents involving motor vehicles, happen at intersections (DMV, 2006). The most probable factors that must have been associated with the crashes are due to the drivers' interaction with the road condition. An innovative design element to improve intersection safety is the use of modern roundabouts to provide a safer environment for drivers (Lord et al., 2006).

Junctions or points of intersection within cities have been seen as accident areas due mainly to congestion and recklessness of drivers. An investigation conducted by Polus (1985) on the changes in the accident rate with the replacement of "YIELD" signs with "STOP" at selected unsignalized urban intersection observed that the increase in the level of control at such junctions through replacing "YIELD" with "STOP" signs tended to increase vehicle accidents but reduced pedestrian accidents. He thus came to a conclusion that when the level of control at unsignalized junctions is increased it would not necessarily reduced accidents, although it might reduce the severity of injuries. King and Goldblatt (1986) studied the change accident pattern accompanying signalization of priority junctions. Using analysis of variance and regression technique, they came out that while there was a definite shift in the distribution of accident types, there was no clear cut evidence that the installation of signals has reduced accident overall. They observed on the contrary that in some cases, signalized intersections actually had higher accident rates. Frotj and Dery (1987) however, urged caution in assuming that signalizing an intersection will automatically lead to increase in its underlying accident problem.

Persaud (1988) studied the level of junction control through conversion from two-way to multi-way stop control. He came out that the measure appeared more effective when implemented on intersecting roads, where the traffic volumes were nearly equal and the total of these volumes between 6000 and 12000 per day.

According to Oxley (2006), ten main factors were ascribed as primary causes across the crash sites in crashes attributable to the driver. They are:

1. Inappropriate free space selections in traffic
2. High multi-task complexity
3. High approach speeds of conflicting traffic
4. Limited and restricted sight distance
5. Inappropriate response to traffic signs and signals
6. Inadequate intersection definition
7. Inadequate pavement markings
8. Poor canalization of water ways interfering with roads
9. High traffic volumes, and
10. Road with restrictions.

The most significant finding of this study for crash involving drivers was the selection of safe and free space in conflicting traffic when crossing at intersections. It was noted that the problem of gap selection as a factor was the case in over three quarters (76%) of the

crashes. This problem manifests itself especially at intersections controlled by ‘stop or ‘give-way’ signs, or at signalized intersections that provide either no control or partial-control of left-turn (in a Right-Hand Traffic system). Restricted sight distance also was a major issue. It was also observed that crashes occurred often when traffic volumes and speeds were high; where there were nearby upstream signals, where seeing signals was difficult and when drivers had to negotiate wide multi-lane carriageways. The following recommendations were made from the study of (Oxley et al., 2006):

1. The replacing of intersections controlled by ‘stop or ‘give-way’ signs with roundabouts could greatly enhance safety for drivers of all ages. Negotiating in a roundabout is fundamentally simpler and safer task than choosing a coincident gap in two streams of traffic.
2. Introduction of fully controlled turning signals to assist drivers to make safe left-turns at intersections controlled partially by traffic signals.
3. Designing of roads to suit all categories of drivers which indirectly mean a safer environment for the vulnerable group of road users as well.

With respect to the role of the driver to road traffic crashes, it was also found that operating of radios, mobile phones and other modern navigation technologies like computers may distrust the driver and can impact negatively on the prevention and reduction of road traffic crashes.

Concerning the interaction between the Road and Vehicle, poorly designed roads and poorly maintained roads can cause deterioration in the vehicle and compromise their safety. That is, interaction of poor roads with vehicles can cause damage to some

components. On the other hand, vehicles interacting with roads can also cause deterioration to the road conditions with time. Thus the interaction of the road with the vehicle can cause damage to the road condition which in turn can cause damage to the vehicle and thus render the vehicle unsafe to its occupants and may consequently cause road traffic accidents.

2.4 The Role of Driver Fatigue in Commercial Road Transport Crashes

Driver fatigue has been identified as one of the major causes of road accidents in the world. The role of driver fatigue in driving safety is a complex one. The most comprehensive research undertaken into the effects of driver fatigue has been carried out in the USA. A series of studies by the National Transportation Safety Board (NTSB) have pointed to the significance of sleepiness as a factor in accidents involving heavy vehicles. The NTSB came to the conclusion that 52% of 107 single-vehicle accidents involving heavy trucks were fatigue related; in nearly 18% of the cases, the driver admitted to falling asleep. Summarizing the US Department of Transportation's investigations into fatigue in the 1990's, the extent of fatigue –related fatal accidents is estimated to be around 30%.

In Europe, the evidence is less comprehensive, and often involves retrospective accounts of fatigue involvement which are likely to underestimate its impact. Research undertaken in some Member States indicates that driver fatigue is a significant factor in approximately 20% of commercial transport crashes. The results from various surveys carried out at different times, show over 50% of long-haul drivers has at some time fallen asleep at the wheel.

Fatigue, or tiredness, concerns the inability or disinclination to continue an activity, generally because the activity has been going on "for too" long. There are different kinds, such as local physical fatigue (e.g. in a skeletal ocular muscle), general physical fatigue (following heavy manual labor) or "central nervous" fatigue (sleepiness). The last of these is mental fatigue-not "having the energy "to do anything. Sleepiness is particularly important form of fatigue related to the level of brain stimulation and the structures that regulate it (Akerstedt and Kecklund, 2000).

In behavioral terms, there are four levels of sleep:

- a. Complete awake;
- b. Moderate sleepiness when the central nervous system maintains an adequate pattern but functions more slowly than normal (Angus & Heslegrave, 1985);
- c. Severe sleepiness, where the individual is repeatedly overcome by fatigue and interruptions occur interactively with the surroundings and performance becomes irregular and fitful. This characterizes such disorders as narcolepsy (Valley and Broughton, 1983), as well as totally healthy, but exhausted, individuals (Torsvall & Akerstedt, 1987); and
- d. Sleep, where there is no longer any interaction with the surrounding environment.

The level of fatigue or sleepiness is a function of the amount of activity (for example, the number of hours awake) in relation to the brain's physiological waking capacity. Several factors can influence this physiological waking capacity and hence lower the fatigue threshold. For example, disturbed sleep, the low point in circadian rhythm (time of day),

and alcohol and drugs. These factors are independent of the activity being undertaken, but result in the fatigue effect of that activity appearing more quickly. Thus fatigue cannot be seen simply as a function of the duration of time engaged in work (or any other activity). Furthermore, where there is a lack of sufficient restorative sleep, the fatigue threshold may be affected over a period of days and weeks.

The most conspicuous observation concerning the causes of all fatigue-related accidents is the extremely pronounced effects of the circadian rhythm (Langois et al, 1985; Lavie et al, 1987; Horne and Reyner, 1995; Park et al, 1985; Hantula, 2000).

The mechanism behind fatigue-related road accidents is closely linked to the underlying biological factors controlling sleep/wakefulness. The biological clock drives human physiology in a constant underlying flow between high metabolic rates during the day and low ones at night. Changing the timing of activities to the night hour's means being subject to the reduced functional capability due to a lowered metabolic rate, and, during the subsequent (daytime) sleep, being exposed to the high metabolic rates that disturb sleep. Furthermore, how long a person is awake is equally important, which means that late at night and early in the morning will be a double burden on people who drive at night. The duration and quality of sleep have a direct effect on the level of alertness and the ability to drive a vehicle safely. Setting off in the vehicle in the early hours of the morning means, for instance, that a person is combining driving at the low point in the circadian rhythm with a greatly shortened period of sleep

Fragmented sleep, characteristic of a sleep disorder called sleep apnoea, can in serious cases have no recuperative value whatsoever with an accompanying high risk of falling

asleep at the wheel. Any cumulative sleep debt, which has built up over several days will also adversely affect performance. Such a sleep debt needs to be dissipated over successive nights of good sleep that include the time window of the circadian low point. Some evidence suggests that following severe sleep restriction, recovery of performance may not be complete even after three nights of recovery sleep (Balkin et al, 2000).

