A SURVEY OF HIGHWAY TRAFFIC SAFETY MANAGEMENT PRACTICES IN NIGERIA

Dissertation for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY
CHRISTIAN OLUKAYODE OLUDURO

1977

ABSTRACT

A SURVEY OF HIGHWAY TRAFFIC SAFETY

MANAGEMENT PRACTICES IN NIGERIA

By

Christian Olukayode Oluduro

Statement of the Problem

The importance of highways in Nigeria's transportation system has grown steadily through most of the decade. While it has increased personal and goods mobility and accessibility to a substantial extent, like most physical problems, it has also created a multitude of problems for Nigerians, prominent among which are traffic accidents. Indeed the unsafety presently prevailing on Nigeria's highways has become one of the most urgent national problems confronting the nation because safety on the nation's highways is a subject that affects virtually the entire population.

Over the years, a myriad of public and private agencies had emerged to provide a multitude of management services and activities in response to Nigeria's unsafety problems. Such a multi-jurisdictional situation required some coordinative mechanism that is effective for integration and coordination of existing highway safety efforts among the various agencies providing management services. Paradoxically no such formal mechanism existed. It is therefore the purpose of this study to review the current role and involvement of these

agencies in highway safety, examine their organizational structures and management practices in order to identify the principal problems in herent in the structures and management practices in highway safety and offer a management model that will encourage and facilitate the coordinated execution of unified planned actions by the diverse public and private agencies in highway safety in Nigeria.

The survey was undertaken basically to provide first hand information for subsequent analytical treatment of highway safety management practices in Nigeria.

In order to accomplish this, a questionnaire was developed to survey the highway safety practitioners asking them for opinions and comments on items dealing with highway safety management practices in Nigeria both in the public and private sectors. These items were included in the following three sections: (1) Highway Safety Management Structure and Organization in Nigeria; (2) Highway Safety Management Practices (the management process -- planning, programming, budgeting, execution and control, and evaluation); and (3) Highway Safety Intergovernmental and Private Organization Relationships.

Description of the Methods, Techniques and Data Used

The sample for the survey was limited to the total population of 161 highway safety practitioners throughout the country - 21 were interviewed while the remaining 140 were surveyed through mailed questionnaire. An opinion questionnaire was developed to obtain opinions on items stated in the sections outlined above.

Prior to the conduct of the interview and mailing of the questionnaire, a panel of experts was selected to review the

questionnaire. After the review, the questionnaire was pilot-tested. In addition, a letter of explanation was drafted by the author and a letter of endorsement was obtained from Professor Robert Gustafson, Professor of Criminal Justice and Traffic Safety Education of the Highway Traffic Safety Center at Michigan State University.

After a period of four weeks, a follow-up letter was sent to those practitioners who failed to respond to the initial mailing. The initial mailing and subsequent follow-up produced an 83% response of completed questionnaires. A total of 116 questionnaires was received from the 140 practitioners sampled. Also, an 86% participation in the interview was obtained. A total of 18 practitioners out of 21 were interviewed.

The files for the interview survey and the mailed questionnaire were treated separately. Responses and comments from the respondents were reviewed and the tabulated findings were divided into five sections and reported by a descriptive analysis using percentages.

The Major Findings

The survey indicated that:

1. Highway traffic unsafety problems in Nigeria were extensive in type, magnitude and complexity. The highway traffic fatality and injury rates have shown an upward trend over the past ten years.
2. By comparison with other governmental programs, highway safety did not enjoy high political visibility and support.

3. The organization of highway safety activities was not an intergrated, cohesive operation. Diverse responsibilities have been assigned to or assumed by the various state and local agencies, resulting in a severely fragmented set of responses and services. This fragmentation has led to a number of inefficiencies.
4. The Federal Government through the RSC which was expected to provide leadership and play the most prominent role in highway safety played that role independent of states and surrounding local highway safety communities.
5. The Federal Government through the RSC lacked effective leadership and authority necessary in managing highway safety activities in Nigeria.
6. There was no recognizable formal management process for highway safety at all levels and there were a lot of deficiencies in the management process in highway safety. There was no process or established method specifically geared to planning, resource allocation or evaluation of highway safety activities.
   While planning suffered from a lack of data and evaluation from a lack of recognition, program execution and control decisions were arbitrary.
7. Deficiencies existed in the flow of highway safety program information among the various units connected with highway safety.

A SURVEY OF HIGHWAY TRAFFIC SAFETY MANAGEMENT PRACTICES IN NIGERIA

By

Christian Olukayode Oluduro

A DISSERTATION

Submitted to
Michigan State University
in partial fulfilment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Secondary Education and Curriculum

1977

This dissertation is dedicated to:

Brigadier Olu Bajowa of the Nigerian Army

for his golden advice to me when I was

going for postgraduate studies

Colonel Buhari for recommending me for

the postgraduate studies

Colonel Tarfa and Dr. Balogun for their

fantastic contributions to Traffic

Administration in Lagos Conurbation

ACKNOWLEDGEMENTS

To Professor Robert Gustafson, my major academic advisor and chairman of my guidance committee, for his advice, encouragement and kindness.

To other members of my guidance committee, Professor Robert Nolan, Professor Edwin Keller, Colonel Francis Brokaw, for their encouragement and helpful assistance.

A special note of thanks to Major Ade Ikupolati, Lt. Colonel Arokoyo, Major Femi Adewole, 'Bayo Ogunbi, Dr. Ogunlade, Bayo Adetowubo, Shadi, Mrs. Wiseman, Tony Momoh, and Brigadier Aisida for their encouragement and assistance with this study.

To my parents, and my wife's parents, for their care and support.

To my wife, Kemi, and son, Olukayode (Junior) for their patience, love, understanding and many personal sacrifices.

To Kemi Oluduro, Robins Bailey, Sandra Watts and 'Femi Runshewe who typed the manuscript and successfully coped with the format detail - my sincere thanks.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

THE PROBLEM

As a nation, Nigerians are concerned about their mobility. This concern was readily apparent in the Third National Development Plan 1975-80.[1] Of all sectors of the economy outlined in this Plan, the transport sector made one of the heaviest claims on the available capital development funds -- a total of ₦7.3 billion ($10.8 billion) was allocated for capital expenditure in the transport sector. This was made up of ₦1.0 billion ($1.35 billion) for the states and ₦6.3 billion ($9.45 billion) for federal programs. In the First and Second National Development Plans, the transport sector also made its impact. One-fifth of the First National Development Plan (1962-68) capital outlay was spent on the transport sector, and one-third of the Second National Development Plan (1970-74) public sector capital program was devoted to the transport sector.

The highway transportation system -- a system within this macrotransportation system - because of its central role in Nigeria's economy, has received particular attention. Of the capital expenditure which will be provided for the transport sector from 1975-80, ₦6.23 billion ($9.33 billion) or 85% will be spent on highways while ₦528 million ($792 million) will be

---

[1] The Central Planning Office, Federal Ministry of Economic Development: Third National Development Plan 1975-80, Lagos, Nigeria, 1975.

Table 1. 1: CAPITAL PROGRAMME BY GOVERNMENTS AND ACTIVITIES (TRANSPORT)

(₦ Million)

Sub-Sectors		Total	1975-76	1976-77	1977-78	1978-79	1979-80
Roads	Federal	4,355.960	979.924	1,123.474	966.144	739.924	546.494
	All States	984.476	210.798	254.054	223.158	178.188	118.278
Railways		885.020	35.052	52.004	261.556	267.704	268.704
Civil Aviation		476.980	59.630	100.560	126.800	83.850	106.140
Nigeria Airways		50.950	12.600	18.750	10.100	8.000	1.500
Inland Waterways	Federal	47.541	9.901	12.160	11.188	8.695	5.597
	States	44.250	12.370	12.655	13.110	4.220	1.895
Maritime Service		13.730	2.260	4.070	3.300	2.300	1.800
Shipping		118.090	17.820	33.370	26.300	20.300	20.300
Ports		322.010	47.460	71.700	83.000	66.400	53.450
Government Coastal Agency		4.061	1.020	1.091	0.870	0.540	0.540
	All States	1,028.726	223.168	266.709	236.268	182.408	120.173
TOTAL	Federal	6,274.342	1,165.667	1,417.179	1,489.258	1,197.713	1,004.525
	All Govt.	7,303.068	1,388.835	1,683.888	1,725.526	1,380.121	1,124.698

SOURCE: Third National Development Plan 1975-80, Lagos.

spent on air transportation and ₦545.62 million ($818.43 million) on various elements of water transport. These expenditures represent 7.2% and 7.5% respectively. A summary of the transport section investment programs during the 1975-80 period is presented in Table 1.1.

The benefits of the highway transportation system to the social and economic structure of the nation are substantial. The highway system made Nigeria the most mobile population in Africa since this type of system is the most flexible and responsive mode of transportation and provides the greatest freedom of mobility. It accounts for significant employment opportunity. It profoundly altered the country's land use patterns and increased land values. It improved travel times, lowered commercial operating costs and increased effectiveness of services. Most importantly, it established the automobile as an important part of the nation's mobility and economic activity.[2]

With the establishment of the highway transportation system, there is no doubt that the automobile is and will continue to be the most universally accepted form of transportation in Nigeria. At present about 95% of all person-trips in urban areas are by automobile, nearly 100% of the consumer and social services society depends upon are transported or conducted by the automobile, and over 60 times as many person-miles of travel between cities, towns and villages are by automobile as by airplane and train.

---

[2]The automobile in this context refers technically to any road car, omnibus, truck cycle (motor, auto, pedi, bi) propelled by a lightweight, internal combustion engine or manual transmission at a walking pace.

As indispensable and important as the automobile is, like most physical systems, it also introduced a multitude of other effects on the human and natural environment. It has become a major contributor to fatalities, injuries, air pollution, high energy consumption and traffic congestion. Both its technical performance and its more intelligent and socially responsible utilization have become matters of urgent and continuing concern. This undoubtedly led to a new phase of major policy in national transportation objectives as contained in the Third National Development Plan 1975-80.

Nigeria's transportation objectives were spelled out for the first time in 1965 in a Government White Paper on Transportation Development as a "coordinated support of national objectives of creating a network of fast, safe, efficient highways spanning the country."[3] These objectives are as relevant and valid today as they were 12 years ago but they have not been completely realised as they are of a long-term and continuing nature.

Conditions have changed since 1965, however, and realization of this fact leads to the addition of two more specific objectives -- that of:

1. Ensuring increased safety, and
2. Providing better service to those who use the highway transportation network.

These additional objectives are aimed at ensuring that the purpose of the present heavy investment in transportation facilities and equipment is not defeated by the improper and unregulated use of the facilities so created.

---

[3]Federal Ministry of Economic Development: Government White Paper on Transportation Development, Lagos, Nigeria, 1965.

Unfortunately, up to the present time, performance and coordination within the highway transportation sector have not been satisfactory, especially in the highway traffic safety field, not only because of misinvestments but also because of inadequate utilization of human and material resources directly arising from poor management and control.

To attack this management problem, extensive investigations and studies were undertaken on the more problematic areas of the highway transport sector during the 1970-74 period.[4] Among the accepted results of the studies which related to management and control, it was noted that:

> "although there has been some improvement since 1970, management remains the most intractable problem of the public corporations and companies operating in the highway transport sector."[5]

This "management problem" is the problem with which this survey is concerned. The author's interest in ensuring increased highway safety through management practices prompted him to pursue this study. The author believed there are many opportunities to improve the effectiveness of organizations and individuals participating in the work of highway safety at all levels of government, in private industry, and in voluntary agencies.

These improvements can be realized by taking a more comprehensive approach to managing highway safety activities. This approach is particularly effective when it is necessary to organize a wide

---

[4]The Central Planning Office, Federal Ministry of Economic Development: The National Development Plan 1975-80, Lagos, Nigeria, 1975, p. 199.

[5]Kampsax Nigeria Limited: Truck Road and Maintenance Studies 1971 for the Federal Republic of Nigeria, Lagos, 1972, p. 122.

spectrum of activities of many diverse organizations into the orderly program required to achieve broad objectives. Certainly, highway safety is a field that is complex and varied enough to benefit from the management approach.

TRAFFIC SITUATION

Nigeria's highway transportation system is a classic example of a technological development that resulted in great benefits but also created serious problems for the society. The national population census of 1973 listed some 12,000 places in Nigeria where people lived. They ranged from villages of less than 80 inhabitants to cities like Ibadan and conurbations like Lagos. In and around these places, about 75 million Nigerians[6] made use of approximately 6 million vehicles. Everyone who drives and/or rides in an automobile, everyone who walks and/or crosses both the rural and urban roadways has a right to be protected from the malfunctioning of the highway transportation system. Their safe travel is a national goal and priority.

Highway travel and the functioning of the highway system were taken very much for granted by the average Nigerian citizen until the question was asked: "How well does the system operate? How well do the components interact?" One measure of how well the highway traffic system in Nigeria operates is the incidence of highway crashes, the death tolls, personal injuries, congestion, property damage and losses that result from highway use. Of these losses, the most compelling ones are those which involve serious or fatal injury to human beings.

---

[6]Daily Times edition, April 11, 1977. In an address entitled, "Searchlight on Crucial Document," delivered by Brigadier Shehu Yar'Adua, Chief of Staff, Supreme Headquarters, Lagos, Nigeria.

In 1975, there were 32,651 highway crashes which resulted in 5,552 deaths, the highest total on record.[7] This was 20% more than the 1973 total of 24,844 highway crashes resulting in 4,537 deaths, which was the first time the figure exceeded 4,000 (See Table 1.2). Disabling injuries in 1975 were estimated at 20,132.[8] Less serious injuries totalled 19,497 compared with 13,154 injuries in 1973.[9] Property damage accident costs were indicated to be in excess of ₦50 million ($80 million). One vehicle in four was involved in some kind of an accident during 1974. The economic losses amounted to more than ₦100 million ($237 million) in 1974.[10]

None of these statistics expresses adequately the human significance of traffic accidents in Nigeria. When one considers people as one of the important resources of a developing country like Nigeria, the death toll imposed by highway related accidents becomes very devastating. Approximately 2 million man-years were lost in 1974 due to highway crashes and approximately 5,000 out of the 19,000 personal and disabling injuries were taken out of the economic mainstream. If one values one person as worth ₦2,000 ($3,500) per year in the GNP, the annual loss to the country in 1974 as a result of highway crashes alone was roughly ₦20 million ($35 million).[11]

---

[7] Police Accident Record, 1976.

[8] op. cit

[9] op cit.

[10] Estimates given by the Secretary of Insurance Association of Nigeria.

[11] Daily Times edition of January 24, 1977. This is hypothetical as Hitch, J. and McKean, R. pointed out in their book, "The Economics of Defense in the Nuclear Age," 1960, that there was no generally acceptable method of valuing human lives.

Table 1.2 SUMMARY OF ROAD ACCIDENTS AND CASULTIES IN NIGERIA 1970-75

Period	Total Cases Reported	No. of Fatal and Serious Cases	No. of Minor Cases	No. of Persons Killed	No. of Persons Injured
1970	16,666	6,277	10,389	2,893	13,154
1971	17,745	7,479	10,202	3,206	14,492
1972	23,287	9,896	13,391	3,921	16,161
1973	24,844	10,454	14,390	4,537	18,154
1974	28,893	11,338	17,555	4,922	18,660
1975	32,651	13,154	19,497	5,552	20,132

SOURCE: The Nigeria Police Accidents Record issued by Public Relations Branch, Lagos-Nigeria.

Apart from these losses, highway crashes have brought to Nigerians a unique shock of sudden meaningless tragedy. It can be described as a technology shock. Nearly 75% of those killed or seriously injured were males -- mostly technically skilled males.[12] This preponderance of male deaths added to the fact that more males died in the recent civil war than females makes the state of affairs in highway traffic safety look even more gloomy. Unless the current trend and rate are reversed, highway accidents pose an awesome threat to the male demography in Nigeria.

In total, the occurrence of traffic accidents on Nigerian roads inflicted an incalculable burden on the community -- the burden of pain, fear and suffering imposed on one hand, and the ascertainable burden in the form of net loss of goods and services, due to death and injury and the expenditure of resources necessary to make good the effects of accidents (medical expenses, vehicle repairs, litigations, insurance and administrative consts) on the other.

This burden and overwhelming carnage on the nation's highways requires serious management attention since highway safety practices in Nigeria are complex, with responsibility diffused through many agencies and jurisdictions. To manage highway safety effectively, therefore, it must be given an administrative and organisational treatment and visibility as a program. There is also a similar need for a management model and guidelines for the administration of highway safety at all levels of government and in the private sector.

---

[12]Police Accident Report, 1976. (Examination and analysis of the raw data reveals this assertion). This is partially because most driving is done by men.

Now that the Federal Government is on the threshold of a new phase in policy to support initiatives and innovative approaches to the challenges of highway safety as evidenced in the establishment of a Road Safety Commission and the declaration of 1974 as "Road Safety Year," coupled with the rising insistence by the general public that a safe roadway environment be created and the availability of both human and non-human resources, it is, therefore, an appropriate time to undertake a study to assist in the formulation of policy and management guidelines in this area.[13] The survey is needed.

It is against this background that the importance of this survey can become more intelligible as a timely and necessary exercise.

STATEMENT OF THE PROBLEM

The importance of highways in Nigeria's transportation system has grown steadily through most of the decade. While it has increased personal and goods mobility and accessibility to a substantial extent, like most physical problems, it has also created a multitude of problems for Nigerians, prominent among which are traffic accidents. Indeed the unsafety presently prevailing on Nigeria's highway has become one of the most urgent national problems confronting the nation because safety on the nation's highways is a subject that affects virtually the entire population.