The NTSB's in-depth study of single vehicle accidents involving large trucks (NTSB,1995), concluded that the most important factors behind the duration of the driver's last period of sleep, the total number of hours of sleep during the past 24-hour period, and fragmented sleeping patterns(several short periods of sleep). The period of sleep starts to be negatively affected if this daily rest falls below 12 to 14 hours (Kurumatani et al, 1994; Kecklund and Akerstedt, 1995; Wylie et al, 1996; Mitler et al, 1997; Hantula, 2000).Drivers with more than ten years driving experience or over thirty years of age have a consistently lower accident risk than their younger or less experienced colleagues (Lin et al, 1994; Hamelin, 1987). However, while older drivers have a lower overall accident risk they appear to be more susceptible to fatigue (Haris et al, 1972; Hamelin, 1987).

A variety of technologies offer some promise to assist in the detection of fatigue or excessive working hours. These technologies can play a variety of roles: they can assist the enforcement agencies in detecting infringements, they can warn drivers of the onset of fatigue, or they can assist companies in managing the work of drivers in a more cost effective manner. Tachographs are increasingly complemented by other technological systems for recording the location and movement of vehicles. The commercial role of such technologies is to increase the efficiency of the utilization of vehicles and their

drivers. They have the potential to offer some protection to the driver insofar as these systems can be used to help manage working time in conformance with the physiological requirements for rest and recovery. However, where this protection is not forthcoming, the role of the technology is only to reduce what little flexibility the driver has to manage his or her working rhythm so as to ameliorate the effects of fatigue.

Computer-based scheduling and roster-management tools are being developed which incorporate fatigue-management principles. European research in this area is directed towards the aviation industry. The use of such tools requires a management willing and able to use them effectively.

Various fatigue-warning devices have been proposed. However, unless there is a rigorous framework of enforcement of hour's limitations, the use of driver warning devices is likely to encourage drivers to keep going to the limit prescribed by the device and then some more, as the driver attempts to 'take extra care' in driving following the warning. For some time efforts have been made to develop a reliable and valid device for measuring driver fatigue and it has been suggested that performance impairment due to driving fatigue is analogous to impairments due to alcohol. (Williamson et al, 2000). The validity and practical utility of these devices needs to be fully demonstrated if they are to become part of a more effective enforcement strategy. Thus, while it is clear that a number of technological advances could help in the detection and management of fatigue or excessive hours of work, none of these is a substitute for a rigorous regime of enforcement of an appropriate framework of hour's regulations.

In most EU-countries the qualification required to operate as a "professional road driver" is merely obtaining the driving licenses required for driving such vehicles, through a driving school. This can include a 'theory test' of knowledge of the regulations. Up until now only France and the Netherlands have made basic vocational training for professional drivers compulsory. In Germany, there is a further official vocational training for professional drivers set out in Regulation 26.10.73.

The present duration of training is two years at the end of which there is a final examination where the skills (e.g. ability to complete the entrusted transport mission safely), know-how (e.g. basic vehicle maintenance/repairs) and knowledge (e.g. 21 international road transport legislation in the neighboring countries) of course attendees are tested. Both trade unions and employers' organizations have agreed to a 3-year-training model which has since been introduced in Germany in 2001. While the topic of fatigue and its effects is not explicitly mentioned, working time aspects, driving and rest times regulations as well as the proper use of tachographs are already part of the current syllabus, and the new proposed syllabus includes roistering and trip planning. Drivers can further qualify in a range of related courses and can complete further education courses leading to upward mobility in 'Goods or passenger transport master craftsman' or 'Logistician', for example (Garo, 2001).

The European Commission has recently adopted a proposal for a Directive setting obligatory basic and continuous training for professional drivers transporting goods or passengers by road (CEC, 2001). The management of fatigue and working time should be an essential part of the syllabus for this training.

2.5 Transportation in Ghana

Transport in Ghana is accomplished by road, rail, air and water. Ghana's transportation and communications networks are centered in the southern regions, especially the areas in which gold, cocoa, and timber are produced. The northern and central areas are connected through a major road system; some areas, however, remain relatively isolated. country's transportation The deterioration of the and communications networks has been blamed for impeding the distribution of economic inputs and food as well as the transport of crucial exports. Consequently, the first priority of the Economic Recovery Program (ERP) was to repair physical infrastructure. Under the program's first phase (1983–86), the government allocated US\$1.5 billion, or 36 percent of total investment, for that purpose and an additional US\$222 million in 1987 for road and rail rehabilitation. In 1991 the Ghanaian government allocated 27 percent of its budget for various road schemes. Foreign donor support helped to increase the number of new vehicle registrations from 8,000 in 1984 to almost 20,000 in 1989. The distribution of vehicles was skewed, however, because, by 1988, more than half of all vehicles were in Accra, which contained approximately 7 percent of the country's population. Furthermore, most new vehicles are intended for private use rather than for hauling goods and people, a reflection of income disparities. Transportation is especially difficult in eastern regions, near the coast, and in the vast, underdeveloped northern regions, where vehicles are scarce. At any one time, moreover, a large percentage of intercity buses and Accra city buses are out of service.

Road transport is by far the dominant carrier of freight and passengers in Ghana's land transport system. It carries over 95% of all passenger and freight traffic and reaches most

communities, including the rural poor and is classified under three categories of trunk roads, urban roads and feeder roads. The Ghana Highway Authority, established in 1974 is tasked with developing and maintaining the country's trunk road network totaling 13,367 km, which makes up 33% of Ghana's total road network of 40,186 km.

Trunk roads in Ghana are classified as National roads, Regional roads, and Inter-regional roads, all of which form the Ghana road network. National roads, designated with the letter N, link all the major population centers in Ghana. Regional roads, designated with the letter R, are a mix of primary and secondary routes, which serve as feeder roads to National roads; while Inter-Regional roads, designated with the prefix IR, connect major settlements across regional borders. By virtue of National roads linking major cities in the country, they sometimes double as Regional and Inter-Regional roads. The R40, which connects Accra to Adenta through the Tetteh Quarshie Interchange, forms part of the N4 which links Accra to Koforidua and Kumasi through the Tetteh Quarshie Interchange.

The Trans–West African Coastal Highway, part of the Trans-African Highway network crosses Ghana along the south connecting it to Abidjan, (Côte d'Ivoire), Lomé, (Togo) as well as Benin and Nigeria. Eventually the highway will connect to another seven ECOWAS nations to the west. The N2, which connects Tema in the Greater Accra Region to Kulungugu in the Upper East Region; the N10, which connects Yamoransa in the Central Region to Paga in the Upper East Region; and the N12, which connects Elubo in the Western Region to Hamile in the Upper West Region all connect Ghana to landlocked Burkina Faso, where it joins another highway in the Trans-African network, the Trans-Sahelian Highway.

The Volta, Ankobra, and Tano rivers provide 168 km of perennial navigation for launches and lighters; Lake Volta provides 1,125 kilometres of arterial and feeder waterway. There are ferries on Lake Volta at Yeji and Kwadjokrom. There are six ships (with a volume of 1,000 gross register tons (GRT) or over) totaling 13,484 GRT/18,583 metric tons deadweight (DWT). This includes two petroleum tankers and four refrigerated cargo vessels (1999 estimates). On July 4, 1958, the Ghanaian government established Ghana Airways to replace the former African Airways Corporation. By the mid-1990s, Ghana Airways operated international scheduled passenger and cargo service to numerous European, Middle Eastern, and African destinations, including London, Düsseldorf, Rome, Abidjan, Dakar, Lagos, Lomé, and Johannesburg. Ghana Airways ceased all operations and entered into liquidation in 2004.

In 2005, Ghana International Airlines (GIA) began operations as the new national airline of Ghana. GIA presently operates Boeing 757 aircraft and connects Kotoka International Airport in Accra with London Gatwick and Düsseldorf. Ghana has twelve airports, six with hard surfaced runways. The most important are Kotoka International Airport at Accra and airports at Sekondi-Takoradi, Kumasi, and Tamale that serve domestic air traffic. In 1990, the government spent US\$12 million to improve Accra's facilities. Workmen resurfaced the runway, upgraded the lighting system, and built a new freight terminal. Construction crews also extended and upgraded the terminal building at Kumasi. In early 1991, the government announced further plans to improve Accra's international airport. The main runway was upgraded, improvements were made in freight landing and infrastructure, and the terminal building and the airport's navigational aids were upgraded.