Over the years, a myriad of public and private agencies had emerged to provide a multitude of management services and activities

---

[13]The RSC was inaugurated by Mr. L. O. Okunnu, the then Commissioner for Works and Housing in Lagos on Thursday, April 11, 1968.

in response to Nigeria's unsafety problems. Such a multi-jurisdictional situation required some coordinative mechanism that is effective for integration and coordination of existing highway safety efforts among the various agencies providing management services. Paradoxically no such formal mechanism existed. It is therefore the purpose of this study to review the current role and involvement of these agencies in highway safety, examine their organizational structures and management practices in order to identify the principal problems inherent in the structures and management practices in highway safety and offer a management model of such a mechanism will encourage and facilitate the coordinated execution of unified planned actions by the diverse public and private agencies in highway safety in Nigeria.

Purpose of the Survey

This survey was undertaken basically to provide first hand information for subsequent analytical treatment of highway safety management practices in Nigeria. Thus the purposes of this survey were:

1. To review the involvement of Federal, state and local governments and the private sector in the highway safety field.
2. To present an overview of the current highway safety management process in Nigeria.
3. To identify the principal problems in the management of highway safety both in the public and private sectors.

4. To recommend guidelines and a management model for Nigeria.
5. To review the magnitude and nature of the unsafety problem in Nigeria.

SCOPE OF THE SURVEY

The survey was limited to a sample of the total population of highway traffic safety practitioners throughout the whole Federation of Nigeria. Personal interviews with a small group of appropriate federal, state and local government officials and some private sector officials having close familiarity with the highway safety management practices in Nigeria were conducted.

The 140 traffic safety practitioners sampled in the mailed questionnaire survey represented the whole population of highway traffic safety practitioners from all parts of Nigeria. This target sample list was fairly representative of all the political areas and the highway safety practitioners in the country. It was convincingly felt that these respondents would be a fair sampling for the study.

Limitations of the Survey

As identified above, the purposes of this survey were to identify the current management practices and environmental circumstances of the federal highway safety program as it was being implemented by the Road Safety Commission, state and local governments and to identify the related roles of public and private agencies; review the problems in management of highway safety, and develop a model management system for broad application to federal, state and local highway safety programs and program management practices in the

private sectors. The model solution was intended to take a programatic approach which could be adopted, for the most part, under current environmental circumstances.

The scope of this survey did not include a technical analysis of how effective the current highway safety program, or any of its activities, are in reducing traffic fatalities and accidents. It did not intend to review the accident causation factors nor propose accident counter measures. The concentration was on a management analysis of public and private sectors' highway safety programs to ascertain approaches that would make the highway safety agencies or units more effective vehicles for program management.

Researcher's Bias (Working Hypothesis)

1. The writer has proceeded on the assumption that through improving the management practices of highway safety programs, a reduction in traffic fatalities and accidents would result due to the application of more effective countermeasures, improved coordination and conservation of resources.
2. Comprehensive highway safety planning and programs could be developed by incorporating all significant highway safety activities within a single logical framework at the federal level.
3. Since most state and local governments are confronted with the same types of problems in managing large comprehensive programs like education and agriculture, common approaches to the management of a highway safety program were feasible.

DEFINITION OF TERMS USED

Accident

In much of the recent literature and discussion dealing with the subject area of traffic safety, the term "accident" has been used loosely.[14] To avoid misleading ambiguity as a result of its general use, the term "accident" in the context of this survey was defined as any event that results in unintended personal injury or property damage attributable directly or indirectly to the motion of an automobile or its load on the highway.

Management

In its general form, management can be viewed as the coordination of a variety of separate activities so that the combined results move, as efficiently as possible, toward a desired objective.[15]

Management Planning

The process by which traffic safety managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the traffic safety organization's objectives.

Management Practice

The process which all people who direct the activities of other people in traffic safety activities use to get their organization's work done.

---

[14]One of such definitions is contained in Baker, J.S. and Stebbins, W.R., Jr.: Dictionary of Highway Traffic, Evansville, Illinois; Traffic Institute, Northwestern University, 1964, pp. 134.

[15]Base, B.M. & Deep, S.D.: Current Perspectives for Managing Organizations: Prentice-Hall, 1970. pp. 38.

Management Process

Refers to planning; programming; budgeting; program execution and control; evaluation.

Operational Control

The process of assuring that specific tasks are carried out effectively and efficiently.

Questionnaire

Refers to the questions developed to reflect the opinions of the respondents.

Strategic Planning

The process of deciding on objectives of the organization, on changes in these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources.

Traffic Safety Management

The application of sound management principles and practices to unified programming for improved traffic movement and safety in both the public and private sectors. Traffic safety management in the context of this study is defined as the means -- human and non-human -- of achieving the maximum results from coordinated planning, control, and programming of traffic safety activities.

Unsafety

Will be used in this study to describe the nature of traffic problems discussed in this survey.

ABBREVIATIONS USED

RSC: Road Safety Commission

PPBS: Planning - Programming - Budgeting Systems

PPBEE: Planning - Programming - Budgeting - Execution and Evaluation[16]

MBO: Management by Objectives

FHSC: Federal Highway Safety Commission

₦: Naira, this is Nigerian currency equivalent to $1.50 American.

ORGANIZATION OF THE STUDY

This dissertation is divided into five major chapters.

All materials relating to the procedural aspects of the survey -- interview and mailed questionnaire, letters, maps, the model legislative decree -- are assembled in the appendices.

Chapter I dealt with the statement of the problem and covered the background of the survey -- the problem, limitations of the survey, researcher's bias, definition of terms used in this survey, abbreviations, and organization of the study.

In Chapter II, an extensive review of the literature pertinent to this study is presented.

Chapter III describes the survey methodology and techniques used -- method of procedure, selection and description of the sample, development of the interview and mailed questionnaire, and methods for analysis of the data collected.

---

[16]This concept was developed by Peat, Marwick, Mitchell and Co. Highway Safety Program Management and Reporting System, Vol. I. Final Report on NHTSA FH-11-6925, December, 1969.

Chapter IV describes the nature and magnitude of unsafety problems and highway safety practices; identifies principle problems in the management of highway safety management efforts; reviews the current involvement of federal, state and local governments in the highway safety field; lists the specific points that were considered during the analytical phase of work following the survey and summarizes the findings of the survey.

Chapter V presents the summary, conclusions, recommendations, development of the guidelines and management model for highway traffic safety programs in Nigeria, suggestions for further research, and a discussion.

In the Bibliography, entries are ordered alphabetically with the surname of the author first and followed by the title of the publication, the publishers, place and date of publication. The title of the publication is underlined in order to minimize errors in referencing.

CHAPTER II

REVIEW OF THE LITERATURE

Presented in this chapter is a review of the literature pertinent to this study. A literature search was conducted to obtain information documented in the literature regarding highway traffic safety management. This search was directed specifically at discovering substantive research findings, publications, study projects, conference and occasional papers that documented scientific and management information dealing with highway traffic safety management and related problems.

A range of sources was probed including data banks such as the National Highway Traffic Safety Administration (NHTSA). The preparatory search also relied on interviews with knowledgeable individuals and groups engaged in related research or otherwise knowledgeable in the problem area from a broad point of view.

A comprehensive search of the literature revealed that the published discussion of the problem area under study was confined almost entirely to brief articles, project reports and papers that have appeared in conference proceedings during the past decade.

More than fifty such publications were uncovered; but no studies of monograph or book dimensions were found. It is not intended to list these publications individually (many of which are outlined in the bibliography section of this thesis) but merely to review those that were relevant to the present study.

The great majority of the articles, project reports and conference papers were concerned not with highway traffic safety management per se but with ways and means of combating or preventing road accidents and unsafety problems. The largest number were devoted to describing highway traffic safety programs. Another group of publications descibed similar programs established in certain countries and the United States. Still others set forth proposals for remedial measures in highway traffic safety.

The dominant factor in this abundance of publications was the lack of a single, uniformly agreed upon description of highway traffic safety management. They consisted instead of a variety of ways of viewing highway traffic safety. This multiciplicity of research of a fragmented nature was an inevitable consequence of the fact that highway safety management was erroneously viewed in the traffic accidents context. In addition, the studies tended to reflect the field of specialization of the authors. Thus, one author presented an engineer's view (Smeed, 1972); another emphasized the psychological aspects (Hakkinen, 1958, Goldstein, 1964) and yet another, a system approach (Munson, 1971).

A further search of the Thesis Library at Michigan State University; Traffic Safety Research Institute of the University of Michigan; University of California, Los Angeles; University of Lagos; University of Ibadan; University of Ghana; Legon; Ahmadu Bello University, Zaria; Road Research Laboratory, London; and the Library of Congress, Washington disclosed no research studies that focussed directly on the present study. However, the review did reveal some related studies that employed management models

and techniques which had general applicability to this study.

Most of the information currently available can be categorized within three basic classes:

1. Conference papers and reports;
2. Recently completed studies and project reports in highway traffic safety;
3. Related studies that employed management models and techniques which have general applicability to this survey.

CONFERENCE PAPERS AND REPORTS RELEVANT TO HIGHWAY SAFETY MANAGEMENT

Of the entire list of relevant conference papers and reports, only four contained any definitive discussion related to the subject of this study.

In one of these, Dr. James Carnahan[1] of the Highway Traffic Safety Center, Michigan State University, in a paper presented to the Eastern and Western Highway Safety Management Workshops, defined highway safety management. According to Carnahan:

> "Highway safety management is the application of sound management principles and practices to highway safety programs and activities in order to improve safety at the national, state and local level."

Another relevant publication was a conference report entitled "A Plan for Improving Highway Safety Management" which contained recommendations developed at two Highway Safety Management Workshops

---

[1] Carnahan, James E., Highway Safety Management: Concepts and Issues: A paper presented at the Eastern and Western Highway Safety Management Workshops, August 9 and September 16, 1971, p. 4.

in California and Florida in 1975.[2] Of pertinence to this study were the recommendations contained on pages 5 and 7 of the report.

Realizing the importance of human resources in the total highway safety management function it was concluded by the workshop study group that:

> "Human resources are an essential element of the national highway safety program. Success in highway safety management, like any other management problem depends on having qualified personnel at all levels of operation. Whether these persons are technicians, professionals or administrators, they should understand their special tasks contribute to the success of the system."

The report continued:

> "In fact the present lack of coordination among the Federal, State and Local Governments and the private sector, may be partially due to highway safety personnel lacking awareness of the potential -- as well as the limitations -- of other segments of the highway safety system."

The workshop study group also observed that:

> "Highway safety managers need a well developed structure which will permit management of comprehensive programs for the total system. Thus, it is necessary to bring about considerable improvement in the organizational framework at the local level and some improvements at the state level."

Based on this observation, the workshop group recommended that one way to solve highway safety management problems was by promoting more highway safety management conferences involving appropriate federal, regional, state and local agencies for the expressed purpose of planning and improving program management and procedures.

---

[2] National Conference of Governor's Highway Safety Representatives: "A plan for Improving Highway Safety Management: Recommendations developed at two Highway Safety Management Workshops, San Diego, California (August 8-10, 1972) and Clearwater Beach, Florida (September 15-17, 1971), pp. 5 & 7.

In another publication sponsored by the Automotive Safety Foundation (1968) entitled "Highway Safety Program Management,"[3] it was suggested that in the absence of detailed evaluative models in highway traffic safety management, the management planning staff should undertake three types of evaluative activities. These activities, the authors referred to as "the three evaluative component tasks," and they were:

1. Initiation of detailed periodic assessment of program and project activities by jurisdiction.
2. Continuation of monitoring of the traffic accident situation by the traffic data center generating periodic summaries by jurisdiction or smaller areas.
3. Periodic comparison of trends emerging in the accident data with trends in the assessment data.

The authors pointed out that each of these evaluation activities provided information for some facet of the management planning function. They concluded, however, that while most of the data required by the three recommended evaluation activities could be easily collected by the operating jurisdictions, the specific variables and measures to be recorded could be specified in the coordination "negotiation" activities.

Thus, the concept of "negotiation" was introduced to the highway safety management practice. It was this concept that interested the author of the present study. Munson (1971) in a subsequent work upheld the significance of this concept when he wrote:

---

[3]Automotive Society Foundation: Highway Safety Program Management, Washington, D.C., 1968, pp. 38 & 39.

"the first need of the management planning staff in highway safety is strategies for negotiation."[4]

Munson further defined "negotations" in the highway traffic management context as interaction between the management planning staff and the operating units.

The fourth relevant publication was a conference paper presented to the Road Research Organization for Economic Cooperation and Development in Paris (1971). The paper was written by Wilde and his associates.[5] Of significance to the present study were the two findings that:

1. Highway safety organization structure is static. It comes to life when the people communicate through the system.
2. Coordinated actions of any kind in highway safety management depend on effective communications.

Though Wilde and his colleagues found it difficult to conceive of coordinated actions between two or more units if each one did not know what the others were doing, they agreed that this communication may occur between the management system and the various individual units or among the operating units themselves. To them, it was this

---

[4]Munson, M.J. & Others: The Safety Demonstrations Program for Oakland County, Michigan, Final Report. Task 4: Final Management System Recommendations. Prepared for Traffic Improvement Association of Oakland County, Michigan, November, 1971. Highway Traffic Safety Institute: The University of Michigan, Ann Arbor, 1971, p. 35.

[5]Wilde, G.J.S., Sheppard, D. & Wind, G. Road Safety Campaigns, design and evaluation: The use of mass communications for the modification of road use behaviors. Road Research Organization for Economic Cooperation and Development, Paris, 1971.

communication requirement which underlied the reliance on information flows to define the relationships between the functional segments of any management model.

RELATED COMPLETED STUDIES AND PROJECT REPORTS ON HIGHWAY TRAFFIC SAFETY

During the course of the interview research and search for pertinent literature on the subject matter, the author learned of several other on-going or recently completed studies and project reports on highway traffic safety. In the case of the completed studies, copies of the study reports were obtained; and in the case of the on-going projects, the author interviewed the individuals in charge and later received copies of their completed study reports. A few of these studies together with those examined during the preliminary exploration for pertinent literature in the libraries are listed and briefly described below.

Safety demonstration program for Oakland County, Michigan study was coordinated by M.J. Munson[6] and his associates on behalf of the Highway Safety Research Institute, The University of Michigan, for the Traffic Improvement Association (TIA) of Oakland County, Michigan. The main purposes of the report were to idetify strengths and weaknesses in the existing traffic management operation, devise recommendations and an incremental improvement of that operation, and to design and test management techniques for periodic assessment of the county traffic safety situation.

---

[6]Op. cit., p. 29.

Of interest to the present study was the following statement taken from the recommendations of the report:

> "Mechanisms must be established for providing continuous relationships among all concerns in the highway safety field primarily via higher levels of government or in groups according to program needs. The relationship between these operating units and the central unit staff should be based on explicit lines of authority. This fact constitutes the uniqueness of highway traffic safety management".

The report also recognized the establishment of a non-government traffic association as a basic ingredient to highway safety management practices. However, the report warned that such an association must not have ties to a specific jurisdiction.

The National Highway Safety Needs Report

The National Highway Safety Report[7] was conducted in response to a directive by Congress to provide the basis for evaluating the continuing highway safety programs authorized under Title 23, U.S.C. Therefore, it dealt primarily with highway safety programs and highway safety construction programs.

A significant point in the findings of the report was the emphasis placed on the role of management support activities in highway traffic safety. According to the report:

1. "No countermeasure can be developed, implemented or evaluated without management support. This must be a coordinated logical process, beginning with problem identification and analysis, and continuing through programming implementation, and evaluation of results."

---

[7] U.S. Department of Transportation: The National Highway Safety Needs Report: Report of the Secretary of Transportation to the United States Congress pursuant to Section 225, of the Highway Safety Act of 1973, Washington, D.C., April 1976, pp. VII-I.

2. "(Management) support activities relate to efficient administration covering the capability to plan, organize, direct, control and evaluate countermeasure implementation in a timely cost-effective manner. While no support activity will provide directly for reductions in traffic accidents, fatalities and injuries, without these functions, safety program implementation would not be possible."

3. "There are seven categories of support activities: inventory, evaluation, data analysis, ADP systems, uniform standards, laws and adjudication and manpower training. Research, development, and demonstration are other important support functions..."

Transportation Decision-making: A Guide to Social and Environmental Considerations:

The report, Transportation Decision-Making -- A Guide to Social and Environmental Considerations[8] was conducted by the Transportation Research Board in 1975.

The report presented an integrated approach for systematically incorporating social, economic and environmental factors into transportation planning and design.

The four key relevant findings to report were:

1. "Any decision in highway planning affects many groups. Choices on what transportation mode is utilized, what kind of service is provided, which of several possible corridors is selected, what decisions are made about location and design standards, although seemingly only technical decisions, almost always have significant social and environmental implications. The total set of these effects on all groups must be considered with particular attention paid to the differential effects -- which groups gain and which lose. Although a change in the transportation system (such as the introduction of one-way street) may bring benefits to many people in an area, some particular groups may bear a high cost or receive little or no benefit. Every decision about highways will involve the need to balance gains to

---

[8]Transportation Research Board: Transportation Decision-Making: A Guide to Social and Environmental Considerations; National Cooperative Highway Research Program Report 156. Washington, D.C. 1975, pp. 6, 12, 16, & 26.

some interests against losses to others. It is therefore essential that the process of planning, designing, implementing and operating highway systems explicitly recognize and take into account such issues of social equity."

2. "The planning and design of highway system is as much a political as it is a technical one. Effective informed participation of the community -- federal, state, and local agencies and officials, interest groups and individual citizen -- is therefore necessary in all phases of highway planning, starting during statewide and urban area system planning and continuing through corridor, location, and design studies, and even into construction. Such interaction helps the highway agency to identify and predict both the incidence and the magnitude of social and environmental impacts and to learn what issues various people consider to be important. Also, community groups can serve as a useful source of suggestions for solutions to transportation and related community problems. Different levels of participation should be provided depending on interest. Participation may range from general awareness to periodic attendance to intensive involvement. The public must provide inputs to the decision-making process..."

3. "Flexibility is required in the conduct of highway management. New information will emerge from research and studies, conditions may change (economic, political, social and technological). In response, management must be able to allocate resources to new activities, adjust allocations to reflect changes in needs and priorities, and reshape the planning process to reflect these modifications. At the same time, the planning process must be decisive, and realistically, management will face certain constraints -- in budget, in available manpower, in the amount of time that can be spent on a particular project. Thus, there is a need for a timetable, a work program, and a personnel assignment plan. The need for flexibility and responsiveness, but achieving both takes careful planning and managing."

4. "The best way to find out about people's highway transportation preferences is to ask them how they feel about specific alternatives and why they feel that way. Some people will stand to gain from a particular alternative, others will lose. By identifying who will gain and who will be harmed, the planner can modify alternatives to reduce negative impacts and increase benefits and can develop compensatory programs."

As important and pertinent as these four key findings were to the present study, the innovative concept of "differential effects" developed in this report was the greatest contribution to the highway safety field and consequently to this study.

Highway Safety Management Guidelines for State Governments

Highway Safety Management Guidelines for State Governments[9] prepared by Peat, Marwick, Livingston & Coy, under the auspices of the National Highway Safety Bureau, was a study of highway safety administration and management practices in various states of the United States.

The guidelines in this study were intended to help state officials obtain the maximum benefit from the provisions of the Highway Safety Act of 1966 and especially from federal and state funds and thereby develop an effective highway safety program that would reduce the number of crashes and fatalities.

The report suggested means for managing highway safety as a single program at the state level. The main conclusions of the report of importance to the present study were:

1. "Managing a program requires more than simply managing a group of activities or organizations that perform highway safety activities. The official designated as the state highway safety program manager must have an overview of all highway safety activities to ensure that they individually and collectively support the objective of reducing the number and severity of crashes. This kind of management is called program management."

2. "Highway safety officials require management information on a fairly routine basis to judge relative values of highway safety activities, take steps to improve their

---

[9] Peat, Marwick, Livingston & Co.: Highway Safety Management Guidelines for State Governments. A report prepared for Department of Transportation National Highway Safety Bureau, contract No. FH-11-6627, Washington, D.C., June 1968, pp. 5, 6, 57, 85, & 126.

efficiency, diagnose the performance of the highway safety system, and carry out the program management process."

3. "The participation of many state and local agencies in the highway safety program will require that the program manager act with discretion in what is basically a political environment. The prerogatives of each political entity must be fully respected in the development and performance of the program."

4. "The key managerial decision during program execution and control is to change, drop, or continue an operating program. This may require promulgation of an executive order to adjust or discontinue a program element. Adjustment might include a change in objectives, schedule, or resources, a shift in responsibility, or a change in methodology."

5. "The key problem in the management of highway safety activities is not the lack of detailed data on the specific highway safety programs, but the lack of organization and synthesis of the significant information content of this data for use by highway safety managers and decision-makers."

National Highway Safety Program Management Requirements for Localities

The Highway Safety Management Guidelines for State Governments developed by Peat, Marwick and Livingston & Co. which was reviewed above suggested means for managing highway safety as a single program at the state level. There was a similar need for management guidelines for the administration of highway safety at the local level. To develop local guidelines, Peat, Marwick, Livingston & Co., performed a survey of local highway safety administrations. The purpose of this report[10] was to present a review of local highway traffic safety management practices with reference to the national

[10] Peat, Marwick & Livingston & Co.: National Highway Safety Program Management Requirements for Localities: Study Report prepared for the National Highway Safety Bureau, Washington, D.C. June 1969, pp. 8, 13, 27, 37.

highway safety program. The results of this survey indicated that several major changes were required in the management, organization and procedures of local jurisdictions before highway safety can be effectively managed as a statewide program. This contract identified those guidelines. The field survey revealed several major problems facing metropolitan areas in the administration of the highway safety program.

Of significance to the present study were the following:

1. "One of the major changes that will have to be made before effective program management of highway safety at the local level can be realized is the development of regional or metropolitan wide organizations which have the authority to plan, evaluate, and coordinate highway safety programs within the included area and be the principal contact with the state government."

2. "Highway safety program management below the state governments and the Federal Government. The state must provide program planning guidance and technical assistance in the form of both personnel and guidance documents. The Federal Government must provide planning and administration money for the establishment of the metropolitan (regional) organizations and assist them to implement highway safety programs."

3. "No significant improvements in highway safety program management will be accomplished unless both the state governments and their included political subdivisions provide organizational and programmatic treatment of highway safety activities. The emphasis on improving local government management practices must be addressed primarily to urban areas. It is in the metropolitan areas, however, that local government participation in the highway safety process becomes complex. In addition, cities play the most prominent role in highway safety and occupy the primary position for controlling or guiding highway safety developments at the metropolitan community level. Since highway safety deals with the mobility of population, the metropolitan area is more meaningful than the artificial boundaries of cities, towns and villages."

4. "It is essential that highway safety planning be uniform for an entire metropolitan area. Therefore, such planning should be the responsibility of the central organization established for that metropolitan area or region."

5. "The local level management process can be divided into five phases: planning and organization; multi-year programming; budgeting; execution, monitoring and control; and evaluation. Of these five, the first and last are the most important to the success of the highway safety program at the local level. The other phases are restricted by traditional administrative practices and organizational structures and, therefore, will not be significantly influenced by the highway safety program."

6. "The solution to the problem of organizing for metropolitan highway safety lies in developing or utilizing a regional organization that can coordinate the activities of all participating governmental units."

Communication Action Program for Traffic Safety, Guides I-IX

The Community Action Program for Traffic Safety, Guides I-IX, report was conducted by Powell, M.D.,[12] et al. for the National Association of Counties Research Foundation (NACORF). With annotated diagrams, the report suggested four possible organizational structures for highway traffic safety management.

1. The Traffic Safety Department

2. The Traffic Safety Commission

3. The Office of Traffic Safety Coordination

4. The Traffic Safety Association.

Of interest to the present study was the final organizational structure proposed by the NACROF Report, "Traffic Safety Association."

---

[12]Powell, M.D., et al. Community Action Program for Traffic Safety: Guides I-IX, NACORF Final Report on NHTSA, FH-117091, Washington, D.C. September 1970.

This structure called for a non-governmental establishment initiated by private indivudals. Such an association, having no ties to specific jurisdictions could be applicable in a multiple-jurisdictional situation such as presented in Nigeria.

Managing Highway Safety: Recommendations for Strengthening Highway Safety Management Practices in States and Localities

The Motor Vehicle Manufacturers Association of the United States, Inc. (MVMA) engaged Peat, Marwick, Mitchell and Co. (PMM & Co.) to analyze the current environment of state and local highway safety program management, and to define ways in which the management practices of these programs can be strengthened.

This study entitled: Managing Highway Safety: Recommendations for Strengthening Highway Safety Management Practices in States and Localities[13] was designed to assist managers of state and local highway programs in meeting the intentions of Congress as specified in the Highway Safety Act of 1966. The opinions, findings and conclusions expressed in this report pertinent to the present study were as follows:

1. "There appears to be a substantial lack of concurrence among professionals associated with highway safety management on what strategies and approaches are the most effective in reducing fatalities and accidents. This undoubtedly complicates effective decision-making in highway safety program management."

2. "Evaluation suffers from a lack of recognition and credibility as a policy development and decision tool, partly due to the lack of incentives in this system for their use."

---

[13]Peat, Marwick, Mitchell & Co.: Managing Highway Safety Recommendations for Strengthening Highway Safety Management Practices in States and Localities: Prepared for the Motor Vehicle Manufacturer's Association of the United States, Inc., Washington, D.C., August, 1974, pp. E2, E3, 14, 33.

3. "Highway safety agency field staff should be resident in the regional districts they serve. This will establish a working relationship with the private sector and highway safety agencies in the districts."

4. "The key to gaining private sector individual and organizational support appears to be enhancing the public image of the organizations and individual participants."

A more comprehensive list of relevant study reports and projects is included in the bibliography section of this thesis.

RELATED STUDIES THAT EMPLOYED MANAGEMENT MODELS AND TECHNIQUES APPLICABLE TO THIS SURVEY

Because of the general applicability of some models and techniques to management situation and practices, it was decided to review some of these management models and techniques that have been used in other studies and which have relative applicability to the present survey.

Mathies (1976) writing about management models stated:

> "in any organization, you find people using specialized methods of working that outsiders could not know. These are the "practices" of that specific business or organization. The one practice that all organizations have in common is management model, but even here the exact management model practices vary."

The relative advantage of management models and techniques in management practices were pointed out by Lyndall Urwick (1937). According to Lyndall Urwick:

> "management model is lightfooted. It can adapt itself to changed circumstances, think out fresh combinations and can peer into the future."[14]

---

[14]Lyndall Urwick: A British Consultant, Adapted from the Management System by Leslie Mathies, John Wiley & Sons, New York, 1976, p. 199.

Urwick further added:

> "on the other hand, faced with new and unaccustomed situations, practice can only explore them (models) tentatively ..... by trial and error."

Mathies (1976) also indicated that management models are useful in managing organizations. Beckett asked:

> "what are the mysterious keys that can open the door to improvement in any organization?"[15]

Mathies answered:

> "After our own years of practice in the systems and management field, we concluded that they are management models."

But he lamented:

> "the problem first is to discover them. Then the job is to state them so that we can teach them to others. We must be able to pass them on to people coming into management improvement work."

And he concluded:

> "only in this way can a true management model develop. Nobody invents models or techniques ..... people (who both work and think) discover them."

The use of management models and techniques in management studies was highlighted by Henri Fayol (1949) -- the famous industrialist and student of management. Delivering a lecture to his newly hired engineers who were management trainees, he asserted:

> "The theoretical knowledge which you possess will permit you to assimilate quickly all details of any kind whatsoever without management models, principles and techniques, one is in darkness and chaos. The model is the lighthouse fixing the bearings. But it can only serve those who already know the way into the port....."[16]

---

[15] Mathies Leslie: Management System: John Wiley, New York, 1976, p. 199.

[16] Fayol, Henri: General and Industrial Management, McGraw Hill, New York, 1971, p. 16.

And Professor Harold Koontz recognizing the use of techniques in management commented:

> "There's a question in my mind as to whether enough attention has been given to the development of a conceptual framework of principles from which to approach the problem of improving management. It appears that much of the research being undertaken, and much of the effort to train managers, has been proceeding from a premise: that exchanges of experience, with emphasis on techniques, are a means for attacking the problem."[17]

Based on this background, the author reviewed some of the generally practiced management models which related to the present survey.

Fayol's Model

This model owes its orientation to its founder, Henri Fayol (1916). For 30 years he was the chief executive of the great French mining combine known as Commanbault where he applied this model.

Fayol's analysis of administration as a separate function was his unique and orginal addition to the body of management theory. His now famous monography, entitled "General and Industrial Management" was published in Europe in 1916. Although this work was not published in America until 1949, Fayol's model was brought to the attention of American Scholars in 1937 by Lyndall Urwick.[18] Fayol's model consisted of fourteen general principles of management. They included such ideas as span of control, unity of command, esprit de corps, and decentralization. Throughout his treatise, he stressed the universality of management principles.

---

[17]Harold Koontz, an American Professor of Management: The Statement was adapted from Leslie Mathies, "The Management System - Systems are for People" - John Wiley & Sons: New York, 1976, p. 199.

[18]Op. cit.

Again and again he pointed out that these applied not only to business enterprises but also to political, religious, social and other undertakings.

Of significance to the present study about the Fayol's model is Fayol's further division of management into five functions: planning, organizing, commanding, coordinating and controlling. Also, of significance was Fayol's great emphasis on planning as a creative and continuing process which seeks a determination of WHAT is to be done, WHY it is to be done, WHERE it is to be done, WHO is responsible for doing it and WHEN it is to be done.

MBO

It is now twenty-three years since Peter F. Drucker (1954) wrote the "Practice of Management"[19] and developed the phrase "management by objectives" which has become a globally practiced management model in organizations. Drucker stressed the progress that was made by the Ford Motor Company since World War II on the basis of MBO. In his study and concept of the corporation, he outlined the results of this company's study of management policy and the organization of General Motors.

The usefulness of Drucker's observations and outline seemed totally obvious. This is attested to by the number of articles and books published since Drucker's book appeared on MBO. It also testifies to the success of MBO as a powerful management tool. (McGregor 1957, Wickens 1968, Humble 1968, Wickstrom 1968, Reddin 1972, Hives 1971, Ash 1973, Newland 1974, Brown 1974, Malek 1975, Ryan 1976).

---

[19] Drucker, P.F.: The Practice of Management: Harper & Brothers, New York, 1954.

Edward Ryan (1976) in a comparative study of selected federal experiences with the fiscal year 1975 program[20] concluded that MBO was effective to the highest level of line management that is committed to it.

Ash and Malek (1973) using the MBO model were mandated by President Nixon to develop a program whereby the American public could be certain that the best possible benefits were resulting from the expenditures of their tax dollars[21]. They agreed too that MBO was one answer to some of the managerial problems in the executive branch.

Malek (1974) who had been involved in MBO at the Department of Health, Education and Welfare together with Ash (1974) in a subsequent work commented:

> "MBO is a way of doing what comes naturally. It isn't a new process. It isn't a bunch of reports. It isn't a set of series of meetings.... It is a new (management) style, not a new process."[22]

Davies (1975) from studies of some educational organizations in Britain discovered that educational organizations studied were looking to MBO to provide quite different brands of administrative salvation.

---

[20] Ryan, Edward J.: Management by Objectives in Perspective: A Comparative Study of Selected Federal Experience with Fiscal Year 1975 Program. (D.B.A. dissertation) The George Washington University, 1976.

[21] Ash, Roy & Malek, Fredrick: Set of memoranda, Implementations of President's New Management Emphasis, Executive Office of the President, Office of Management and Budget, Washington, D.C. 19th April, 1973.

[22] Malek, Fredrick: Managing for Results in the Federal Government; Business Horizons, April, 1974, p. 24.

The various findings and conclusions about the usefulness of the MBO model as a management tool and the definition of MBO (Humble 1968) as "making the organization define its objectives at various levels of management and assisting themanager to define his own key results or key effectiveness areas within this total framework....." further endorsed the applicability of the model to highway safety management.

PPBS

The development of PPBS represented one of the most important and comprehensive examples of the application of the system approach to the management of complex organizations. This assertion is attested to by the wealth of literature on PPBS: Steiner (1965), Burkhead (1966), Argenti (1969), Alioto (1969), Eidel and Nagle (1970), Schick (1971), Merevitz and Sosnick (1971), Bains (1972), Alkin (1973), James (1973), Frank (1973), Mann (1973), MecNamara and Burns (1974), Davies (1974).

PPBS was initially developed by the Department of Defense between 1961 and 1965[23]. This new management approach proved so successful that in 1965, the President of the United States directed that it should be introduced into all departments of the Federal Government.

Since that time, PPBS systems have been developed by numerous states, universities, hospitals, local goverment agencies and other organizations.

---

[23]For a discussion of the development of PPBS within the Department of Defense, see Mikan, N.R. & Hitch, C.J., The Economics of Defense in the Nuclear Age, Harvard University Press, Cambridge, Mass., 1960 and Hitsch, C.J. "Decision-Making for Defense," University of California Press, Berkeley, CA, 1965.

A 1968 survey for the subcommittee on Economy in Government of the Joint Economic Committee of the Congress found that twenty-eight states were developing PPBS.[24]

Hamelman (1970) in a survey of applications of PPBS to universities discovered that many universities have turned to PPBS to find answers to their decision-making dilemmas.[25]

Dyer (1970) in a subsequent survey of the use of PPBS in a Public System of Higher Education found truth in Hamelman's discovery.[26]

Steinberg and Nielsen (1972) in a survey-study of the use of PPBS in a school district concluded that PPBS can also be applied at the level of the individual organization.[27]

Although PPBS is a widely acclaimed management model, it is difficult to set forth a simple definition of PPBS. Essentially, according to Steiner[28] (1965), it represents a comprehensive process for creating a more effective decision-making system for public agencies. It also attempts to integrate many complex organizational activities which were only loosely tied together.

---

[24]Innovations in Planning, Programming, Budgeting Systems in State and Local governments. A compendium of papers submitted to subcommittee on Economy in Government of the Joint Economic Committee, 91st Congress, 1st session, 1969.

[25]Hamelman, P.W.: Applications of PPBS to Universities: Missions, Matrices and University Management: Academy of Management Journal, March 1970, pp. 35-48.

[26]Dyer, James S.: The Use of PPBS in a Public System of Higher Education: Is it Cost-Effective? Academy of Management Journal, September 1970, pp. 285-300.

[27]Steinberg, H.T. & Nielsen, R.A.: PPBS for a School District Management Controls, July 1971, pp. 136-143.

[28]Steiner, George A.: Program Budgetting: Business Contribution to Government Management: Business Horizons, Spring, 1965, pp. 43-52.