Road transport in Ghana serves the economy more than any other means in the country. This is because the other means are less developed and in some cases more expensive for the average traveler. In a Ministry of Transportation's Project on Transport Indicators Database (2007), respondents were questioned about their means of transport to their workplaces. Of the total number, 57.8 per cent mentioned that they go to work by trotro (low cost mini buses) and 16.2 per cent of workers use taxis with those who use their own private cars to work forming less than 4 per cent. This signifies the high dependence on road transport by the working force.

Jorgensen and Rundmo (2006) in their study reported that constraints on mobility and problems of access and poor transport infrastructure are some of the main impediments to improve the livelihoods of the Ghanaian population. According to them improved access and transport provision are given priority for development. Nevertheless negative side effects are a rising number of road traffic casualties. Thus in spite of the effort by stakeholders the rate of accident is still high. A report in the largest selling daily newspaper the (Daily Graphic of 24th September 2007) described the urban transport system in Ghana as characterized by the congested central areas of the cities; poor quality of service from public transport operators; high exposure to road accidents and poor environmental standards. According to the report these features could be seen in the long commuting times and journey delays, lengthy waiting times for public transport both at and between terminals, high accident rates and localized poor air quality. The National Road Safety Commission's (2005) Annual Report has rather discouraging figures about fatalities in the country. The report has it that four persons are killed daily in road accidents, pedestrians' form 42 per cent of person skilled annually, over 60 per cent of

persons who die annually through road traffic accident fall within age group of 18-55 and speeding is seen as a major cause of road traffic accident, accounting for over 50 per cent of reported cases. Vehicle fleet in Ghana increased almost two fold from 393,255 in 1998 to 767,067 in 2005, which represents an average of 10 per cent per year.

2.6 Road Safety

The numerous accidents that are associated with road transport have made safety measures very important aspect of road transport planning. Planning urban transportation without serious consideration of the safety aspect would constitute a major omission on the planning procedure. Road transport accident has been a major concern to planners and policy makers across the world since it claims lives and injure many users of the facility.

An estimated 1.2 million people are killed and up to 50 million more people are injured or disabled on the world's roads every year (WHO). Fatalities are predicted to increase by more than 80 percent in low and middle-income countries; however, there would be decrease by nearly 30 percent in high-income countries Bliss (2004).

The World Bank Report says that adopted measures must address the safety of all road users and must be the responsibility all stakeholders across government, the private sector, nongovernmental organizations, the media and the general public. WHO (2004) in a world health day theme of road safety outlined the risks as: speeding, alcohol, non-use of helmets, seat belts and other restraints, poor road design, poor enforcement of road safety regulations, unsafe vehicle design, and poor emergency health services. The report further indicates that pedestrians and cyclist are at risk in urban road accidents.

This should be the result of the fact that in most developing countries there are no constructed routes for pedestrians and cyclists exposing them to compete on the roads with other vehicles. WHO (2004) emphasizes that the scientific, “systems approach” to road safety is essential to tackling the problem and that this approach addresses the traffic system as a whole and looks at the interactions between vehicles, road users and the road infrastructure to identify solutions. According to the Annual Report of SCANIA of 2006 better infrastructure and vehicle development can have a great deal of achievement and road safety is above all the matter of human behavior and attitude. It goes on to give a further dimension by saying it is a shared responsibility which requires efforts by governments, public authorities, the vehicle industry, transport companies, Non Governmental Organizations (NGOs) and other stakeholders. The number of road traffic accidents in towns and cities is growing each year as one in three fatal accidents now happen in urban areas and it is the most vulnerable people, namely pedestrians and cyclists, who are the main victims (European Commission, 2007).

Ghana has been much concerned with road safety across the country since there is very high rate of accidents on various roads. The seemingly poor performance of road safety measures could be attributed to the attitude of road users and the lack of strict enforcement of basic road safety laws. It is assumed that drivers could play an important role in accident prevention on various roads. According to Asiamah et al (2002) in a survey in Ghana, most of the focus group interviewed believed that actions could be taken that would lower risk of crashes and injuries including vision examinations, using seat belts, and avoiding alcohol.

However, this knowledge was not fully implemented since for instance, few drivers had ever had their vision checked and most used seat belts only for long journeys. All these issues are centred on the driver thus emphasizing the leading role the driver has to play on road safety especially in developing countries.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

Research methodology plays a pivotal role in the overall research work and as such its importance cannot be overemphasized. This is because it is the methodology that will guide the choice of sample, the collection of data in achieving the research objectives and finding solutions to the research questions. It is only when this is done that effective and proper recommendations can be made that will go a long way to assist policy makers and also guide researchers who would be interested in doing a further study in that particular area.

This chapter focuses on the research design or methodology used in the study. It includes the research design, population/sample size, sampling technique, data collection methods, methods of analysis/presentation of results, reliability and validity, ethical review and the experience encountered on the field. The background or the profile of Techiman as the study area is also presented in the chapter.

3.1 Research Design

Since this study is to gain insight into a phenomenon that is less researched into the exploratory approach to research was chosen. This type of research design has the advantage of being more flexible and dynamic, providing details where a small amount of information exist and has the capacity to narrow down the scope of investigation. This is why it is sometimes referred to as ‘feasibility study’ or ‘pilot study’.

In reviewing the available literature on the study area it was realized that enough research had not been conducted into the impact of road accident on economic activities unlike the causes of road accident and road safety, hence its adoption.

3.2 Target Population/Sample Size

The population from which the sample would be selected would be traders in the Techiman Township. All categories of traders in Techiman be it wholesalers, retailers who have been involved in car/lorry accidents constituted the population of interest. The researcher decided to interview 200 traders both male and female by taking into consideration the financial and the time constraints.

3.3 Sampling Techniques

The researcher combined a number of techniques. These included Purposive sampling and Snowballing sampling in the selection of respondents in the study area. Purposive sampling was chosen in view of the fact that the researcher wanted to interview only those who have idea or opinion or might have experienced the phenomenon under study. Hence traders who had been involved in accidents in the course of doing business were selected. Since data base on victims of accidents were lacking the snowball technique was additionally employed. This enabled initial respondents to direct the researcher to those who they might know to have been involved in accidents.

The study also combined both qualitative and quantitative research methods. The qualitative method was adopted to enable the researcher to capture or elicit the views and opinions of respondents' through structured interviews using questionnaires as a guide.

These views and opinions were coded quantitatively for the purposes of analyses so that the results could be generalized.

3.4 Data Collection Methods

Data was obtained from both primary and secondary sources. Secondary data was derived from books, journals, published and unpublished literature and the internet. When it came to the primary data collection the researcher combined case study and the survey method. Since this study is to enable the researcher to focus on contemporary phenomenon in a specific setting through which an understanding of the dynamics of the whole could be appreciated (Yin, 2002) the case study approach was chosen. And in this instance Techiman was chosen as the case study. However, since the views of few people could not be used for the purposes of generalization the survey method had to be employed to enable the researcher to interview as many people as possible to make it more representative.

The survey took in to consideration both the public and organizations. In the case of the public the researcher used both structured questionnaires and scheduled interviews on the traders. Questionnaires were given out to respondents who couldn't wait to be interviewed by the researcher or who could read and write to be taken home and fill. The scheduled interview was used on respondents who could not read and write and also those who preferred to be interviewed by the researcher using the questionnaire as a guide.

When it came to the organization, in-depth questionnaires were prepared and administered on the heads of the following institutions: Motor Traffic and Transport Unit (MTTU) of the Ghana police, Ghana Private Road and Transport Union (GPRTU),

Driver Vehicle and License Authority (DVLA) and Ghana Road Safety Commission (GRSC).

The questionnaires were made up of both close-ended and open-ended questions. The researcher used close-ended questions in view of the fact that in reviewing the literature it became clear that some of the things were obvious. However, it was also realized that some of the questions needed further explanation in order to make their understanding complete, thereby the use of open-ended questions.

3.5 Data Analysis

The data analysis generated knowledge that gives meaning to the data collected. The data collected were grouped under sub-headings in which the questionnaires were structured. The researcher analyzed the data manually mainly using frequencies and percentages to generate the results. Each questionnaire item was analyzed and the views of respondents converted to percentages. The responses with the highest percentage were considered as general view of respondents with regard to that particular item. The results of the analyses were presented in the form of tables.

3.6 Reliability and Validity

The questionnaire prepared by the researcher was scrutinized by the supervisor of the wording of each item whether it matches with the required information about the research topic.