PPBEE

Argenti (1969) in his analysis of some organizations discovered that some of the manifestations of PPBS were not suitable for their proclaimed purpose. He suggested that a different form of PPBS or an allied technique could be much more profitably employed and possibly with less dislocation to the organization.[29]

In response to this suggestion, Peat, Marwick, Mitchell and Co.[30] designed the PPBEE model which was used in their survey of Highway Safety Program Management and Reporting System. This model was subsequently used by Peat, Marwick, Livingston & Co. in their survey of National Highway Safety Program Management Requirements for localities in 1969. The feedback from the two surveys on the usefulness of PPBEE has been favorable and excellent.

Of interest to the present study is how PPBEE was being applied to management practices in previous surveys. Peat Associations (1969) defined management process in the context of PPBEE and concluded that PPBEE is the most appropriate technique that can be used to analyze management practices in the highway traffic safety field. The author employed the use of this model in this survey and it was found to be very useful.

Systems Approach

Systems management model conceptualizes the organizational units as being arranged and operated as a system. Each segment of the

---

[29] Argenti, J.: Management techniques; Allen and Unwin, 1969.

[30] Peat, Marwick, Mitchell & Co.: Highway Safety Program Management and Reporting System, Vol. I: System Description. Final Report on NHTSA, FH-11-6925.

total or each sub-system is viewed as a distinct entity and there is a relationship or contribution of each sub-system to the next level in the hierarchical structure.[31]

The system approach continues to be applied increasingly in human affairs, from the view of the individual as a complex system of interacting components to a large scale, man-machine systems involving many organizations. The systems approach model has proved appropriate and useful in a wide variety of contexts - military missions (Quade 1964), space exploration (Thome & Willard 1966), and health systems (Ludwig, 1951).

Systems approach to management has emerged over the past two decades as a vigorous, lively and powerful management tool that Ellis and Ludwig (1962) had suggested in an over exaggerated manner that "the systems era" should be a more accurate descriptive phrase for our age.[32]

Relevant to the present study about systems approach was Johnson's statement:[33]

> "Systems analysis provides a framework within which problems are identified, alternative solutions are evaluated, and difficult choices are made in the allocation of resources."

The use of systems approach in highway traffic safety was mentioned by Arthur D. Little, Jr. (1966) when he declared:

> "Highway safety is a systems matter. The system is characterized not only by its complexity but also by

---

[31] Johnson, R.A. & Others: The Theory and Management of Systems, 3rd ed. McGraw Hill, New York, 1973.

[32] Ellis, D.O. & Ludwig, F.J. Systems Philosophy: Prentice Hall, Inc. Englewood Cliffs, N.J., 1962, p. 2.

[33] op. cit., p. 1.

> the high degree of interconnectedness and inter-dependence of many factors..... The system nature of the highway safety problem must be appreciated both for proper investigation of its components and for the development and evaluation of remedies...."[34]

The usefulness of the systems approach in highway safety was also pointed out by Peat and Associates in their Report on Highway Safety Management Guidelines for State Governments (1968). The report stated:

> "Further technological development in the highway safety field will be carried on within the context of the systems approach, which deals with the interaction of the driver, vehicle, and roadway."

The report also noted:

> "certainly, highway safety is a field that is complex and varied enough to benefit from the systems approach to management."[35]

Gilbertian Model

The views of William Schwenk Gilbert[36] have been frequently cited in many fields and studies (Casasco 1970, Holbert 1976, Mathies 1976) but his model for the world of highway safety management has been strangely neglected. Yet this model may be one of the most powerful tools for the highway safety executive in understanding the subtleties and dynamics of his position.

---

[34]Arthur D. Little, Jr. The State of the Art of Traffic Safety - a critical review and analysis of the technical information on factors affecting traffic safety: Summary Report prepared for Automobile Manufacturers Association, Inc., June 1966, p. 31.

[35]op. cit., p. 1.

[36]Gilbert, William was a British Theorist, 1806-1872.

The importance of the Gilbertian model to the present study lies in Gilbert's classical five-fold view of the tasks of the manager: planning, organizing, staffing, motivating, and controlling and his concluding remarks. According to Gilbert:

> "all of the work of the manager in planning, organizing, staffing and motivating will go for naught if the whole integrative system is not controlled under the overview of the three desiderata of feedback, measurement and assessment."[37]

Likert's Four Systems Model

Likert[38] and his associates thoroughly studied many organizations and their effectiveness. Managerial styles and their related organizational factors were identified and grouped into four systems which Likert christened as the "Likert four systems model." Likert named system 1 exploitative-authoritative, system 2 benevolent-authoritative, system 3 consultative and system 4 participative group.

Of pertinence to the present study is system 4 of Likert's model -- participative group which Likert and his associates described as follows:

> "System 4 management is highly participative with a greater deal of confidence and trust in subordinates. This system is marked by effective team work and individuals feel motivated to achieve the goals of the organization. Communication is downward and upward, as well as with peers. Decision-making is well integrated at all levels of the organization. Goals are set primarily by the group with little or no resistance to the aims..."[39]

---

[37] Holbert, N.B.: A Gilbertian Model for Business Management, MSU Business Topics, Michigan State University, Autumn, 1976, p. 33.

[38] Likert, Rensis: New patterns of management: McGraw Hill, New York, 1961.

[39] Weihrich, Heinz: MBO in Four Management Systems: MSU Business Topics, Michigan State University, Autumn, 1976, p. 52.

Likert and his colleagues in subsequent studies found that over a period of time organizations that moved toward system 4 also became more effective. Similarly, Weihrich [40] suggested that most organizations will become more effective when the steps in the MBO process are carried out in ways approximating those described in system 4.

SUMMARY

A review of the literature presented in this chapter included:

1. some relevant conference publications on highway traffic safety management;
2. recently completed studies, projects and reports in highway traffic safety, and
3. related management models and techniques that had been employed in studies similar to this study.

A thorough review of the literature disclosed no research that focused directly on highway traffic safety management.

A review of applicable management models and highway safety management studies, projects and reports were presented with specific and pertinent content areas outlined and analyzed.

The literature offered very little guidance as to what can be assessed, and more important, the methods and criteria that can be used to assess the contents and scope of highway traffic

---

[40] Weihrich, Heinz: A Study of the Integration of Management by objectives with key managerial activities and the relationship to selected effectiveness measures. (Ph.D. dissertation, University of California, Los Angeles, 1973)

safety management. The literature review, however, reinforced the author's view that highway safety management is an inevitable part of any comprehensive highway safety program.

Chapter III will describe in detail the methodology and techniques used in this survey.

CHAPTER III

SURVEY DESIGN AND METHODOLOGY

The preceding chapter presented a review of the literature pertinent to this survey. This chapter describes the techniques and methodology used to carry out the survey.

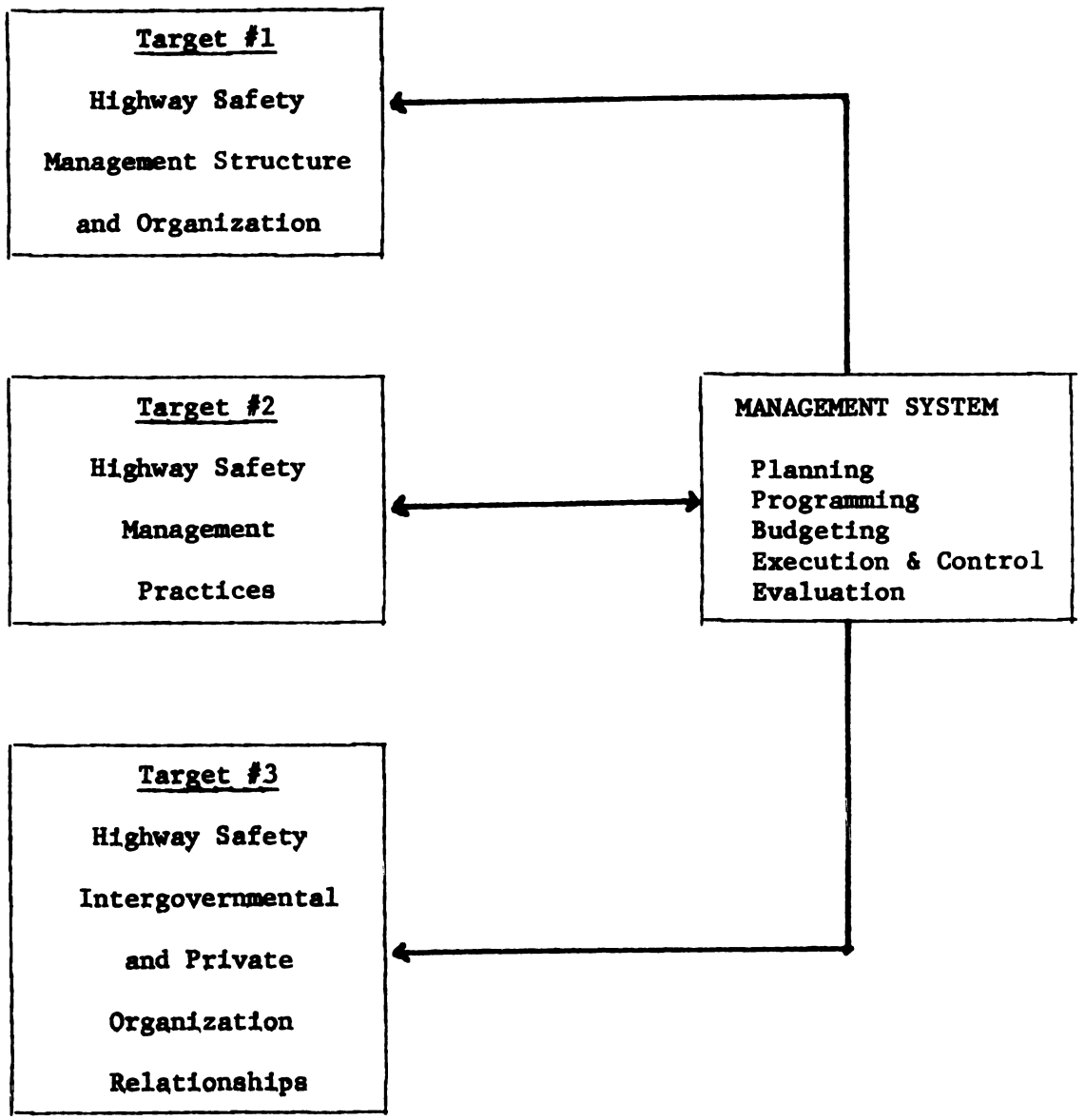
NATURE OF STUDY

This study was a descriptive study of highway safety management practices in Nigeria. The study utilized the problem-oriented and management system approaches. The problem-oriented approach was used in the belief that highway unsafety problems are too often defined only in terms of traditional countermeasure programs or professional viewpoints. This not only severely hampers accurate problem identification but it also limits solutions to those problems which are related to single programs or agencies. The management system was used to develop the management model. Figure 3.1 depicts the analytical framework of the management system used. The two approaches were, therefore, adopted to assure that the proposed model and guidelines in Chapter V were aimed at specific and well defined highway safety management problems.

To achieve the objectives of the study discussed in Chapter I, four major activities were undertaken:

> Statistics and data were collected on traffic accidents, drivers, vehicles, roads, highway safety expenditures, and on the highway transportation budget.

Figure 3. 1: The Management System



> The members of the Road Safety Commission, the state's traffic safety coordinators and knowledgeable persons in highway traffic safety were interviewed to obtain a preliminary assessment of the country's traffic safety management practices.
>
> Persons having highway safety responsibilities throughout the country were surveyed through a mailed questionnaire.
>
> A selected panel of experts in Nigeria reviewed the questionnaires and recommendations.

It became evident at the outset that the problem identification approach in this study could not rest solely upon the analysis of the quantitative data collected. For this reason, the opinions of highway traffic practitioners regarding basic management problems and needs were obtained. The methods used for obtaining the opinions were:

1. In-depth personal interviews of a small selected group of highway traffic practitioners with management functions.
2. A mailed questionnaire to a wider group of highway traffic practitioners with either administrative or operational functions.

The advantage of a mail-out survey technique in highway traffic safety was aptly noted by Munson, et al. (1971). According to Munson:

> "The mail-out survey technique is a relatively quick means of assessing the relative importance of various traffic safety problems as perceived by practitioners in the field. It involves little effort by the respondent and takes little time for analysis of the data. The information generated provides excellent back-up reference to the task group deliberations."[1]

SAMPLE SELECTION

The initial contacts and sample selection were made through the Road Safety Commission (RSC) headquarters in Lagos. The author worked

---

[1] Munson, M.J. & Others: The Safety Demonstration Program for Oakland County, Michigan, Task 4: Final Management System Recommendation. Bloomfield Hills, Michigan 48103, November, 1971.

through the staff of the RSC in order to prepare a target population from the files which contained information about various organizations and individuals involved in highway safety management practices in Nigeria. The target population was comprised of individuals from the following traffic safety related areas:

- Government officials at federal, state, and local levels with management functions, e.g. state coordinators.
- Government officials at federal, state and local levels with operational functions, e.g. police.
- Professional associations which had highway safety related activities, e.g. highway engineers.
- Knowledgeable persons closely involved in or concerned with highway safety activities, e.g. Dr. Shojobi of University of Lagos, Nigeria.
- Private establishments involved in traffic safety operations, e.g. insurance and auto companies.
- Humanitarian groups which showed interest in highway safety activities, e.g. the Women's League and Red Cross Society.

This process produced an initial list of 161 practitioners, out of which 21 were selected for the interview.

Interview

A small group was selected from the target population listed. This small group was comprised of the appropriate federal, state and local officials having close familiarity with highway safety management practices in Nigeria. These officials were:

The Chairman of the Road Safety Commission

The Secretary of the Road Safety Commission

Four state traffic safety coordinators (two from the Southern and Northern States respectively)

Military governors who have shown much interest in traffic safety (one from Lagos State, one from Bendel State, one from Ogun State, one from Oyo State and one from Ondo State)

Commissioner for Transport

Director of Army Supply & Transport Corps

Commissioner for Petroleum

Head of the Traffic Division of the Nigeria Police Force

Director of Nigeria Transporters Union

Director of Federal Information Service, Lagos

Professor Mabogunje

Editor, Daily Times of Nigeria

Editor, Daily Sketch of Nigeria

Dr. Bakare, University of Ibadan.

A small group was selected for interview as several factors mitigated against the personal interview method for obtaining opinion -- such factors as:

1. Time commitment for both interviewer and interviewees.
2. The large number of government jurisdictions in the country coupled with the diversity of practitioners and professionals in each jurisdiction.
3. The exhorbitant cost involved in travelling across the whole country.

4. The requirement for interview protocol.
5. Avoiding duplication of opinions and responses to questionnaires by federal, state and local officials since there existed a sort of homogenous management practices among them.

Mailed Survey of Practitioners

A wider group was selected from the target population listed to receive the mailed questionnaire. The target population was defined as all persons involved directly or indirectly in traffic safety activities in all political jurisdictions in the country (excluding the twenty-one names of the persons to be interviewed).

Because of the small low target population the whole population of 140 was used. The target population of 140 individuals was listed and tabulated.[2] The list showed the individual's address, title, profession, jurisdiction and responsibilities in the highway safety field. It was assumed that this target sample list would be representative of all political areas and highway safety practitioners in the country.

QUESTIONNAIRE DEVELOPMENT

Before the development of the questionnaire, a personal interview was held with Professor Robert Gustafson, the author's academic adviser, and with Dr. M. J. Munson, a staff member responsible for highway traffic research at the Highway Safety Research Institute, University of Michigan, Ann Arbor, to discuss the areas of information

---

[2]The practitioners are not listed in this thesis because of the promise made by the author to keep all participants in the mailed survey secret.

pertinent to the study. Further information concerning the types of material that would aid the development of the questionnaire was sought from previous research work on the subject. An examination was made of available literature and other materials (microfilms) related to highway safety management in Nigeria specifically and other countries generally.

Questionnaire Design

In order to formulate the statements (items) contained in the proposed questionnaire, it was first necessary to determine the important information appropriate to the survey being undertaken. This relevant information was gathered in the following target areas:

1. Highway safety management structure and organization.
2. Highway safety management practices in Nigeria -- planning, programming, budgeting, control and evaluation.
3. Highway safety intergovernmental and private organization relationships.

A list of potential problem statements was developed in which the respondents were asked to indicate their view on each question as related to this survey.

Interview Questionnaire

Prior to conducting the interviews, a questionnaire based on the information in the three target areas listed above was developed. These questions were used as a guide in conducting the interviews. Suggested questions based on the following target

areas are included in Appendices A, B, and C.

Target Area 1: Highway Safety Management Structure and Organization

- organizational structure of the R.S.C.
- roles and functions of the R.S.C.
- statues establishing the Commission
- members of the R.S.C., their functions and how they were selected
- highway safety activities performed by the R.S.C.
- achievements and problems of the R.S.C.
- viability and future status of the R.S.C.
- The Commission's effectiveness in managing highway safety activity
- the R.S.C.'s communication network and interrelationship with the private sector and state governments
- improvement of the R.S.C.
- The Commission's functional powers as related to other federal government ministries and agencies
- the level of government which provided highway safety services in various jurisdiction in the country
- the government agency which was responsible, e.g. police, city council
- the organizational structure of highway traffic safety activities at the state and local levels
- the heads of the highway safety organizations at the state and local levels

The questionnaire based on this target area is included in Appendix A.

Target Area 2: Highway Safety Management Practices: In this area, the author was interested in gathering information on the management process: planning, budgeting, programming, execution and control and evaluation of highway safety management in Nigeria.