The supervisor also checked whether the wording of each item was appropriate to the respondents. The content validity and reliability of the items in the questionnaires were appropriate.

Again, the researcher tested the validity and reliability of the questionnaire by administering it on traders in the Sunyani market and also interviewing some officials at the DVLA office in Sunyani. Equally important is the fact that the researcher gave the questionnaires to some of his course mates to proof read it to make the necessary corrections and suggestions.

3.7 Ethical Review

The purpose of the study was explained to the respondents prior to the administering of the questionnaire and interview guide. Respondents were assured their anonymity and confidentiality. The questionnaire and interview guide were given to the respondents to study and respond based on their own views and feelings, rather than the influence of others. Participants were assured that, individual responses were not going to be identified and that all responses will be analyzed together.

3.8 Field Experience

It was very difficult for the researcher to get the traders at Techiman market to respond to the questionnaire and as such a lot of effort and time had to be spent to get the respondents understand the reason for their input into the research. Though most showed an amount of fear to the responses they gave, the researcher assured them of the confidentiality attached to the ethics of research writing and the more reason why names

of respondents are not mentioned. It was an interesting and learning process for the researcher.

3.9 Background/Profile of the Study Area

This part of the study looked at the background of the area of study. It attempted to provide some insight into the location of the town in Ghana, the commercial activities and population of the town and some other qualities that have contributed to the attraction of people to the town. These are important qualities in view of the fact that they add to the congestion in the town and its resultant high rate of accident.

3.9.1 Location of Techiman

Techiman is located in the Rain Forest region of Ghana. It is the capital town of the Techiman Municipality which is situated in the northern part of Brong Ahafo Region and lies between longitudes 1 degree 49' east and 2 degree 30' west and latitude 8 degree 00' north and 7degree 35' south. The municipality shares common boundaries with four other districts; three in Brong Ahafo Region and one in Ashanti Region. The Wenchi District lies to the northwest, Kintampo South District lies to the northeast, Nkoranza District to the south-east and Offinso District (in Ashanti Region) lies to the south.

The Municipality covers an area of 669.7km square representing approximately 1.65% of the surface area of Brong Ahafo Region. It is the smallest district in the region and is well located in terms of major road accessibility. The Municipal capital, Techiman is a major market centre and a nodal town, where roads from the three northern regions converge. Trunk roads from Sunyani, Kumasi, Wa and Tamale all meet at Techiman thus making it a bustling food crop market and commercial center.

3.9.2 Commercial Activities in Techiman

Techiman has a very vibrant commercial activity because of its famous market that serves as a source of attraction to people far and near to do business in the town. The Techiman market is the largest food crop market in Ghana and a major commercial center in the Brong Ahafo region. The market is the hub of economic activity as well as the life blood of the Assembly's revenue. The strategic location of the town also makes it a transit point for most vehicles from southern sector to the northern parts of Ghana and other land locked countries in West Africa like Mali and Niger. There are numerous small and medium size industries also providing attractions. The vibrant nature of commercial activities has attracted a lot of banks in the country to open branches in the town and this has helped to strengthen the business environment.

3.9.3 Population in Techiman

Techiman is only second to Sunyani, the regional capital in terms of population. The numerous attractions in the city makes it a preferred destination for the youth in search of jobs and the business people hoping to take advantage of the large market, cheap labour and good connectivity to major road links in the region. The population of Techiman as of 2005 stood at 65137 and is expected to rise when the 2010 population census result is released. The resultant effect of this rapidly increasing population is that agricultural lands are being reduced and degraded. This is resulting in desertification and environmental degradation in the town.

And as such policies should be put in place to protect the township lands, forest resources and other life supporting systems from the ravages of population pressure.

3.9.4 Organization of the Municipal Area

The management of the city is based on the decentralized system in the country. The municipal area has various departments and committees that see to the day to day management. The local government system has a three-tier Municipal Assembly structure of Municipal Assembly, Zonal Councils and Unit Committees with the Municipal assembly as the coordinating center. The Techiman Municipal Assembly, thus, is highest political, administrative and planning authority at the Municipality level. The current Techiman Municipality has been part of Wenchi and later Nkoranza and Kintampo districts before its establishment.

Techiman Municipal Assembly was established under legislative Instrument (L.I.1472) of 1989 as a District Assembly and later upgraded into a Municipal Assembly under legislative instrument (L.I.1799) of 2004. It comprises the Municipal Chief Executive, 45 Assembly Members elected by universal adult suffrage in the electoral areas, 18 other members appointed by Government including women. Although the local Government Act 462 requires that at least 30% of the appointed members must be women and the two members of parliament in the Municipality. The Municipal Chief Executive as the representative of the central government in the Municipality also chairs the executive committee of the assembly, which is charged with the day to day administration of the assembly.

The executive committee has other sub-committees working up to it, namely:

1. Finance and administration
2. Works, social services

3. Development

4. Justice and security

5. Agriculture and environment

6. Disaster prevention and management

These sub-committees deliberate on issues in great detail and recommendations submitted to the executive committees, which in turn submit them to the general assembly for ratification.

Under Act 462, departments under the Techiman Municipal assembly are expected to be integrated into eleven departments as provided under the law; however, this is yet to be fully operational.

Currently there are sixteen departments operating namely:

1. Education

2. Health

3. Agriculture

4. Community development

5. Social welfare

6. Controller and accountant general

7. Works

8. Cooperatives
9. Central administration
10. Town and country planning
11. Parks and gardens
12. Information services
13. National youth council
14. Fire services
15. Disaster management
16. Forestry

The inputs of these departments into the running of the assembly are visible at the sub-committee level where the various heads, as ex-officio members of the relevant sub-committees of the assembly, help fine tune decisions.

The District coordinating director coordinates activities of the departments to ensure harmony and avoid duplication of efforts.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

This section gives details about the findings that were gathered by the researcher through the administering of questionnaires on traders in Techiman and also the interviewing of major players in road management and road safety in Techiman. The results were presented in the form of tables.

4.1 Demographic Characteristics of the Respondents

The following variables represent the demographic characteristics of the respondents; gender/sex, marital status, education, residence status and dependents.

Table 4.1 a : Gender

Sex	Frequency	Percentage
Male	16	32
Female	34	68
Total	50	100

Source: Author's field study, 2011

From Table 4.1a, 68% of the respondents were female's and the remaining 32% being male's. This differential can be attributed to the fact that the population structure of the 2000 census has the female population outnumbering their male counterparts. Equally important is the fact that most girls drop out of school due to pregnancy and mostly find solace in trading particularly petty trading which is not all that difficult to start.

Table 4.1 b: Educational Background

Education	Frequency	Percentage
Yes	15	30
No	35	70
Total	50	100

Source: Author's field study, 2011

Table 4.1 b which represented the education status of the respondents indicated that 70% had no education, only 30% had education. The results clearly indicate that illiterates and less educated people will prefer to enter into trading than their highly educated counterparts who normally prefer to do white colour jobs. These less educated people who find themselves in trading activities find it difficult to keep simple account and develop business plans that would help them to access credit facilities to expand their businesses.

Table 4.1c: Residence Status

Residence Status	Frequency	Percentage
Residents	13	26
Non-Residents	37	74
Total	50	100

Source: Author's field study, 2011

Table 4.1 c shows the residential status of the respondents. 74% of the respondents came from outside Techiman and only 26% were residents of Techiman. This is an indication that majority of these traders are itinerants or peddlers who move from one town to the other during market days.

Table 4.1d: Marital Status

Marital Status	Frequency	Percentage
Married	35	70
Single	11	22
Widow/Widower	4	8
Total	50	100

Source: Author's field study, 2011

Table 4.1d represents the marital status of the respondents. Out of the 50 respondents, 70% were married, 22% were single and the remaining 8% being widows/widowers. The perception among many Ghanaians is that, marriage is considered to be sacrosanct and as such anyone who is married is held in high esteem by the society. So immediately one starts a business and sees that he is making some returns on his or her investment the next thing that comes to mind is marriage.

Table 4.1e: Existence of Dependents

Dependents	Frequency	Percentage
Yes	35	70
No	15	30
Total	50	100

Source: Author's field study, 2011

From Table 4.1 e, it can be seen that 70% of the respondents had other dependents and the remaining 30% had no dependents. Ghanaians strongly believe and cherish the extended family system. In view of that, anybody who is lucky to have landed a job would like to help a nephew or a niece aside his or her immediate family.

The demographic characteristics of the study indicates that most the traders are less educated, majority of them being females, have more dependents, most of them coming from outside Techiman and marriage is one institution that they cherish very much.

4.2 Effects of Road Accidents on Economic Activities

To know the extent to which road accidents has on economic activities, the traders in the Techiman market were interviewed to ascertain the relevant data. The following relevant information was gathered for the study.

4.2.1 Category of Traders

In an attempt to find out how road accidents affect economic activities, respondents were asked to indicate whether they belong to wholesalers or retailers. From the response given, 82% belong to retail group and 18% being wholesalers. The reason why most of the traders are into retailing is due to the fact that majority of them started their business with their own personal resources which are usually small as compared to bank loans that could have enabled them to start on a large scale and probably enter into wholesaling. Again, since most of them have low educational background, developing a good business plan to guide the growth and development of the business becomes a problem, hence the higher number of them in retailing.

Table 4.2.1: Category of Traders

Category of Traders	Frequency	Percentage
Wholesalers	9	18
Retailers	41	82
Total	50	100

Source: Author's field study, 2011

4.2.2 Ownership/Possession of Stores/Shed

In delving into the issue of whether road accidents has effects on economic activities respondents were asked if they had permanent stores/sheds at Techiman, it was realized that 84% did not have permanent stores/shed, only 16% had stores/shed as tabulated in Table 4.2.2.

The reason why the majority of them do not have permanent stores/sheds may be due to inadequate store rooms or space in the market. It can also be attributed to lack of money to hire stores at the market.

This shows that they are predominantly itinerant retailers (peddlers or hawkers) who travel from one town to the other during market days. This frequent movement makes them more susceptible to road accidents.

Table 4.2.2: Ownership/Possession of Stores/Shed

Ownership/Possession of Market Stores/Sheds	Frequency	Percentage
Yes	8	16
No	42	84
Total	50	100

Source: Author's field study, 2011

4.2.3 Trading/Retailing Activities

In probing further to find out the effects of road accidents on economic activities, respondents who did not have permanent stores/sheds were asked how they marketed their goods. It came to the notice of the researcher that 74% did so through hawking and remaining 26% on the market floor as amply demonstrated in Table 4.2.3 below.

This high number of hawkers may be partly due to lack of space and enough stores at the market. It can also be explained by the fact that these traders are predominantly itinerant retailers who normally move from one town to the other during market days mostly dealing in merchandize.

Table 4.2.3: Retailing/Trading Activities

Retailing/Trading	Frequency	Percentage
Hawking	37	74
Market Floor	13	26
Total	50	100

Source: Author's field study, 2011

4.2.4 Business Insurance

Respondents were asked if they had taken any form of insurance against fire or theft and the results were that 90% did not have anything like that. It was the remaining 10% that had taken such insurance. This can be seen in Table 4.2.4 below. The reason why many of the respondents have not taken insurance policies is due to low education and awareness about the importance or the benefits of taking insurance policies. As a result many people do not understand why they should buy insurance.

Again, the high premium paid in insuring certain property makes it difficult for some of these traders to buy insurance policies. This makes it difficult for them to stay or continue to be in business in the advent of any eventualities such as road accidents.

Table 4.2.4: Business Insurance

Business Insurance	Frequency	Percentage
Yes	5	10
No	45	90
Total	50	100

Source: Author's field study, 2011

4.2.5 Sources of Startup Capital

In finding out how the respondents started their businesses it came to the realization of the researcher that 80% did so through personal resources, 14% used bank loan, 4% relied on family resources and 2% used others. These personal resources are generated through proceeds from farming activities and also doing some menial jobs. The main reasons they gave for not going for bank loan were the lack of collateral, lack of credit history, complex bureaucracies and the perception that the banks will not grant small scale business loans because of the Perceived risk associated with their business.

They therefore rely on their personal savings and family for survival. These are captured in Table 4.2.5.

Table 4.2.5: Sources of Startup Capital

Sources of Startup Capital	Frequency	Percentage
Bank Loan	7	14
Personal	40	80
Family	2	4
Others	1	2
Total	50	100

Source: Author's field study, 2011

4.2.6 The Time of the Accident

When respondents were asked to determine how long they have been involved in accident, it was concluded that 62% had the accident in less than 5 years, 20% had it between 6-10 years, 14% had it between 11-15 years and the remaining 4% had it in 16 years and above. This data is shown in Table 4.2.6. This phenomenon can be explained by the high spate of road accidents in recent times. The number of vehicles on our roads has increased tremendously of late and most of these vehicles have powerful engines which make them run at top speed and so most of them end up having accidents.

Table 4.2.6: The Time of the Accident

Time of Accident	Frequency	Percentage
<5	31	62
6-10	10	20
11-15	7	14
16>	2	4
Total	50	100

Source: Author's field study, 2011

4.2.7 The Type of Vehicle Used

The following statistics illustrate the type of vehicle respondents traveled on. 50% made it by mini-bus, 18% on taxi cab, 16% on bus, 12% on truck and 4% on private car as indicated in Table 4.2.7. As the saying goes “Time is money” and as such traders do not normally play with their time. And so they do not see the reason why they should patronize buses which take longer time before they are loaded. Instead they prefer these mini-buses which take shorter time to get loaded and are relatively cheaper and faster.

Table 4.2.7: The Type of Vehicle Used

Type of Vehicle Used	Frequency	Percentage
Bus	8	16
Mini Bus	25	50
Taxi Cab	9	18
Truck	6	12
Private Car	2	4
Total	50	100

Source: Author’s field study, 2011

4.2.8 Accident Halting Business

As to whether the accident halted the business of the respondents, 76% answered in the affirmative and 24% answered in the negative as demonstrated in Table 4.2.8. This can be explained by the fact that most of these traders operate with lower capital and so the returns on their investment is very small and coupled with the high number of dependents, saving becomes a problem. And so when they are recuperating from the injuries sustained during the accident they end up using almost all their capital more especially those who have not embraced the health insurance scheme.

Table 4.2.8: Accident Halting Business

Accident	Frequency	Percentage
Yes	38	76
No	12	24
Total	50	100

Source: Author's field study: 2011

4.2.9 Accident Affecting Business

In finding out how the accident affected the businesses of the respondents, it came out that 40% had their customer base reduced, 32% had their sales lowered and 28% had their working capital reduced. This is illustrated in Table 4.2.9 below.

This can be explained by the fact that during hospitalization or when they are at home recovering from their injuries and trauma sustained during the accident, it was possible that those who looked after their business may not have treated their customers as they used to do thereby reducing customer base which automatically translate into lower sales and reduction in capital base.

Table 4.2.9: Accident Affecting Business

Accident Affecting Business	Frequency	Percentage
Affected Sales	16	32
Affected Capital	14	28
Reduced Customers	20	40
Total	50	100

Source: Author's field study, 2011

4.2.10 The Causes of the Accident

When it came to how the accident occurred, it was found out that 64% occurred through over speeding, 20% through overloading, 14% through others and 2% through the attitude of pedestrians and motorist. This is depicted in Table 4.2.10 below.

As has already been alluded to most of these traders prefer these mini-buses which were made in their home countries to carry cargo but when they get into the country they are converted into passenger cars which normally overload and run at top speed. This explains why over speeding and over loading top the chart among the causes of accidents.

Table 4.2.10: The Causes of the Accident?

Causes of the Accident	Frequency	Percentage
Over Speeding	32	64
Over Loading	10	20
Att. of Pedestrians & Motorist	1	2
Others	7	14
Total	50	100

Source: Author's field study, 2011

4.3 Causes of the Numerous Traffic Accidents in the Town

This section looks at the causes of traffic accident in Techiman from the interviews granted by officials of the major stakeholders in the road and transport business in the town.

4.3.1 Negative Attitude of Road Users

The negative attitude of road users (motorists and pedestrians) were seen by the entire official interviewed as one of the main causes of traffic accident in the town. Oduro thinks reckless driving is a major cause of traffic accident in Techiman. He identified indiscipline on the part of drivers as the main cause of traffic accident in Techiman and Ghana as a whole. He said in spite of the numerous road safety campaigns embark upon by stakeholders, most drivers still flout motor traffic regulations.