Planning

- the planning objectives at all levels of government
- whether the plans were long-term or short-term
- identification of the planners of highway safety activities
- identification of persons setting the objectives
- identification of the elements of planning
- the planning models used in highway safety planning
- whether plans were documented and if so, in what form
- the priority needs in planning and how they were determined
- whether there were any feasibility studies or research work which proceeded planning
- how the output of plans were utilized

The questionnaire for this sub-section is listed in Appendix B.

Programming

- the inputs and outputs for highway safety activities in the form of departmental levels of effort
- program content and elements
- how programs were designed
- identification of the program analysts or designers
- total costs of programs
- how priority areas were determined

- the period of time programs were designed for; whether short or long-term
- information needed to make decisions in programming
- whether programs were based on research work or feasibility studies

The questionnaire for this sub-section is listed in Appendix B.

Budgeting

- the budgeting process used
- means by which budget request and annual estimates were made
- information or sources of materials used in preparing budgets; whether there were guidelines to follow
- whether the budget was tied to planning and programming activities
- individuals who made decisions on the budgets
- how the budget was distributed to highway traffic safety activities, i.e. allocation of funds
- how priorities were measured
- the total annual budget on traffic safety
- budgeting techniques used
- the total annual expenditure compared with the total annual highway expenditure

The questionnaire for this sub-section is listed in Appendix B.

Execution and Control

- execution of departmental annual budgets
- identification of individuals who control expenditures and authorize use of funds; who controls execution of programs

- whether expenditures were audited and by whom
- information needed to control the execution of highway safety activities
- identification of individuals who controlled time schedules and performance of highway traffic safety activities
- whether there were any guidelines for control and execution of traffic safety activities

The questionnaire for this sub-section is listed in Appendix B.

Evaluation

- evaluation designs and methods utilized
- whether there were any guidelines for evaluation
- whether these guidelines were recorded and documented
- the processes of evaluation
- whether evaluation was carried out on a short-term or long-term basis
- the results and findings of evaluation utilized for modifying activities
- the frequency programs and plans were reviewed and evaluated
- who the evaluators were
- whether there was any re-evaluation of programs

The questionnaire for this sub-section is listed in Appendix B.

Target Area 3: Highway Safety Intergovernmental and Private Organization Relationships: For this section, the author was interested in obtaining information on the interrelationships of various levels of government (federal, state and local) with the private organizations in highway traffic safety field. Of special interest in this area were:

- the existing coordination efforts among levels of government and private organizations
- whether there was any integration of efforts in highway safety needs
- the roles of government vis-a-vis private organization
- the existing communication channels among all the various bodies in the highway safety field
- whether there were any guidelines for the relationship between the government and private sectors
- what problems existed in the relationship between the government and private sectors in carrying out safety activities
- whether there was any conflict in carrying out safety activities between government and private organizations. If so, how this conflict can be resolved.
- identification of the individuals responsible for the coordination of efforts between the government and private organization in the highway safety field

- how the government helped private organizations (and vice versa) carry out their safety activities
- how the relationship between government and private organization in highway safety activities can be harmonized in the future

The questionnaire for this section is listed in Appendix C.

Mailed Questionnaire

Because of the heterogenous nature of the sampled population of highway traffic safety practitioners in Nigeria, the questionnaire for this group was slightly different from the questionnaire for the group that was interviewed.

A set of 50 potential statements was included in the questionnaire which each respondent was asked to indicate his/her opinion or views on highway traffic safety management practices in Nigeria. In addition, space for additional comments and remarks was provided in order to obtain additional information from the respondents which might be pertinent to this study but which was not included in the questionnaire. The complete questionnaire is included in Appendix D.

The appropriate and important information to this study and upon which the mailed questionnaire was based was as follows:

Highway Traffic Safety Organizations in Nigeria

- organizational structure in the government and private sectors
- the types of highway safety organization the respondent practiced

- the personnel of such organizations
- the functions of the organization in traffic safety
- the relationship between the respondent's organization and the R.S.C.
- whether the respondent's organization participated in the R.S.C. traffic safety programs
- the respondent's feelings on the achievement, problems and activities of the R.S.C.
- how Nigeria's highway safety management should be organized
- how the R.S.C. should be organized and structured
- changes and improvements which should be brought to highway traffic safety management in Nigeria
- whether the R.S.C. was an answer to the traffic unsafety problems in Nigeria
- the problems confronting highway safety management practices in Nigeria

The questionnaire for this sub-section is included in Appendix D.

Highway Safety Management Practices in Nigeria: The information pertinent to this study in this area was the same as included in Target Area 2 under Interview Questionnaire. The questionnaire for this sub-section is included in Appendix D.

Highway Traffic Safety Intergovernmental Relationship with Private Organizations: The information appropriate to this study was:

- the coordinating efforts which existed between the private and public sectors in executing highway traffic safety work

- how conflicts can be resolved
- the contributing factors affecting coordination efforts between the public and private sectors

The questionnaire on this sub-section is included in Appendix D.

Traffic Unsafety Problems in Nigeria: The information in this section was used to describe the nature of the traffic problems in Nigeria. The questionnaire was based on the following areas:

- the basic causes of the traffic problems in Nigeria
- the factors which had the highest incidence of traffic accidents
- the problems facing highway traffic safety in Nigeria
- improvements that can be made in highway traffic safety in Nigeria
- solutions which can be devised to solve the traffic unsafety problems in Nigeria

The questionnaire on this sub-section is included in Appendix D.

PANEL OF EXPERTS REVIEW

Prior to the interviews and mailing of the questionnaires, five members were selected to review the questionnaires. The panel consisted of the following persons:

1. Dr. Shojobi, a former faculty member responsible for highway engineering in the Faculty of Engineering, University of Lagos, He is an expert in highway problems. Dr. Shojobi is presently a consultant in highway engineering and a practicing highway traffic engineer.

2. Dr. Mabogunje is a professor at the University of Ibadan. He has had considerable experience in highway safety practices.
3. Dr. Bakare of the Psychology Department, University of Ibadan. He is a trained psychologist and has written some papers on highway problems in Nigeria.
4. Tony Momoh, the editor of Daily Times Limited, Nigeria. He is a knowledgeable person in the field of communication and information diffusion.
5. L. E. Scott-Emukpor, the Director of Federal Information Services, Lagos, Nigeria. He is an expert in communication and interview techniques.

PILOT STUDY

A pilot study was conducted involving 10 practitioners in the highway safety field in Lagos, to obtain feedback and comments regarding the wording of the statements in the questionnaire.

- 2 persons were interviewed
- 8 persons were given the mailed questionnaire

In light of the comments and the feedback from these people, the wording of some items was altered, and in some instances the items were deleted or new ones added.[3]

---

[3]It was discovered by the author that Nigerians are used to saying "Don't Know." The pilot study revealed this tendency. It was therefore suggested by some members of the panel to include "Don't Know" where the question calls for Yes or No. This was incorporated into the final mail questionnaire.

The preliminary interview with the panel of experts and the pilot study conducted helped establish a reasonable clarity and acceptability in the statements finally adopted.

INTERVIEW TECHNIQUES

Prior to conducting the interviews, an interview appointment was arranged by telephone, letter, or through personal calls. During the interviews, the author was responsible for asking the questions and recording the answers. The whole questioning process was paced as efficiently as was tolerable and congenial. The author was neutral in a non-directive sense and restrained from responding to inflamatory or argumentative bait offered during the course of questioning. For the genuinely interested respondent, however, the author was prepared to entertain his or her questions in order to establish and maintain precious rapport.

The interview lasted for about one hour but exceptions occurred when the respondent was interrupted either by official work (e.g. answering telephones) or asked questions of the author.

Before proceeding with the interview, the respondent was given a letter of introduction from Professor Robert Gustafson, the author's academic adviser. (See Appendix E for a sample of the letter). The respondent was reminded once again of the purpose of the survey, the means by which respondents were selected and the guaranteed confidentiality and anonymity of his responses.

A special sensitivity was maintained to questions which were threatening to the respondent who indicated his discomfort by

suddenly becoming restless and mentioning time pressures or other reasons why he wished to hurry the interview. Such sensitive questions were then dropped and the author proceeded matter-of-factly with the rest of the interview until the respondent had settled down again. At the end of the questioning skipped items were re-introduced by simply stating that the initial responses to questions so and so were not understood. In this way additional responses were obtained. If this proved unsuccessful a further interview was arranged and attended.

At the end of questioning, the respondent was thanked for his time and cooperation. The opportunity was also seized at this time to ask if the respondent had any materials useful or pertinent to the study. If he had it was borrowed. In some cases the respondent was kind enough to give the materials free. They were accepted with thanks.[4]

MAILING PROCEDURE

The sampled opinion questionnaire was mailed to the selected individuals drawn from the practitioner's sample with cover letters from the author. (The letter is contained in Appendix F). The letter described the nature of the traffic problems in Nigeria,

---

[4]Examples included:

1. An article on Road Safety programming by Dr. Bakare of the University of Ibadan.
2. Police management course proposal by Dr. Carnahan of Highway Traffic Safety Center, MSU, East Lansing.
3. Report of the Committee on Safety Devices in Motor Vehicles and establishment of Driving Schools in Nigeria, from the Secretary of Road Safety Committee, Lagos.

explained the purpose of the opinion questionnaire, the time limitation for responses and the means by which each respondent was selected.

A stamped self-addressed envelope was included in each respondent's letter in order to facilitate convenient responses.

A code designation was established for each of the respondents for identification purposes. This enabled the author to know the respondents by name, profession, type of organization, jurisdiction area, title and appointment.

After a period of four weeks, a follow-up letter was sent to those respondents who had failed to respond to the initial mailing. This follow-up letter is contained in Appendix G.

The author checked the questionnaire returns, and controlled access to them by using the respondent's identification code number rather than his/her name. This safeguarded the respondent's identity and anonymity.

Letters of appreciation were written to respondents who returned their questionnaires to acknowledge receipt of their responses (See Appendix H for the sample of the letter).

METHODS FOR THE ANALYSIS OF THE DATA

In the analysis of the data, responses from the interview survey were treated separately. Also, responses to each question on the mailed questionnaire were treated separately. Percentages were determined for each item on the questionnaires. When the percentage of the respondents' opinion on an item was above 51%, that was accepted as the opinion on that item.

The data gained from the respondents and the statistical data collected with their subsequent analysis and findings comprised the information upon which Chapter IV is based.

SUMMARY

Presented in this chapter were the survey procedures, selection of the sample, development of the interview and mail questionnaires, and methods for analysis of the data.

The respondents' comments and responses were analyzed. Presented in Chapter IV are the findings of this analysis.

CHAPTER IV

ANALYSIS AND FINDINGS OF THE SURVEY

In the preceding chapter, the techniques and methodology used to carry out this survey were presented. Contained in this chapter is an analysis of the data and the findings of the survey.

The primary emphasis in this survey was addressed to the management practices used in the highway safety field in Nigeria. Eighteen influential highway safety practitioners were interviewed and 116 others were surveyed through a mailed questionnaire. The states were visited and interviews were held with some line department officials closely associated with highway safety operations and administrations. An 83% return (116 out of 140) was obtained from the practitioners throughout the country on the mailed questionnaires and there was an 86% participation in the interviews.

The particular management items explored in this survey were:

1. The organizational structure utilized for administering safety programs with emphasis on the structure of the RSC.
2. The current role, involvement and participation of federal, state and local governments and the private sector in highway safety.
3. The management process employed in the current management practices.

4. The specific and principal problems in highway safety management practices.

Also explored in this survey was a review of the magnitude and nature of highway unsafety problems as they existed in Nigeria.

To facilitate thepresent ation of these data and findings, the chapter is divided into five sections. These sections are:

1. The magnitude and nature of the highway unsafety problem.
2. Organizational characteristics of highway safety.
3. The role, participation and involvement of the federal, public and private sectors in highway safety.
4. Current management practices in highway safety.
5. Problems in current highway safety in Nigeria.

In the analysis of the data, each respondent's file was checked for completeness. The files for the interview survey and the mailed questionnaire were treated separately. Comments and responses from the respondents were reviewed. Responses from each question on the questionnaire -- interview and mail survey -- were treated separately. The percentage of the respondents' opinions on each item in the questionnaire was found. When the percentage of the respondents' answers on an item was above 50%, that was accepted as the opinion on that item. Tables were developed for items in the questionnaires. Percentages in the table were rounded to the nearest whole number.

THE MAGNITUDE AND NATURE OF THE HIGHWAY UNSAFETY PROBLEM

The complex nature of the highway unsafety problem in Nigeria was briefly described in Chapter I. The basic purpose of this section,

therefore, is to clarify how big a problem the nation is really facing in the present unsafety on its highways and what the development and trends have been. It does not intend, however, to review the accident causation factors nor propose countermeasures or remedies for the problems elaborated herein.

In Table 1.2 (Chapter I) the crash data showed the number of people killed and injured in road traffic accidents during the last six years (1970-75) for which data is currently available. The general trend in this period and over the last two decades (1955-1975) has been an alarming increase in the number of fatalities. The most striking example was the dramatic increase experienced in 1975 compared with 1955 and 1965 respectively. In 1955, the number killed on the highways was 624 while in 1965, 1,918. By 1975, the number had increased to 5,552. During this period (1955-1975), a total of 50,835 people had been killed. The number injured was about ten times the number of people killed during the period considered. While some of the injured were permanently hospitalized, others were permanently maimed after recovery from the hospital. Not only had a considerable loss of manpower been experienced, but a substantial fraction of the nation's resources had been wasted.

In order to gain further insight into Nigeria's highway unsafety problem during the past six years, highway crash experience for various categories (for which there were data) is analyzed below. (See Table 4.1).

It can be seen from the data in Table 4.1 that in 1975, 5,552 deaths were recorded, an increase of 91.7% from 1970 and 12/8% from 1974 data. On the average, in 1975, there were 16 people killed everyday.

Table 4. 1: Traffic Fatalities and the Percentage of increase 1970-1975

Year	Deaths	Increase/Decrease	% of Change From Previous Year
1970	2,893	+546	+17.6%
1971	3,206	+313	+10.8%
1972	3,921	+715	+22.3%
1973	4,537	+616	+15.7%
1974	4,992	+385	+ 8.5%
1975	5,552	+630	+12.6%
TOTAL	25,101	+3,205	

% increase 1970-1975 91.7%

Table 4. 2: Number of persons injured in traffic accidents and the percentages of their increase in the period 1970-75.

Year	No. of Persons Injured	Increase	% of Change From Previous Year
1970	13,154	+4,350	+49.4%
1971	14,592	+1,438	+10.9%
1972	16,161	+1,569	+10.8%
1973	18,154	+1,993	+12.3%
1974	18,660	+ 506	+ 2.8%
1975	20,132	+1,472	+ 7.9%

% increase 1970-1975 53.0%

The survey also showed that the police figures above give an unrealistic picture of the tragic situation. For instance, a road death can occur up to 10 days after the accident, but on the 11th day, it is listed as hospitalization, or shock, or heart failure or given some other medical nomenclature, and consequently does not enter police accident fatality records for the year. The real road accidents scene therefore is actually worse than that portrayed by police records.

During this same period (1970-75) the number of persons injured each year consistently increased until 1975 when a peak of 20,132 injuries was reached. (See Table 4.2) There were no precise counts of these non-fatal accidents. Consequently, a trend review such as was possible for death figures was impractical because of changes in definition, in completeness of reporting, and in investigation and reporting practices of the police, cities and states. However, each year's estimated totals as given by the police could be considered the best indication of the size of the problem at that time.

When the total number of accidents was considered for this same period, 1975 was again a particularly bad year with 32,651 crashes reported compared with 28,893 crashes in 1974, and 16,660 crashes in 1970. (See Table 1.2 in Chapter I) In essence, within six years, traffic accidents had nearly doubled (95.98% increase precisely).

A further breakdown of the traffic accidents according to states shows that the former Western State (no Ondo, Oyo and Ogun States) recorded 5,302 traffic accidents with 1,044 fatalities during 1975 -- the highest in the country. Lagos State opted for a second place with 5,231 traffic accidents with 1,488 fatalities. The lowest accident

rate in the country was reported in Kwara State with 1,344 accidents. (See Table 4.3 for the summary of the traffic accidents trend according to states).

Cost

It was estimated that road accidents cost the nation ₦200 million ($300 million) in 1976. This was an increase of ₦40 million ($60 million), 14.2%, over 1975 total cost. Table 4.4 provides a summary of the road accidents cost in Nigeria between 1970 and 1976.

Deaths by Types of Accident

The survey showed that deaths in two-vehicle accidents was highest in the 6-year reporting period (1970-1975). (See Table 4.5) Deaths in non-collision accidents showed the next sharpest rise followed by deaths in fixed objects accidents and pedestrian deaths. Deaths in bicycle accidents decreased from 152 in 1972 to 138 in 1973 but increased from 141 in 1974 to 190 in 1975. Railroad accidents were down between 1970 and 1973 and now are on the increase. Data in Table 4.5 show a summary of deaths by types of accidents in Nigeria in the period 1970 to 1975.