He made special mention of over speeding, wrong overtaking on curves, on hills, and wrong parking at unauthorized places like intersections and pedestrian crossing facilities. Total disregard for authority (including traffic control signals) are very prevalent.

4.3.2 Fatigue on Drivers

Another condition related to drivers that has been identified as a major cause of traffic accident is fatigue. All categories of commercial drivers work for very long hours in the city and end up getting extremely tired in the cause of their duties. A commercial driver could start work at 0500am local time and close at 2200pm and one could guess the level of fatigue during the period. Some provide all night service since the town is alive throughout the night. Most commercial vehicles have one driver and the only time they rest during the day is when the vehicle is getting loaded.

4.3.2 Inadequate Training for Drivers

Another problem that is related to drivers but not directly with their attitude is the inadequate training before driving. At Techiman there is what is referred to as the “Driver’s Mate”. That is a person who studies how to drive by working under a substantive driver, graduate and start to drive. The officer said most drivers in the town do not have any certificate to show that they have gone through any training and that approved driving schools started springing up few years ago. Many young drivers do not have enough experience and control during emergency situations and this has contributed to the numerous traffic accidents in the town.

4.3.3 Attitude of Pedestrians

On the attitude of pedestrians, the researcher would want to put them under flouting of laws and bad behavior which the people consider as norm.

Pedestrians flout traffic law by disregarding the authorized crossing points like pedestrian crossing and traffic lights and decide to cross anywhere. People run across road without careful looks and judgment. Also people are insensitive to or disregard traffic control devices and other signals.

There are certain behaviors of the people which are major causes of traffic accidents but are seen as the norm and have been difficult to change. Many hawkers sell items on pavements, in traffic lights that is when the vehicles stop and at intersections in the town, because such people think is the source of their livelihood, they see it to be normal.

4.3.4 Poor Vehicle Maintenance

Vehicle maintenance culture is very poor in Ghana and is one of the contributing factors for the numerous traffic accidents in Techiman. Antwi said vehicle owners do not attach any importance to regular checks and servicing. This has resulted in the rampant break failures and tyre busts on the streets in Techiman and they result in traffic fatalities. Similarly, defective electrical systems result in misleading traffic indicators, insufficient illumination from headlamps on vehicles. The technical officer for DVLA said much as the authority insists on road worthiness of vehicles, some vehicle owners do not go by the rules. To some of them when their road worthy certificate expires they do not renew them because of the state of the vehicles and thus operate in the dark.

4.4 Coexistence of Road Users in Techiman

It is almost a chaotic situation observed on the streets of Techiman relative to how road users coexist on the roads especially during market days. On most of the roads, there has not been provision for separate lanes for non-motorized road users-pedestrians, and cyclists.

The research therefore sought to find out how authorities control the coexistence of various road users on the streets of Techiman. Oduro, the Municipal MTTU commander who admitted that the road designs in the town do not allow easy coexistence of road users said the police authorities have always found it difficult to control road users.

Oduro said the police apart from constant education of road users also send out team of officers to areas with serious problems to control the movement of road users. He said particular attention is given to pedestrians who are always at receiving end of road brutalities. At very crowded places in the town center the police officials on duty regulate when pedestrians cross busy roads. They thus stop moving vehicle at given interval to allow pedestrians to cross.

Alhaji, the secretary of GPRTU Techiman also admitted that the road designs in most parts of the town do not allow easy coexistence of road users. He said to control the situation the GPRTU organizes periodic public education programmes for its members and the general public on traffic issues. The union has Traffic Law Enforcement Agents who control traffic movements at busy road and intersection in the town. He, however, said the organization has a limit in its authority since it does not have control over private car owners. The DVLA Technical Officer said the authority make sure that qualified drivers are issued with licenses to drive in the city to ensure easy coexistence with other road users. He said some drivers, however, do not abide by the rules of the authority and thus misconduct themselves on the roads in the town.

4.5 Training of Prospective Drivers in Ghana

Driving is a profession that involves a lot of risks. As a result prospective drivers go through training before they become qualified to drive and substantive drivers also go

through periodic training to upgrade their skill in the driving profession. According to Antwi, the technical Officer of DVLA in Techiman, Ghanaians or foreigners qualify to drive if they have local or international drivers' license.

To qualify to drive commercial vehicle, one need certain category of licenses which are B group to drive saloon cars, D for trucks and vans and F for both B and D categories.

To acquire driver's license an applicant should be 18 years or above and should not have any physical or mental disability. When a medical report is submitted an applicant is taken through the road signs and roadworthy markings before the acquisition of the learner license. Applicants go through three-month driver training after which he/she submits application form and the learner license to the schedule officer and he/she is taken through the driving test.

Before the practical driving test, the applicant has to undergo a theoretical test to enable him/her identify and interpret the road signs and road markings, since these languages of the road guarantee the safety of the applicant, the examiner and other applicant, the examiner and other road users during the test. Also important is the eye test to determine the ability of the applicant to see far and near objects.

Antwi also talked about how the authority controls the use of driver's license. He said they issue stickers to all qualified drivers to be displayed on the windscreen of their registered vehicles. The authority operates through the Ghana Police Service to check vehicles that do not have the required stickers. The Police in their routine road checks and patrol duties check and arrest vehicles that do not have the stickers. He also said the authority has the power to ban a driver from driving and this action could be taken when a person drives an uninsured vehicle or when they drive without the required driver's

license. According to Antwi , the authority play a leading role in preventing accidents in the town by ensuring that only qualified persons are allowed to drive.

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CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter has three sections; the first is devoted to the summary. The conclusion (major findings) is presented in the second section whilst section three touches on the recommendations to address the issues raised in the study.

5.1 Summary of findings

The study was embarked on with the view to determining the effects of road traffic accidents on economic activities in the Techiman Township. With this in mind, traders in the Techiman Township particularly those in the market were chosen. Samples of fifty (50) out of the study population of two hundred (200) were either interviewed or questionnaires sent to them for appropriate data for this thesis. For data collection, snowballing and purposive sampling were employed to select the traders. Also purposive sampling was used to select the heads of institutions.

The methods used for the analysis and interpretation of the data were frequency distribution, simple percentages and tables.

5.2 Conclusion

The study aimed at determining the effects of road traffic accidents on economic activities in Ghana using the Techiman Township of the Brong Ahafo Region as a case study. The discussion of the results focused on how the traders market their goods, whether they have insured their businesses, how road accidents affected their business and most importantly how they started their business. The following are the major findings from the study:

5.2.1 Effects of Road Traffic Accidents on Economic Activities

In an attempt to look at the effects of road accidents on economic activities, the study focused on three main themes; type of business, possibility of road accidents and effects of the accidents.

5.2.1a Type of Business

It was realized that most of the traders were predominantly retailers dealing in merchandize goods. This shows that many of the traders operated small scale businesses because majority of them started with their personal resources. This made it difficult for many of them to go into wholesaling where it could be possible for them to become key distributors of big companies in the country and even become manufacturers themselves in future.

In view of the fact that many of these traders were itinerant or peddlers moving from one place to other, majority of them did not have permanent stores or sheds at the market and they traded or marketed their goods mostly through hawking.

5.2.1b Possibility of Road Accidents

The itinerant nature of the traders makes them to travel from one town to other during market days. This makes them more susceptible to accidents. This situation is even worsened when you consider the type of vehicle they normally travel on.

According to the findings, these traders prefer travelling on mini buses particularly, the 207 Benz buses which are faster and relatively cheaper. Unfortunately, these mini buses with the 207 inclusive are the sort of vehicles that register high accident rates on our roads. The high rate of accidents involving these vehicles can be explained as a result of over speeding and over loading.

5.2.1c Effects of the Accidents

These accidents that the traders go through have telling effects on them. This is compounded by the fact that majority of them according to the results did not have any insurance policy so that in the event of any misfortune such as road accident, fire or theft they could rely on without necessarily falling on their working capital. This phenomenon has the tendency of halting their businesses as was indicated in the results that majority of the traders had their businesses halted as result of the accident.

Equally important is the fact that majority of them had their working capital reduced as result of low sales due to reduction in customer base. All these go to support the fact that road accidents actually affect economic activities which is in line with the objective of the study.