Vehicle Population

The decade ending in 1976 witnessed unprecedented economic growth in Nigeria. One indication of this economic growth was the increase in automobile registrations and ownership from 1966 to 1976. (See Table 4.6) In 1966, there were 450,000 motor vehicles whereas in 1976, the estimated number of motor vehicles was 6 million. This was a 12.33% increase over the 1966 figure. (See Table 4.6)

Table 4.3: Showing Summary of Road Accidents and Casualities January 1 - December 31, 1975

State	Total Cases Reported	No. of Fatal Cases	No. of Serious Cases	No. of Minor Cases	No. of Persons Killed	No. of Persons Injured
Lagos L.S.	5,231	323	712	4,096	377	1,488
Ibadan W.S.	5,302	800	1,683	2,819	1,044	284
Benin MWS.	3,154	413	947	1,794	568	1,618
Calabar SES	1,949	184	783	982	208	1,571
Enugu ECS.	3,430	453	870	2,107	538	2,062
Port-Harcourt R.S.	1,816	99	242	1,485	115	497
Sokoto NWS.	1,669	300	494	865	482	1,623
Kaduna N.C.S.	3,099	389	896	1,814	555	2,374
Ilorin KWS.	1,344	192	385	767	291	730
Jos B/PS	1,812	411	559	842	549	1,313
Kano KS.	1,916	263	613	1,040	333	1,417
Maiduguri NES.	1,929	326	817	786	492	2,155
Total	32,651	4,153	9,001	19,497	5,552	20,132

Source: Nigeria Police Accident Records, 1975, Lagos, Nigeria.

Table 4. 4: Showing Cost* of Road Accidents in Nigeria in the period 1970-76

Year	Amount in ₦ Million	% of Increase/Decrease Over Previous Year
1970	67	+11.6%
1971	85	+26.8%
1972	90	+ 5.8%
1973	100	+11.1%
1974	140	+40 %
1975	160	+14.2%
1976	200	+ 2.5%

Source: Economic indicator, Federal Office of Statistics

*The actual cost per year was not known. The figures above were estimates based on the various annual reports of the insurance companies and government departments. For instance, repairs of vehicles done by road side mechanics or private companies were not costed in the annual estimates.

Table 4.5: Deaths by Types of Accidents in Nigeria in the period 1970-76

Type of Accident	1970	1971	1972	1973	1974	1975
Two-vehicle	1,157	1,347	1,686	2,042	2,559	3,109
Railroads	70	68	40	32	38	42
Pedestrian	376	449	588	635	689	833
Fixed Objects	665	769	941	1,193	1,362	865
Motorcycles	102	130	152	138	141	190
Others	523	443	514	517	133	213
Total	2,893	3,206	3,921	4,837	4,922	5,552

Source: Police Accident Records (unpublished, 1976), Lagos, Nigeria.

Table 4.6: Growth of Motor Vehicles in Nigeria*, 1955-1976

Year	Quantity	% of Increase over Previous Year
1955	38,000	Not Known
1965	172,000	+418.75%
1966	450,000	+161.62%
1974	2,800,000	+522.22%
1975	4,600,000	+ 64.28%
**1976	6,000,000	+ 30.43%

* Growth of motor vehicles in Nigeria includes both the registered and imported ones that have not been registered.

** 1976 figure was an estimate by Ministry of Trade, the exact figure was not known.

Source: Federal Office of Statistics, Economic Indicator, Lagos, Nigeria, January, 1977.

Highways Growth

The total number of kilometers (miles) of highway in Nigeria has been growing rapidly. The total mileage (kilometers) of highways has grown from 55,530 miles (83,290 km) in 1965 to 80,530 miles (120,804 km) in 1976.[1] This growth tends to be offset somewhat, however, by the abandonment of rural roads which have never been improved or which have fallen into disuse. Of the 80,530 miles (120,804 km) of highway in 1976, only 34,000 miles (41,000 km) were paved. Generally, while the overall growth rate of highways was about 2,500 miles (3,750 km) per year, the rate of growth of the paved and tarred roads was on the order of 1,000 miles (1,500 km).[2]

Drivers

It was estimated that the nation's population reached 75 million in 1975, an increase of nearly 20 million over the 1963 census figure.[3] By 1976, approximately 9% of this population were drivers as compared to only 2% in 1965,[4] while in 1955, the driver population totalled 0.045%.[5]

---

[1] Kampsax Nigeria Ltd.: Feasibility Studies of the National Transportation Network in Nigeria. A report undertaken for the Federal Government of Nigeria, 1977.

[2] op. cit.

[3] Nigeria population census 1963 was 56 million. The population census of 1973 was cancelled but the reliable population figure in 1975 was estimated at 75 million.

[4] Nigerian National Council on Works: Report of the Committee on safety devices in motor vehicles (1976). In 1965, the drivers were estimated to be 1.1 million. In 1976, the estimate was 6.75 million.

[5] Federal Republic of Nigeria: Report of the Committee on Road Safety, November, 1968, Lagos, Nigeria.

Vehicle Travel

The trend in highway travel, measured in vehicle kilometers (miles) was on the increase. Motor vehicle travel in 1976 approached 108 billion kilometers (72 billion miles), an increase of about 80 billion kilometers (58 million miles) over the 1966 total.[6]

Speed

The average travel speeds for motor vehicles indicated a continuing increase with like increases noted in the percent of vehicle exceeding the legal 56 kilometers (35 mph) speed limit. In 1965, the average speed of free-flowing traffic on straight level, main rural highways in Nigeria was estimated to be 30 mph. This increased gradually to 50 mph after the war in 1970 and then remained relatively constant through 1973. In 1974, when the road safety campaign was established as a result of the high rate of traffic accidents, the average speed of free-flowing traffic on main rural highways dropped to 40 mph.[7] It must be emphasized that the above speeds were measured under a typical conditions and should not be construed as average speeds for all travel or even for all travel on main rural roads; such average speeds are unknown to the author.

ORGANIZATIONAL CHARACTERISTICS OF HIGHWAY SAFETY

Attention in this section focuses on highway safety management structures and organization. Included in this section are the following:

---

[6]This estimated figure was based on 12,000 miles per vehicle in a year since actual figures were not available.

[7]Kampsax Nigeria Ltd.: Trunk Road and Maintenance Studies 1975 for the Federal Government of Nigeria, Lagos, 1975.

1. Organizational structure of the RSC
2. Organizational structure of the state's Road Safety Advisory Committees
3. Organizational structure of line departments
4. Local level organizational structure.

Prior to 1974, a myriad of private and public agencies had emerged to provide a multitude of management activities and safety programs in response to highway traffic unsafety problems. Diverse responsibilities were assigned to or assumed by the various federal, state and local agencies and private sectors resulting in a severely fragmented set of responses and services in highway safety. Further fragmentation of highway safety management occurred through the autonomy of school districts, hospital agencies, police, and courts. This division of operating responsibilities discussed above, complicated the establishment of effective program-oriented federal, state and local and private sector highway safety program management units until 1968 - when an Advisory Committee on Road Safety was inaugurated.

The survey showed that:

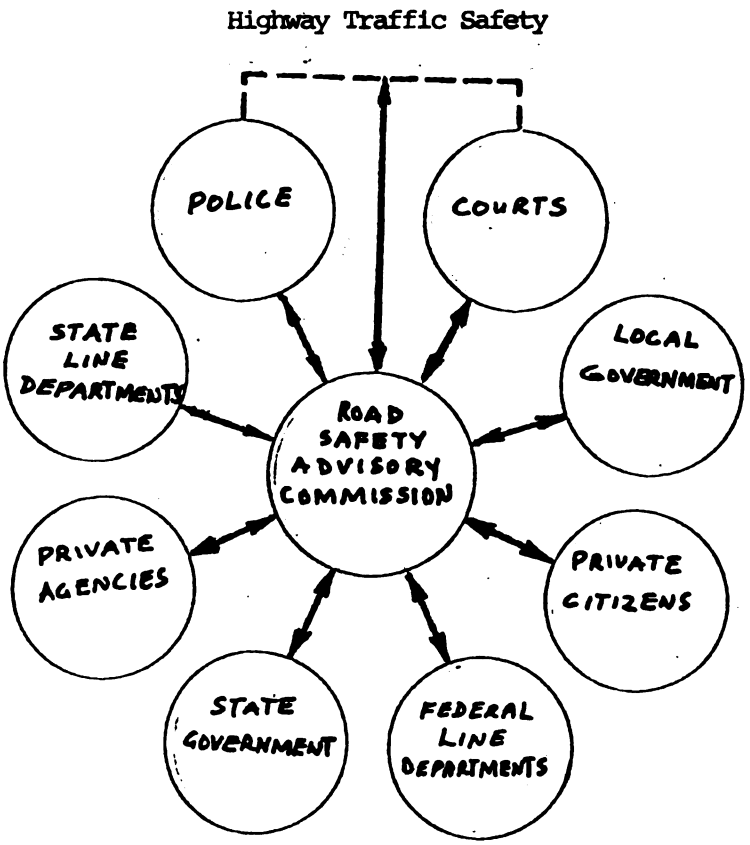
1. A major characteristic of highway safety organizational structure was that it was not an integrated, cohesive operation. The survey respondents indicated that highway operating responsibilities were widely distributed among many federal and state governments, line departments and private sectors; and administered by several individuals, groups and institutions. (See Figure 4.1 and Table 4.7) Data in Table 4.7 show that 71% of all questionnaire respondents were from

Table 4. 7: Responses of Mailed Questionnaire Respondents in Percentages relative to various agencies involved in highway safety in Nigeria

RESPONDENTS									
N = 116 MAILED QUESTIONNAIRES									
RESPONSES									
LINE DEPARTMENT		POLICE		PRIVATE		ARMED FORCES		OTHERS	
n	%	n	%	n	%	n	%	n	%
82	71%	12	10%	10	9%	8	7%	4	3%

*Percentages are approximated to the nearest whole number.

Figure 4.1: Various Organizations involved in Highway Traffic Safety Management in Nigeria Illustrated



the line department. Ten percent were from the private sector, 7% from the armed forces and 3% from unclassified agencies. (See also Table 4.18 and 4.19 respectively)

2 At the federal level, highway safety was administered by the RSC. At the state level highway safety organization was administered by the state's Road Safety Operating Committee, line departments and functional agencies like police, courts, education, motor vehicle licensing, etc. At the local level, highway safety was administered primarily by the private sectors through their established social and civic organizations. (See Table 4.18 and 4.19 respectively) (See also Figure 4.1).

Organizational Structure of the RSC

On Thursday, the 11th of April, 1968, the then Commissioner for Works and Housing, Mr. L. O. Okunnu, inaugurated the Advisory Committee on Road Safety. This committee was charged with the responsibility of making a report on the ways and means by which road accidents could be reduced in Nigeria. This committee submitted its reports in November, 1968. Among the recommendations made by the committee was the urgent need for the establishment of a Road Safety Commission. The government approved this recommendation and in 1974, the Road Safety Commission was promulgated. This represented a mile-stone in the highway safety field in Nigeria.

The RSC was the hub around which management practices revolved in highway safety in Nigeria. The RSC has its headquarters in Lagos,

Nigeria. It was formerly administered by the Ministry of Information when its primary function was "public information dissemination". It was later transferred to the Ministry of Works and Housing because it was erroneously thought that highway safety was purely an engineering matter. At present both the Chairman and the Secretary of RSC are officials of the Ministry of Works and Housing.

The RSC was a non-executive commission and thus had no executive power. Representatives were appointed to the Commission on the basis of their official capacities. Thus, the Federal Commissioner for Works automatically became the chairperson, while the principal planning engineer became the secretary. Appointment of state representatives to the commission followed the same line.

Its primary function was to provide leadership and stimulate innovative approaches to the challenge which highway safety presented. At present, its only function is the organization of road safety week campaigns and seminars in highway safety. All the interview respondents confirmed this statement. (See Table 4.8).

The day-to-day affairs of the RSC was single-handedly managed by the secretary. This was mainly limited to distributing federal funds to the states to assist them in better management of the total highway effort and writing guidelines on the organization of road safety week campaigns. The specific functional matters like organizing safety week campaigns were handled by the state road safety committees in their respective states.

The survey revealed that the RSC has no physical office of its own. In fact, the RSC in its present state can aptly be described as an absentee commission, an arm-chair organization and a tenantry agency.

Table 4. 8: Responses of the Interviewees in Percentages* relative to the question: "What does the RSC do?

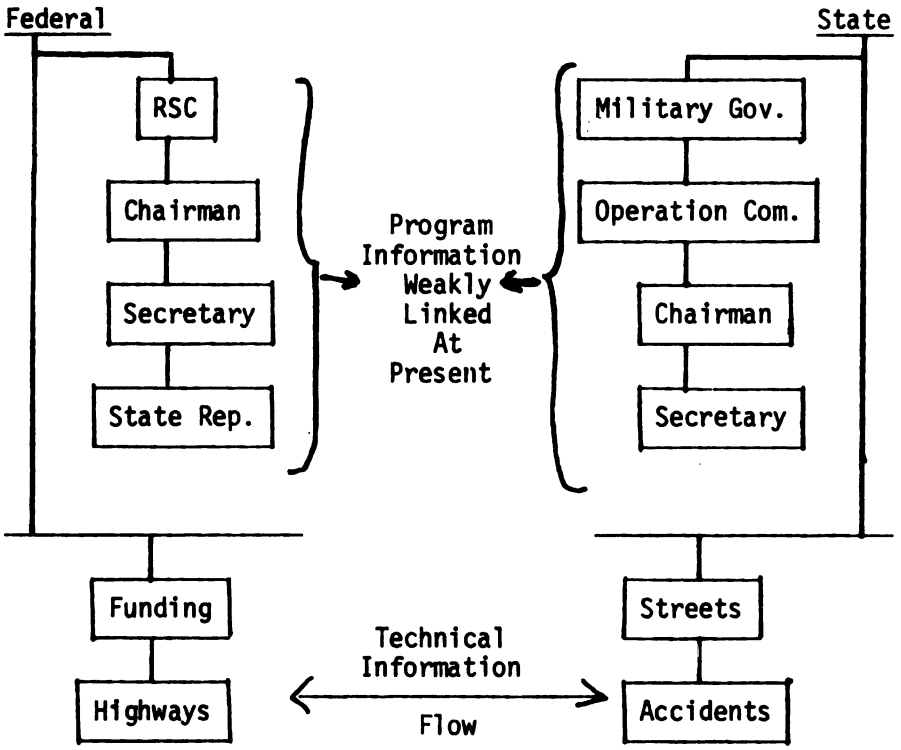
FUNCTION OF RSC	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONSES
	N = 18	TOTAL 1000%
Organization of Road Safety Week	18	100%
Distribution of funds to State's highway safety agencies	16	89%
Education of Road Users	4	22%

* Percentages are approximated to the nearest whole number

Table 4. 9: Responses of the Interviewees in Percentages* relative to the question: "What have some of the RSC's accomplishment been?"

ACCOMPLISHMENT	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONSES
	N = 18	TOTAL 1000%
Organize Road Safety Week	14	78%
Organize Road Accident Workwhop	4	22%

Figure 4.2: Program Management Organizations in Federal and State Governments Highway Traffic Safety



This loose organizational arrangement is shown in Figure 4.2.

In reviewing survey information regarding the RSC, Table 4.8 to 4.17 present the responses by survey respondents relative to the questions on the RSC.

Data in Table 4.8 reveal that all the respondents believed that one of the functions of the RSC was organization of road safety week, 89% of the interviewees considered distribution of funds to states' highway safety agencies as one of its functions while 22% were of the opinion that education of road users was one of the functions of the RSC.

Presented in Table 4.9 are the responses of the interviewees in regard to the question: "What have some of the RSC's accomplishments been?" Data in Table 4.9 show that 78% of the interviewees ranked organization of road safety week as being an important accomplishment of the RSC while 22% of the respondents felt that organization of road accident workshop was one of the RSC's accomplishments.

Table 4.10 shows that all the respondents were of the opinion that the RSC was funded by the Federal Government. This assumption was correct.

In Table 4.11 shows that all the respondents felt that the RSC communicated with the Federal and State governments relative to its activities.

Data in Table 4.12 presented responses of the persons interviewed regarding the question: "What have been the greatest barriers for the RSC in implementing its charge in highway safety?" Table 4.12 indicates that all the respondents considered the following as the greatest

Table 4. 10: Responses of the Interviewees in Percentages* relative to the question: "How is the Road Safety Commission funded?"

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
FEDERAL		STATE		LOCAL		PRIVATE		DON'T KNOW	
n	%	n	%	n	%	n	%	n	%
18	100	0	0%	0	0%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.11: Responses of the Interviewees in Percentages* relative to the question: "Who does the RSC communicate with relative to its activities?"**

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
FEDERAL		STATE		LOCAL		PRIVATE		DON'T KNOW	
n	%	n	%	n	%	n	%	n	%
18	100%	18	100%	0%	0%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.
**Communication channel is mainly by letter.

Table 4. 12: Responses of the Interviewees in Percentages* relative to the question: "What have been the greatest barriers for the RSC in implementing its charge in highway safety?"

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
No executive power		Lack of fund		Inadequate Personnel		Lack of Coordination		Lack of support	
n	%	n	%	n	%	n	%	n	%
18	100%	18	100%	18	100%	16	89%	14	78%

*Percentages are approximated to the nearest whole number.

barriers: no executive power, lack of funds, inadequate personnel. Eighty-nine percent of the respondents felt that lack of coordination has been one of the greatest barriers while 78% indicated lack of support.

In Table 4.13, data show that all the interviewees and questionnaire respondents agreed that the Road Safety Commission should continue to exist.

Table 4.14 shows that a 100% of the survey respondents felt that the RSC should be granted executive power.

Data in Table 4.15 show that all the respondents from the survey though that the RSC has not been effective in managing highway safety programs in Nigeria.

In Table 4.16, data show that all the persons interviewed and surveyed by mail-questionnaire believed that no professional practitioners or specialist was employed by the RSC or utilized in program execution of highway safety.

Data in Table 4.17 show that all the interviewees and questionnaire respondents recommended more funds and more power as measures to enhance the effectiveness of the RSC. While all the interviewees agreed that more publicity could enhance the effectiveness of the RSC, only 79% of the questionnaire respondents agreed with this measure. Eighty-nine percent of the interviewees and 72% of the questionnaire respondents recommended more personnel while 38% of the interview respondents and 29% of questionnaire respondents considered more equipment as a measure to enhance the effectiveness of the RSC.

Table 4. 13: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Do you think the Road Safety Commission should continue to exist?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
18	100%	0	0%	0	0%	116	100%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 14: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Do you think the Road Safety Commission should be granted an executive power?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
18	100%	0	0%	0	0%	116	100%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 15: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Do you think the Road Safety Commission has been effective in managing highway Safety programs in Nigeria?"

RESPONDENTS								
N = 18 Interview						N = 116 Mailed Questionnaire		
RESPONSES						RESPONSES		
Yes		No		Don't Know		Yes	No	Don't Know
n	%	n	%	n	%	n %	n %	n %
0	0%	18	100%	0	0%	0 0%	116 100%	0 0%

*Percentages are approximated to the nearest whole number.

Table 4. 16: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is there any professional practitioner or specialist employed by the RSC or utilized in program execution of highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 17: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "What changes would you recommend to enhance the effectiveness of the Road Safety Commission?"

	INTERVIEW RESPONDENTS		QUESTIONNAIRE RESPONSENTS	
	Number of Respondents N = 18	% of Responses	Number of Responde' N = 116	% of Responses
More funds	18	100%	116	100%
More power	18	100%	116	100%
More publicity	18	100%	92	79%
More personnel	16	89%	84	72%
More equipment	7	38%	34	29%

*Percentages are approximated to the nearest whole number.

The survey revealed that three other structures existed to provide management direction in highway safety in the country. These three structures are described briefly below.

Organizational Structure of State's Road Safety Operating Committee

The first form was the Road Safety Operating Committee structure which was used in the states to assist the state's chairperson in his leadership and coordination functions. The Road Safety Operating Committee was established by the military governor in the state. He appointed the members largely drawn from the following categories:

- line departments
- university groups
- professional societies

The chairperson of the highway safety operating committee was the Commissioner for the Ministry of Works and Transportation in the State and the secretary was one of the state's representatives at the federal level.

The functions of the Road Safety Committee included the following:

1. Provide advice and information to the military governor, the program management organization and the operating committee on highway safety.
2. Express public attitudes, opinions and ideas on highway safety.
3. Assist the chairperson in setting the state's highway safety priorities and goals.
4. Review progress of the state program and discuss problems.

5. Recommend changes and additions to current program operations.

6. Organize the road safety week campaigns.

It was found in the course of the survey that most knowledgeable members of the committee did not always attend committee meetings. However, this form was the most rapidly growing form of organization for the states all over the country. (See Figure 4.2)

Organizational Structure of Line Departments

A second form was the line-department committee type. In this type, a small departmental committee was established usually by the head of the department and members were drawn strictly from the department. The Police Committee on Safety and Accident Surveillance, the Armed Forces Safety Committee in the S & T Corps of the Nigerian Army, the Education Department Committee on Highway Safety, were examples of this second form of committee in highway safety.

The committee's function was primarily to collect and forward useful information on highway safety activities and organize departmental road safety activities. A peculiar function of this type of committee was that it could assign sub-committees to study methods for implementing new program elements or evaluating new methods for accomplishing a current program element. Unfortunately, however, channels of communication between this form of committee and the state operating committee was never formalized.

Local Level Organizational Structure

The third type was the voluntary local and city highway safety committee. Members were largely drawn from the same professional

groups, e.g. the motor club, the municipal drivers association, the motorcycle riders' club, the town traffic committee, traffic safety committee of the insurance companies. This form was generally characterized by group interest, executive direction and irregular meetings. Unlike the other two committees mentioned above, members were strictly bound by committee decisions hence they wielded a considerable influence and power in local highway safety programs.

On the whole, sufficient consistencies in organizational and operational patterns especially in road safety campaigns were observed to allow for the identification of a better future in highway safety management organizational structures.

THE ROLE, PARTICIPATION AND INVOLVEMENT OF THE PUBLIC AND PRIVATE SECTORS IN HIGHWAY SAFETY

The preceding discussion dealt with various organizational structures in the management of highway safety in Nigeria. In this section, a review of the role, participation and involvement of the federal, state and local governments and the private sector in highway safety is made.

The nineteen states and their political subdivisions had a long-standing involvement in highway safety prior to the establishment of the RSC in 1974. These states, however, differed considerably in their approaches to highway safety management and the degree of their involvement in substantive safety programs.

In 1974, the Federal Government established the Road Safety Commission to provide an increased measure of financial support for highway safety at the federal level and to organize safety week campaigns and safety programs in the states so that there would be

a more consistent approach to highway safety management throughout the country.

The promulgation of a highway safety edict in 1974 propelled the Federal Government into a definite leadership role for highway safety. The Federal Government through its agency, the RSC, became a repository agent for technical, financial and programatic information on highway safety. This edict (1974) which fostered the establishment of the RSC also caused the states to enact legislation creating Road Safety Committees to administer highway safety in their respective jurisdictions.

Federal safety functions were divided among a number of line departments, e.g. police, courts, armed froces, education, etc. Each line department conducted its own planning and functional operations. As the line departments were increasingly called upon to administer the elements of the federal highway safety programs, the role of the federal RSC was sometimes relegated to one of a grant administrator of the highway safety fund and that of fund-distributing agency.

State

The state governments possessed extensive responsibility for highway safety. The states played the most prominent role in highway safety and occupied the primary position for controlling and guiding highway safety programs at the state level. (See Table 4.18) Data in Table 4.18 show that 67% of the interview respondents ranked the state as the major government jurisdiction providing services in highway safety. Ironically, the states played that role independent of the Federal Government safety agency and the surrounding local

Table 4. 18: Responses of Interviewees in Percentages relative to the question: "Which government jurisdictions are providing services in highway safety?"

RESPONDENTS							
N = 18 INTERVIEW							
RESPONSES							
FEDERAL		STATE		LOCAL		DON'T KNOW	
n	%	n	%	n	%	n	%
5	28%	12	67%	1	5%	0	0%

*Percentages are approximated to the nearest whole number.

communities.

At the state level, apart from the involvement of the Road Safety Committee, the states provided services in the areas of police traffic services, traffic records, identification and surveillance of accident locations, traffic control, traffic courts, highway design and construction, motor vehicle licensing and inspection, codes and laws as well as for the overall police enforcement of all traffic laws within their respective jurisdictional boundaries. In some cases, e.g. traffic court services, the states were the sole providers of these services while in other instances the Federal Government provided complementary and even overlapping services, e.g. highway construction.

The principal units of the state government that were responsible for highway safety activities and services according to interview respondents included the Ministry of Works and Transportation; Ministry of Education; State Police; Armed Forces; Ministry of Justice; and Ministry of Health. (See Table 4.19) However, in the urban areas during the road safety week. Some interviewees told the author during the course of the interview that the major participants were the police and the School Education Board. Unfortunately, however, as some interviewees mentioned, the concept of dross-departmental program management was not yet fully institutionalized within the state government highway safety programs.

Local

Highway safety was a tenuous concept at the local level. While lip service was paid to it, it did not command reasonable consideration, participation and involvement. Data in Table 4.18 show that only 5% of the respondents indicated that local government

Table 4. 19: Responses of Interview Respondents* relative to the question: "Which governmental agency is responsible for highway traffic safety works in Nigeria?"

AGENCY	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONSES
Police	18	100%
Ministry of Works & Transp.	18	100%
Armed Forces	18	100%
Ministry of Education	18	100%
Ministry of Justice	12	66.6%
Ministry of Health	8	44.4%

*N = 18

provided highway safety services at the local level. In the course of the interview discussion, the author learned that most local communities had no highway safety activities; that the few local units that had highway safety activities assumed no active role in them; and that the sophistication of these activities and the attention devoted to them varied tremendously with the community, its size, its structure, and predilections.

Private Sector

The private sector had long been involved with highway safety. Its involvement predated most governmental efforts. With the establishment of the RSC and its state counterparts, the involvement and participation of private sector activity seemed to have diminished.

In the interview survey, most respondents mentioned that there was still considerable private sector activity and that it was expanding rather than diminishing. What seemed to be occurring was a change in the character of private sector involvement and that was perceived as a diminuation of activity.

There was, however, an emerging private sector activity at the grass-roots level and in the universities. These organizations became involved with a full range of activities -- from planning and research to dissemination of public information on highway safety. Universities particularly have been increasing their focus on highway safety probably in response to the increased demand created by state highway safety programs. For instance, the University of Ibadan was negotiating to set up a Road Accident Studies Unit while the University of Lagos was struggling to employ Highway Safety Specialists and Consultants to train middle-level highway safety practitioners.

Generally the survey showed that the private sector involvement in highway safety was carried out within the following three main categories: (See Table 4.20)

1. Public interest: Considerable amounts of literature and mass media presentations were sponsored and distributed by private sector organizations. This public information covered just about every topic under highway safety, from road accidents to police patrol.
2. Representational interests of a particular special interest group: A striking example was the Motor Club of Nigeria based in Lagos. They were the publishers of the "Motorist," a magazine devoted to the use of roads and vehicles.
3. Donation and sponsorship by a non-highway safety group: The Rotary Club of Ibadan for instance donated funds for the road markings on Ring Road in Ibadan City.

Another form of private sector participation in highway safety involved social and civic groups that engaged in highway safety activities as a secondary activity function. One of the most important activities of this group was legislative advocacy. The legislative advocacy function appeared on the whole to have been quite effective.

CURRENT MANAGEMENT PRACTICES IN HIGHWAY SAFETY

The primary emphasis in this survey was addressed to the management practices in highway safety, therefore, this section forms the core of the survey. The particular management items explored in this

Table 4. 20: Responses of Interview Respondents* relative to the question: "In what activities are the private sectors involved in highway safety?

ACTIVITY	NUMBER OF RESPONDENTS	PERCENTAGE OF RESPONSES
Public interest . mass media . public information . articles	18	100%
Representational interest . clubs, e.g., motor club . associations, e.g., driver	16	89%
Donation & Sponsorship of projects . individuals . groups . institutions	18	100%

* N = 18

section are:

1. Management process (planning, programming, budgeting execution and evaluation)
2. Intergovernmental relationships and coordination in current highway traffic management practices.

Management Process

The management process as practiced for highway safety operations by the public and private sectors in the survey sample was reviewed. This process was defined as planning, programming, budgeting, execution and evaluation. A review of the management practices for the component functions of highway safety yielded the following assessment of each phase of the management process.

Planning

Most of the persons interviewed mentioned during the interview discussion that there was no process specifically geared to planning. Of greater pertinence was the fact that there was a total lack of long-range planning. Of all the respondents from the interview group, 78% indicated that plans were made short-term. Eighty percent of the respondents of the mailed questionnaire indicated the same. Twenty-two percent of the interviewees and 20% of the respondents of the mailed questionnaire indicated "don't know." (See Table 4.21)

In the course of the survey, it was found that long-term planning and programming were discouraged because of the frequent short tenures of the chairpersons and secretaries of the Road Safety Committees both at the federal and state levels. In addiition, the historical pattern whereby federal and state officials dealt with

Table 4.21: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the the question: "To what period in the future are plans made (short-term or long-term)?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Short Term		Long Term		Don't Know		Short Term		Long Term		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
14	78%	0	0%	4	22%	93	80%	0	0%	23	20%

*Percentages are approximated to the nearest whole number.

annual line-item budget allocations that did not reflect a long-term dimension seemed to be another factor that tended to discourage long-term planning in highway safety, even though survey data did not show this.

Presented in Tables 4.21 to 4.29 are the responses by respondents relative to highway safety planning in Nigeria.

The data in Table 4.21 show that of the 18 persons interviewed, 78% considered planning to be for short-term periods. Twenty-two percent said they did not know and none indicated the existence of long-term planning in highway safety. Of all the practitioners responding to the mailed questionnaire, 80% indicated planning was made short-term while the remaining 20% responded "don't know."

Data in Table 4.22 show that 78% of the interviewees indicated that the RSC considered not important in influencing road construction that would reflect the inclusion of highway traffic safety devices. Twenty-two percent indicated they did not know.

Table 4.23 shows that 83% of the interviewees and 80% of the mailed questionnaire respondents considered the question: "Are planning information provided in highway safety?" negative. Seventeen percent of the interviewees and 20% of the respondents of mailed questionnaires admitted they did not know. No one indicated that planning information was provided.

Table 4.24 shows that 83% of the interviewees agreed to the suggestion that highway safety activity plans were not formally documented and 11% responded they did not know. Six percent disagreed. Of all the respondents to the mailed questionnaire, 95% indicated that highway safety activity plans were not formally documented while the

Table 4. 22: Responses of Interview Respondents in Percentages* relative to the question: "How important is the RSC in influencing road construction that will reflect the inclusion of traffic safety devices?"

RESPONDENTS							
N = 18 INTERVIEW							
RESPONSES							
VERY IMPORTANT		IMPORTANT		NOT IMPORTANT		DON'T KNOW	
n	%	n	%	n	%	n	%
0	0%	0	0%	14	78%	4	22%

*Percentages are approximated to the nearest whole number.

Table 4. 23: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are planning information provided in highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	15	83%	3	17%	0	0%	93	80%	23	20%

*Percentages are approximated to the nearest whole number.

Table 4. 24: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are highway safety activity plans formally documented?"

RESPONDENTS								
N = 18 Interview						N = 116 Mailed Questionnaire		
RESPONSES						RESPONSES		
Yes		No		Don't Know		Yes	No	Don't Know
n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	6%	15	83%	2	11%	0	0%	110	95%	6	5%

*Percentages are approximated to the nearest whole number.

remaining 5% responded "don't know."

Data in Table 4.25 show that 100% of the interviewees believed there were no guidelines on planning but admitted receiving a letter-type form of guidelines for highway safety campaigns. This form did not include planning activities. The same 100% responses were received from the mailed questionnaire respondents.

Presented in Table 4.26 are the data showing responses on the coordination activities among the various units in highway safety planning. One person (6%) out of the interviewees acknowledged that there was any form of coordination in planning while five interviewees (27%) responded "don't know," the remaining 12 persons (67%) indicated that coordination did not exist. Eighty-six percent of the respondents of the mailed questionnaire denied the existence of any coordination in planning while 14% replied they did not know. None of the mailed questionnaire respondents saw any coordination activity in planning.

In Table 4.27 data show that of the 18 persons interviewed, 11% indicated that highway safety plans were used for preparing budgets while the remaining 89% replied they did not know. The data also showed that all the questionnaire respondents indicated that they did not know if safety plans were used for policy decision or budgeting or by the operating departments.

Data in Table 4.28 show that all the interviewees and 83% of the respondents of mailed questionnaire conceded that objectives and priorities were not set for highway safety planning. The remaining 17% indicated they did not know.

Table 4. 25: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are there any guidelines for planning?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 26: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is there any coordination in planning among the Federal, State, and Local governments and the private sector?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
1	6%	12	67%	5	27%	0	0%	100	85%	26	14%

*Percentages are approximated to the nearest whole number.

Table 4.27: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "How are highway safety plans used?"

RESPONDENTS													
N = 18 Interview								N = 116 Mailed Questionnaire					
RESPONSES								RESPONSES					
For Policy		Budgeting		Operating Depts.		Don't Know		Policy		Budgeting		Operating Depts.		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
0	0%	2	11%	0	0%	16	89%	0	0%	0	0%	0	0%	116	100%

*Percentages are approximated to the nearest whole number.

Table 4.28: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are objectives and priorities set for highway safety planning?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	96	83%	20	17%

*Percentages are approximated to the nearest whole number.

Programming

As a result of the survey, the following observations on highway safety programming in Nigeria was made. They are presented below in Tables 4.29 to 4.35.

Table 4.29 shows that 84% of the respondents from the mailed questionnaire group indicated no knowledge of who assigned responsibilities for highway safety programming, while 11% of the interviewees and 9% of the mailed questionnaire respondents were able to name persons who assigned responsibilities for highway safety programming, 7% of mailed questionnaire respondents and 11% of the interviewees felt that there was no one.

Data in Table 4.30 show that 78% of those interviewed and 88% of the mailed questionnaire respondents mentioned that highway safety programs were not formally prepared or documented, while 11% of those interviewed and 3% of mailed questionnaire respondents felt that highway safety programs were formally prepared and documented. Eleven percent of those interviewed and 9% of respondents of mailed questionnaires replied they did not know.

Table 4.31 shows that only 17% of both interviewees and mailed questionnaire respondents responded that they did not know whether programs were developed for more than one year periods or not. Eighty-three percent responded "no" to the question and no one said "yes" to the question. The data, therefore, suggested that programs were developed for not more than a one-year period of time.

Table 4.32 presents responses on the question: "Are there any guidelines for developing programs in highway safety?" Seventy-eight percent of the interviewees and 90% of mailed questionnaire respondents

Table 4. 29: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Who assigns responsibilities for the performance of highway safety programming?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Named		Nobody		Don't Know		Named		Nobody		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
2	11%	2	11%	14	78%	10	9%	8	7%	98	84%

*Percentages are approximated to the nearest whole number.

Table 4.30: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are highway safety programs formally prepared and documented?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
2	11%	14	78%	2	11%	3	3%	102	88%	11	9%

*Percentages are approximated to the nearest whole number.