From the forgoing it is evident that if something is not done to check this trend the traders in Techiman would be affected economically as individuals, Techiman in terms of revenue and development of Ghana as a whole.

5.2.2 Major Causes of the Numerous Traffic Accidents in the Town

The study revealed that the following were identified as the major causes of accidents in the town: Negative attitude of road users, fatigue on drivers, inadequate training for drivers, attitude of pedestrians and poor vehicle maintenance.

5.2.3 Other Important Findings

The study found that most of the accidents occur at the outskirts of Techiman especially by these haulage trucks most of them coming from neighboring countries that travel long distances.

It was also revealed that there are not enough recovery trucks especially bigger ones to tow these haulage trucks that pack along the roads and unauthorized places posing danger to motorists and pedestrians.

5.2.4 Coexistence of Road Users in Techiman

It was realized that most of the roads in the town have no provision for separate lanes for non-motorized road users-pedestrians and cyclists.

5.2.5 Training of Prospective Drivers in Ghana

The study revealed that training of prospective drivers was not done by the DVLA but rather private driving schools established by private individuals in the town and supervised by the DVLA.

5.3 Recommendations

The following recommendations are made from the study based on personal observation and those suggestions by respondents:

The lack of finance for traders to start their business is a problem which is widespread in Ghana and other developing countries. By forming groups, traders easily qualify for loans from banks which are not available to individual traders. To make the groupings more formal, the government can intervene by categorizing these traders by basing on their scope of operations.

On the issue of the market stores, the Municipal Assembly can liaise with the private sector to put up more stores that can go a long way to reduce congestion and also boost the revenue of the assembly.

There should be intensive education on the importance of insurance and the need to embrace it. Special emphasis should be placed on the National Health Insurance Scheme so that traders will not rely on their capital to settle their hospital bills thereby reducing the incidence of business failures. Another way to make insurance attractive is to reduce the premium charged by insurance companies and also make their policies more flexible for traders.

There is no way that these mini-buses can be banned especially the 207 Benz buses. The only panacea is to check their operations by way of reducing the number of passengers they carry, by making sure those with single axels do not mount carriers on top to carry goods. Equally important is the fact that, the police should step up their patrol activities along our major roads to check over speeding, overloading and reckless driving.

Another way of checking the over reliance on these mini-buses is for the government to promote public transportation. And the introduction of the Metrol Mass Transit by the government is an initiative that needs commendation. However, government should do well to augment their fleet.

On the issue of indiscipline as a cause of accident in the town, it is suggested that there should be intensification of education for motorists to understand more about driving in the town. Some drivers flout regulations due to lack of knowledge. The education should include the use of billboards showing good things that drivers should do and what they need to avoid, the distribution of leaflets describing the dos and don'ts for driving in the town. When it comes to driver fatigue, the only way out is good rest especially the commercial drivers hence there is the need for transport owners to structure their plans to have two or more drivers to run a shift. There is the need to have legislative instrument that controls driver fatigue in towns and cities across the country. Drivers should also be educated on fatigue and its causes and encouraged to do the right things.

It is also suggested that authorities should enforce laws on pedestrians. The law has been enforced on motorists though in a relaxed manner. However, laws are yet to be enforced on pedestrians or hawkers in the town. There are approved routes for pedestrians to cross roads in the town and though most pedestrians use unapproved routes, no one has ever been brought to book.

It is again suggested that more rest stops should be built where drivers especially those traveling to faraway places can stop and rest. Also more recovery trucks should be procured to tow cars that are parked in unauthorized places.

With the coexistence of road users, it is suggested that the city planners especially the Department of Urban Roads should make provision for special lanes for non-motorists such as pedestrians and cyclists in future.

Finally, the DVLA if possible should take over the training of drivers to make sure drivers are well trained before they are issued with license.

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REFERENCES

Kaufmann, D., Kraay, A., and Mastrssi, M. (2003). *World Bank Policy Research Working Paper 3106*. World Bank, Washington D.C.

National Road Safety Commission. (2001). *National Road safety strategy 2001-2005*. Accra, Ministry of Transport and Communications.

World Bank. (1990). *Road Safety a Lethal Problem in the Third World*

World Health Organization South-East Asia Region. (2004). “Regional Health Forum”, WHO Regional Office for South –East Asia, New Delhi, Vol. 8, No 1.

World Health Organization. (2005). *Chernobyl: the true scale of the accident*. WHO, Geneva.

Asiamah, G. (2002). Injury Prevention-Role of Commercial Drivers in Motor Vehicle Related Injuries in Ghana. Retrieved on 2011-02-04 from URL: <http://injuryprevention.bmj.com/content/abstract> [5th April]

Asingo, P.O. and Mitullah, W. V. (2005). *Implementing Road Transport Safety Measures in Kenya: Policy Issues and Challenges*, Institute of Development Studies (IDS) Working Paper

DVLA, (2011). How the Authority Operate. Retrieved on 2011-03-30 from URL:
[http://www.dvlaghana.gov.gh/about dvla.php](http://www.dvlaghana.gov.gh/about%20dvla.php)

Frith, W.J. and Dery, M.N. (1987). Intersection Control by Stop and Give way Signs-The Conclusions of Polus. Accident Analysis and Prevention: 19 (3), pp237-241.

Halcrow et al. (2000). Mass Rapid Transit in Developing Countries. Retrieved on 2011-03-25 from URL:

[http://siteresources.worldbank.org/INTURBANTRANSPORT/Resources/uk mass transit halcrow.pdf](http://siteresources.worldbank.org/INTURBANTRANSPORT/Resources/uk_mass_transit_halcrow.pdf)

Holder, Y. (2004). World Report on Road Traffic Injury Prevention: Its Implication for Low Income Countries.

Jean-Paul, R. and Slack, B. (2007). Road Transportation. Department of Economics and Geography Hofstra University. Retrieved on 2011-04-24 from URL:
<http://people.hofstra.edu/geotrans/eng/ch3en/ch3c2en.html>

Kenworthy, J. R. (2006). The Eco-City: Ten Key Transport and Planning Dimensions for Sustainable City Development. Environment and Urbanization, International Institute for Environment and Development (IIED). Vol 18(1)

Polus, A. (1985). Driver Behavior and Accident Records at Unsignalised Urban Intersections, *Accident Analysis and Prevention*, 17(1), pp25-32.

Pendakur, S. V. (2005). SSATP Working Paper No.80 Non-Motorized Transport in African Cities; Lessons from Experience in Kenya and Tanzania. Retrieved on 2011-04-12 from URL:

<http://www4.worldbank.org/afr/ssatp/Resources/SSATPWorkingPapers/ssatpwp80.pdf>

Rodrigue, J. P. (2007). Urban Transportation, Dept. of Economics and Geography, Hofstra University. Retrieved on 2010-12-15 from URL:

<http://people.hofstra.edu/geotrans/eng/ch6en/ch6menu.html>

Zaal, D. (1994). Traffic Law Enforcement: A Review of the Literature, Institute for Road Safety Research. Report No. 53. Retrieved on 2010-11-23 from URL:

<http://www.monash.edu.au/muarc/reports/muarc053.html>

Rietveld, P. and Bruinsma, F. (1999). *Is Transport Infrastructure Effective? Transport Infrastructure and Accessibility: Impacts on the Space Economy*. Springer Verlag, New York.

NTSB (1995). Factors that affect fatigue in heavy truck accidents. National Transportation Safety Board. Safety Study 1995, NTSB/SS-95/01

Hamelin, P. (1999). Drivers' working hours in 'social aspects of road transport' ECMT,

Paris. Hantula, L. (2000). *Road Safety Director, Traffic Safety Committee of Insurance Companies (VALT)*, Finland Personal Communication.

Nantulya, V. and Reich, M. R. (2003). Equity Dimensions of traffic in low and middle-income Countries. *Injury and Safety Promotion* 10(1-2): 13-20.

Oxley, J. B. Fildes, Corben, B. and Langford, J. (2006). Intersection design for older drivers: *Transportation Research Part F*; 9: 335-346.

DMV (2006). Driver's Handbook, North Carolina Department of Transportation.

William, A. (2009). Urban Road Infrastructure and Accident-Measures for Better Transport Planning in Kumasi, Ghana.

Anthony, A. (2010). Impact Attenuation System Using a Passive Damper.

Kurumatani, N., Koda, S., N., Nagkagiri, S. (1994). The effects of frequently rotating shift work on sleep and the family life of hospital nurses. *Ergonomics*, 37: 995-1007.

Langois, P.H., Smolensky, M.H., His, B.P. and Wier, F.W. (1985). Temporal patterns of reported single-vehicle car and truck accidents in Texas, USA during 1982-1983. *Chronobiology international*, 2: 131-146.

Lavie, P., Wollman, M. and Pollack, I. (1987). Frequency of sleep related traffic accidents and hour of the day. *Sleep Research*, 16: 275.

Mitler, M.M., Miller, J.C., Lipsitz, J.J., Walsh, J.K. and Wylie, C.D. (1997). The sleep of long-haul truck drivers. *The New England Journal of Medicine*, Vol. 337, no.11.

Valley, V. and Broughton, R. (1983). The Physiological (EEG) nature of drowsiness and its relation to performance deficits in narcoleptics. *Electroencephalography and clinical Neurophysiology*, 55: 243-251.



APPENDICES

Appendix “1”. Questions for Traders at the Techiman Market

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

The Effects of Road Traffic Accidents on Economic Activities in Ghana:

A Case Study of the Techiman Township.

A. Questions for Traders in Techiman Township

These questions are being used to obtain data for a research on the topic “The Effects of Road Traffic Accidents on Economic Activities in Ghana: A Case Study of the Techiman Township”. The information would be used solely for academic work. Thanks for your cooperation.

1. Gender: a. Male () b. Female ()

2. How old are you? Please tick the relevant box below:

22-25		26-30		31-35		36-40	
41-45		46-50		51-55		56 and above	

3. Nationality: Ghanaian () Foreigner ()

4. Are you educated? Yes () No ()

5. If “Yes” what is your level of education?

Middle School		J.H.S		S.H.S		Technical/Voc		Tertiary	
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6. Are you a resident of Techiman? Yes () No ()

7. If "No", where do you come from?

8. Marital Status: a. Married b. Single c. Widow/Widower d. Divorce

9. If "married", how many children do you have? Please tick the relevant box below

No children	1-3	4 and above

10. Do you have other dependants apart from your children? Yes () No ()

11. Which category of traders do you belong to? Wholesalers () Retailers ()

12. Do you have a permanent store/shed at the Techiman market? Yes () No ()

13. If "No" how do you market your goods?.....

14. For how long have you been trading?

Less than 5 years	6-10 years	11-15 years	16-20 years	20 years and above

15. How did you start the business?

Bank loan	Personal resources	Family resources	Other sources

16. Did you insure the business against fire/theft? Yes () No ()

17. If "No" why did you fail to do it?

.....

18. For how long have you been involved in an accident?

Less than 5 years		6-10 years		11-15 years		16 years and above	
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19. Which of the following did you travel on?

A bus		Mini bus		A taxi cab		A truck		A private car	
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20. Was the car insured? Yes () No ()

21. If yes, did you receive any compensation? Yes () No ()

22. Were you hospitalized? Yes () No ()

23. If yes, for how long?

Less than 2 months		3-5 months		6-8 months		9-11 months		1 year and above	
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24. Were you deformed in the accident? Yes () No ()

25. Did you lose your capital in the accident? Yes () No ()

26. If yes, did it bring your business to a halt? Yes () No ()

27. In your own view, how has the accident affected your business?

.....

28. Which of the following caused the accident? a. Over speeding b. Overloading c.

Attitude of pedestrians & motorists d. Others

Appendix “2” Questions for Transport Organizations and Law Enforcement Officials.

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

The Effects of Road Traffic Accidents on Economic Activities in Ghana:

A Case Study of the Techiman Township.

B. Questions for officials at the Municipal Motor Traffic and Transport Unit (MTTU)

These questions are being used to obtain data for a research on the topic “The effects of Road Traffic Accidents on Economic activities in Ghana: A Case Study of the Techiman Township”. The information would be used solely for academic work. Thanks for your cooperation.

1. Are traffic accidents problem for the police at Techiman? Yes () No ()

2. If ‘yes’ what make them a problem?

.....

3. What are the main causes of traffic accidents in the town?

.....

4. Which group of people by their activities cause most traffic accidents in the city?

.....

5. During which times of the day does most traffic accident occur?

.....

6. How do the police ensure the coexistence of different road users on the streets of Techiman?

.....

7. How do the police prevent traffic accidents in Techiman?

.....

8. What makes prevention of traffic accidents difficult for the police?

.....

9. Can the police ban someone from driving for carelessly causing accidents?

.....

10. Considering the period from 2003 till now have there been increases or decrease in traffic accidents in the town?

.....

11. Do the road networks in Techiman give enough space for use by motorists and pedestrians?

.....

12. Is the road network enough for the ever increasing number of cars in the town?

.....

13. Are there adequate road signs on the streets of the town?

.....

15. What do the police do to control the heavy traffic on the streets of the town especially the entry points and the market area during market days?

.....

C. Questions for officials at the municipality branch of GPRTU of TUC

These questions are being used to obtain data for a research on the topic “The Effects of Road Traffic Accidents on Economic Activities in Ghana: A Case Study of the Techiman Township”. The information would be used solely for academic work. Thanks for your cooperation.

1. Is GPRTU a driver union or owners of transport?

.....

2. How does someone become a member of the union?

.....

3. How does the Techiman GPRTU control transport operations?

.....

4. What role does the union play in preventing traffic accidents in the town?

.....

5. How does the union control the coexistence of different road users on the streets of Techiman?

.....

6. Are private car driver/owners members of the union in the town?

.....

7. If no how are they controlled to prevent accident?

.....

8. Are there other transport unions in the town?

.....

9. If yes how does the GPRTU cooperate with them to prevent traffic accidents in Techiman?

.....

10. What makes prevention of traffic accidents difficult for the union?

.....

11. What are the main causes of traffic accidents in the town?

.....

12. How does the union control the heavy traffic in the town especially during market days?

.....

13. Do the road network designs in Techiman give enough space for use by motorists and pedestrians?

.....

14. Are the adequate road signs on the streets of the town?

.....

15. How does the union cooperate with police in preventing accidents?

.....

16. Looking at the period from 2003 till now have there been increases on decrease in traffic accidents in the town?

.....

17. Does the union train road?

.....

a. If yes, how?

.....

b. If no which organization trains road users?

.....

D. Questions for officials at DVLA

These questions are being used to obtain data for a research on the topic “The Effects of Road Traffic Accidents on Economic Activities in Ghana: A Case Study of the Techiman Township”. The information would be used solely for academic work. Thanks for your cooperation.

1. What are the main functions of the DVLA

.....

2. Who qualifies to drive in Ghana?

.....

3. Who qualifies to drive commercial vehicle in Ghana?

.....

4. What training do drivers go through before obtaining license?

.....

5. How does the authority control the use of driver's license?

.....

6. Does the authority have the right to ban a driver from driving?

.....

7. If yes what could prompt a ban?

.....

8. If no who has the right to do so?

.....

9. Do traffic accidents in the city constitute a problem to the authority?

.....

10. How does the operation s of the DVLA prevent accidents in Techiman?

.....

E. Questions for officials at the Road Safety Commission

These questions are being used to obtain data for a research on the topic “The Effects of Road Traffic Accidents on Economic Activities in Ghana: A Case Study of the Techiman Township”. The information would be used solely for academic work. Thanks for your cooperation.

1. What are the operations of the Road Safety Commission in Techiman?

.....

2. Is traffic accident a problem in the town?

.....

3. If yes how does the commission address the problem of traffic accident?

.....

4. What are the main causes of traffic accidents in the town?

.....

5. What are the effects of traffic accidents in the town?

.....

6. Has the commission been successful in preventing accidents?

.....

7. What are the main problems of the commission in preventing traffic accidents?

.....

8. Do the road networks designs in Techiman give enough space for use by motorists and pedestrians?

.....

9. Are there adequate road signs on the streets of the town?

.....

10. Do the following cause traffic accidents?

a. Over speeding

b. Overloading

c. Attitude of pedestrians and motorists

.....

11. If they do how do they affect traffic accident prevention?

.....

12. Considering the period from 2003 till now have there been increases or decrease in accidents in the town?

.....



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