Table 4.31: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are programs developed for more than one year period of time?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	15	83%	3	17%	0	0%	96	83%	20	17%

*Percentages are approximated to the nearest whole number.

Table 4.32: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are there any guidelines for developing programs in highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
2	11%	14	78	2	11%	0	0%	104	90%	12	10%

*Percentages are approximated to the nearest whole number.

answered "no." Eleven percent of those interviewed and 10% of the mailed questionnaire respondents answered they did not know. Only 11% of those interviewed answered "yes" to the question.

Data in Table 4.33 show that it seemed alternative programs were not considered in highway safety planning. Eighty-three percent of those interviewed and 90% of those surveyed by mailed questionnaire confirmed this assertion. Seventeen percent of those interviewed and 20% of those surveyed by mailed questionnaire responded they did not know. No one said "yes" to the question.

Table 4.34 presents responses to the question: "Are current program information available in highway safety?" Eighty-three percent of the interviewees indicated that program information was not available while the remaining 17% indicated "don't know." All the respondents of the mailed questionnaire replied there was no availability of current program information.

In Table 4.35 it is revealed that 89% of those surveyed by mailed questionnaire and 78% of the interviewees indicated that highway safety programs that crossed departmental lines were not prepared and documented. Seventeen percent of those interviewed and 11% of respondents of mailed questionnaires replied "don't know." Only 5% of the interviewees conceded that highway safety programs that crossed departmental lines were prepared and documented.

Budgeting

Budgeting was one of the important management processes in highway safety that was surveyed.

Table 4.36 is a summary of the federal road program for 1975-80 and Table 4.37 to 4.42 present responses by the interviewees and

Table 4.33: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are alternative programs considered in highway safety programming?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	15	83%	3	17%	0	0%	104	90%	12	10%

*Percentages are approximated to the nearest whole number.

Table 4.34: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are current program information available in highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	15	83%	3	17%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.35: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are highway safety programs that cross departmental lines prepared and documented?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
1	5%	14	78%	3	17%	)0	0%	102	89%	13	11%

*Percentages are approximated to the nearest whole number.

Table 4. 36: SUMMARY OF FEDERAL ROAD PROGRAMME 1975-80

			(N million)
Total Federal road programme			(4,355,960)
(a) Primary Trunk 'A' network including ...			
	(i) Asphalt overlay	133,580	
	(ii) Continuing projects	340.500	2,518.940
	(iii) New projects	2,044.860	
(b) Existing Grunk 'B' roads taken over by the Federal Government			1,440.000
(c) Urban by-passes			87.400
and intra-city fly-overs			58.870
(d) Miscellaneous projects			37.150
(e) Materials and Research			5.000
(f) Training			10.000
(g) Road maintenance			138.600
(h) Studies, Design and Right-of-Way Acquisition			60.000
* (i) Highway safety			??????

Source: Third Year Development Plan, Federal Republic of Nigeria, Lagos - Nigeria, 1975.

persons surveyed by mailed questionnaire concerning highway safety budgeting in Nigeria.

Data in Table 4.36 show that the highway safety budget was not considered as part of the total highway transportation budget.

Data in Table 4.37 show that all the respondents in the survey indicated that the highway safety budget was not tied to planning or programming activities.

Table 4.38 shows that all persons interviewed and 93% of the mailed questionnaire respondents responded that highway safety was not entered as a separate budget category. The remaining 7% of the mailed questionnaire respondents indicated they did not know.

In Table 4.39, the data show all the respondents agreed that the RSC members and state representatives did not participate in the budget process.

In Table 4.40, the data show that all the interview respondents agreed that the budget was usually prepared to cover a one year period.

Data in Table 4.41 indicate that all the respondents in the survey responded that there was no guideline for preparing the budget in highway safety.

Table 4.42 show that all the persons interviewed indicated that revenue sources were not provided to support private sector highway safety activities.

Execution and Control

Program execution and control is an important function of the management process in highway safety. It is especially demanding in highway safety since effective management of highway safety programs depend in great measure on the capability of concerned highway safety

Table 4. 37: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is the budget in highway safety tied to planning or programming activities?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.38: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is highway safety entered as a separate budget category?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	108	93%	8	7%

*Percentages are approximated to the nearest whole number.

Table 4.39: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "In what way does the RSC members and State representatives participate in the budget process?"

RESPONDENTS								
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
In a Way		No Way		Don't Know		In A Way		No Way		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 40: Responses of Interviewees in Percentages* relative to the question: "What is the time or period covered by the budget?"

RESPONDENTS							
N = 18 INTERVIEW							
RESPONSES							
Under One Year		One Year		Over One Year		Don't Know	
n	%	n	%	n	%	n	%
0	0%	18	100 %	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.41: Responses of Interviewees and Questionnaire Respondents in Percentages* relative o to the question: "Is there any guideline for making the budget?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.42: Responses of Interviewees in Percentages* relative to the question: "What are the revenue sources, in percentages, for supporting private sector highway safety activities?"

QUESTION	RESPONDENTS					
	N = 18 INTERVIEW					
	RESPONSES					
	Resources Provided		Resources Not Provided		DON'T KNOW	
	n	%	n	%	n	%
What are the revenue sources, in percentages, for supporting private sector highway safety activities?	0	0%	18	100%	0	0%

* Percentages are approximated to the nearest whole number

officials to execute and control programs on a continous basis.

Tables 4.43 to 4.47 present data on responses of the interviewees and mailed questionnaire respondents on the execution and control process in highway safety management in Nigeria.

Data in Table 4.43 show that all the persons interviewed in the survey and 95% of mailed questionnaire respondents indicated that current information on execution and control was not available. Five percent of the surveyed mailed questionnaire respondents replied they did not know.

Table 4.44 shows that all the respondents indicated that no execution and control information was recorded.

In Table 4.45, the data show that all the respondents agreed that there were no guidelines for program execution and control.

Data in Table 4.46 show that 83% of the interviewees and 88% of mailed questionnaire respondents indicated that decisions made during program execution were not based on research work. Seventeen percent of the interviewees and 12% of mailed questionnaire respondents replied they did not know.

In Table 4.47, data show that 78% of the interview respondents and 74% of the mailed questionnaire responded that they don't know while 19% of the interviewees and 11% of the mailed questionnaire indicated that nobody was responsible for program execution and control in highway safety. However, 11% of the interviewees and 7% of those surveyed through mailed questionnaire named "somebody" to be responsible.

Table 4.43: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question "Is information on program execution and control available?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	110	95%	6	5%

*Percentages are approximated to the nearest whole number.

Table 4. 44: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is program execution information recorded?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 45: Responses of Interviewees and Questionnaire Respondents in Percentages2 relative to the question: "Are there any guidelines for program execution and control?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 46: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are decisions made during program execution based on research work?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	15	83%	3	17%	0	0%	102	88%	14	12%

*Percentages are approximated to the nearest whole number.

Table 4.47: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Who is responsible for program execution and control in highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Somebody		Nobody		Don't Know		Somebody		Nobody		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
2	11½	2	11%	14	78%	8	7%	22	19%	86	74

*Percentages are approximated to the nearest whole number.

Evaluation

Tables 4.48 to 4.53 present the responses of interviewees and mailed questionnaire respondents on the evaluation process in highway safety management in Nigeria.

Data in Table 4.48 show that all of the respondents indicated that programs were not evaluated.

In Table 4.49, the data show that all the persons interviewed and 90% of those surveyed by mailed questionnaire responded that evaluation of programs was not documented nor distributed. Ten percent of the mailed questionnaire respondents indicated they did not know.

Table 4.50 shows that 90% of those surveyed by mailed questionnaire and 100% of the interviewees indicated that there was no specific evaluation method or technique employed in evaluation of highway safety programs.

Table 4.51 shows that all the interviewees and 90% of those surveyed by mailed questionnaire responded that there was no guideline for program evaluation of highway safety activities. Ten percent of the mailed questionnaire respondents replied they did not know.

Data in Table 4.52 show that no one really seemed to be responsible for evaluating highway safety projects and activities.

In Table 4.53, the data show that all the interview respondents and 95% of mailed questionnaire respondents indicated that highway safety projects were not reviewed at all. Five percent of the mailed questionnaire respondents replied they don't know.

Intergovernmental Aspects in Highway Safety

In this section are presented the findings of the survey on

Table 4.48: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Are programs evaluated in your highway safety unit?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	)%

*Percentages are approximated to the nearest whole number.

Table 4. 49: Responses of Interviewees and Questionnaire Respondents in Percentages relative to the question: Are evaluations of programs documented and distributed?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
)0	0%	18	100½	0	0%	0	0%	104	90%	12	10%

*Percentages are approximated to the nearest whole number.

Table 4. 50: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is there any specific evaluation method or technique?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	104	90%	12	10%

*Percentages are approximated to the nearest whole number.

Table 4. 51: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Is there any guideline for program evaluation of highway safety activities?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	104	90%	12	10%

*Percentages are approximated to the nearest whole number.

Table 4.52: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Who is responsible for program evaluation in highway safety?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Somebody		Nobody		Don't Know		Somebody		Nobody		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.53: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "How often are programs reviewed in your organization?"

RESPONDENTS								
N = 18 Interview					N = 116 Mailed Questionnaire			
RESPONSES					RESPONSES			
Quarterly		Yearly		Not at all	Don't Know	Quarterly	Yearly	Not At All	Don't Know
n	%	n	%	n %	n %	n %	n %	n %	n %
0	0%	0	0%	18 100%	0 0%	0 0%	0 0%	110 95%	6 5%

*Percentages are approximated to the nearest whole number.

inter-governmental aspects in highway safety. These data are presented in Table 4.54 through 4.66.

Data in Table 4.54 show that all the interview respondents agreed that a situation existed in which they Federal Government may contact with the state for services. The author learned from the interview discussion that states for instance could contact the Federal Government for reinforcement of police for highway patrol.

In Table 4.55, data show that all the interviewees surveyed considered that the relationships that existed between the federal and state governments for providing services were mainly financial, political and intergovernmental. Fifty-six percent considered technical information flow and functional aspects as the part of the relationship existing between federal and state governments. Forty-four percent of the interviewees considered that federal and state relationship existed on information exchange, and 11% of the interviewees considered that relationship existed in program exchange.

Table 4.56 shows that all the respondents indicated that the state did not maintain relationship with the local governments in the area of highway safety.

Data in Table 4.57 show that all the respondents in the survey agreed that the state did not have a formal arrangement with other local jurisdictions in highway safety.

In Table 4.58, data show that all the respondents in the survey considered that local government rule did not complicate federal highway safety programs.

Data in Table 4.59 show that nobody seemed to be responsible for applying for safety funds for local highway safety projects.

Table 4.54: Responses of the Interviewees in Percentages* relative to the question: "Does a situation exist in which the federal government may contact with the state for services?"

QUESTION	RESPONDENTS					
	N = 18 INTERVIEW					
	RESPONSES					
	Yes		No		Don't Know	
	n	%	n	%	n	%
Does a situation exist in which the federal government may contact with the state for services?	18	100%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4.55: Responses of the Interviewees in Percentages* relative to the question: "What relationships exist between Federal and State for providing services?"

TYPE OF RELATIONSHIP	NUMBER OF RESPONDENTS**	PERCENTAGE OF RESPONSES
Financial	18	100%
Political	18	100%
Intergovernmental	18	100%
Technical information flow	10	56%
Functional	10	56%
information exchange	8	44%
Program exchange	2	11%

* Percentages are approximated to the nearest whole number

** N = 18

Table 4. 56: Responses of the Interviewees in Percentages* relative to the question: "What relationship does the state maintain with the local governments in the area of highway safety?"

QUESTION	RESPONDENTS N = 18 INTERVIEW RESPONSES					
	Somehow		None		Don't Know	
	n	%	n	%	n	%
What relationship does the state maintain with the local governments in the area of highway safety?	0	0 %	18	100%	0	0 %

*Percentages are approximated to the nearest whole number.

Table 4.57: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Does the state have formal arrangements with other local jurisdictions in highway safety,"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 58: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Does local government rule complicate Federal highway safety programs?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
0	0%	18	100%	0	0%	0	0%	116	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 59 : Responses of the Interviewees in Percentages* relative to the question: "Who is responsible for applying for State and Federal funds for local highway safety projects?"

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
Federal		State		Local		Nobody		Don't Know	
n	%	n	%	n	%	n	%	n	%
0	0%	0	0%	0	0%	16	89%	2	11%

*Percentages are approximated to the nearest whole number.

While 89% of the interviewees indicated that there was nobody responsible, the remaining 11% replied they don't know. Currently, according to the Secretary of the RSC, the only form of financial aid relationship between the Federal and State governments was the distribution of the annual ₦5,000 ($7,500) road safety campaign funds to the state by the Federal Government.

In Table 4.60, data indicate that all the respondents in the survey believed that the state did not maintain relationships with the private sector in highway safety activities and works.

Responses of the interviewees in Table 4.61 show that the communication channels between the federal and state governments were through letters and committees. However, 89% of the interviewees responded that no communication channel existed between federal and local on one hand and state and local on the other. The remaining 11% indicated they don't know.

In Table 4.62, data show that all the persons interviewed agreed that no central highway safety coordinator existed in council jurisdiction.

Table 4.63 presents data on the question: "Do private sectors have a central highway safety coordinator?" Seventy-eight percent of the respondents replied "no" while the remaining 22% indicated they did not know.

Data in Table 4.64 indicate that of all the problems that existed in state and local intergovernmental relationship, all the respondents considered lack of coordination, lack of funds, and lack of information flow to be significant. While 89% of the respondents considered lack of support, 78½ identified lack of consultation as one of the problems.

Table 4.60: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Does the State maintain relationships with private sector in highway safety activities?"

RESPONDENTS								
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%

*Percentages are approximated to the nearest whole number.

Table 4. 61: Responses of Interviewees in Percentages* relative to the question: "What communication channel is used in highway safety between Federal, State and local levels in highway safety?

AGENCY	TYPE OF COMMUNICATION CHANNEL	NUMBER OF RESPONDENTS**	PERCENTAGE OF RESPONSES
Federal/State	. Letters	18	100%
	. Committees	16	89%
Federal/Local	None	16	89%
	Don't Know	2	11%
State/Local	None	16	89%
	Don't Know	2	11%

* Percentages are approximated to the nearest whole number

** N = 18

Table 4. 62: Responses of the Interviewees in Percentages* relative to the question: "Do other council jurisdictions have a central highway safety coordinator?"

QUESTION	RESPONDENTS					
	N = 18 INTERVIEW					
	RESPONSES					
	Yes		No		Don't Know	
	n	%	n	%	n	%
Do other council jurisdictions have a central highway safety coordinator?	0	0%	18	100%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 6 3: Responses of the Interviewees in Percentages* relative to the question: "Do private sectors have a central highway safety coordinator?"

QUESTION	RESPONDENTS					
	N = 18 INTERVIEW					
	RESPONSES					
	Yes		No		Don't Know	
	n	%	n	%	n	%
Do private sectors have a central highway coordinator?	0	0%	14	78%	4	22%

*Percentages are approximated to the nearest whole number.

Table 4.64: Responses of the Interviewees in Percentages* relative to the question: "What problems exist in State and local intergovernmental relationship?"

IDENTIFIED PROBLEMS	NUMBER OF RESPONDENTS**	PERCENTAGE OF RESPONSE
Lack of coordination	18	100%
Lack of funds	18	100%
Lack of information flow	18	100%
Lack of support	16	89%
Lack of consultation	14	78%
Political Jealousy	8	44%
Lack of information exchange	4	22%
Illiteracy	2	11%
Immaturity of officials	2	11%

* Percentages are approximated to the nearest whole number

** N = 18

Forty-four percent regarded political jealousy as a problem, 22% named lack of information exchange as a problem and 11% attributed the problem in state and local intergovernmental relationship to illiteracy and immaturity of the officials.

In Table 4.65, the data show that 68% of those interviewed agreed that the problems in private and intergovernmental were mainly due to a lack of coordination or cooperation. Twenty-two percent of the interviewees attributed the problems to political considerations while the remaining 10% considered "different objectives" as the problem.

Table 4.66 presents recommendations of the interviewees and mail questionnaire respondents on how to promote the interrelationship between the private and public sectors in highway traffic safety field in Nigeria. All the respondents in the survey recommended "promotion of coordination and regular consultation" as measures. All the persons interviewed recommended good communications, whereas 89% of the interviewees recommended good public relations; 78%, meetings of representatives; 44%, mutual respect; and 11%, opted for fighting it out and education as measures. Seventy-eight percent of the persons surveyed through questionnaire suggested good communications and good public relations while 72% recommended meetings of both representatives and 34% opted for mutual respect. Nineteen percent and 17% recommended fighting it out and education respectively.

PROBLEMS IN CURRENT HIGHWAY SAFETY MANAGEMENT PRACTICES

The preceding discussion dealt with current management practices including the management process involved in highway safety in Nigeria.

Table 4.65: Responses of Interviewees in Percentages* relative to the question: "Are the problems in private and intergovernmental relationships in highway safety due to lack of coordination or cooperation, different objectives, political consideration, geography, etc.?"

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
Coordination		Different Obj.		Political Consideration		Geography		Don't Know	
n	%	n	%	n	%	n	%	n	%
12	68%	2	10%	4	22%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 66: Responses of the Interviewees and Questionnaire Respondents Percentages*** relative to the question: "What will you recommend as a measure to promote the interrelationship between the private and public sectors in highway traffic safety field in Nigeria?"

RECOMMENDATION	NUMBER OF INTERVIEW RESPONDENTS*	% OF RESPONSES	NUMBER OF QUESTIONNAIRE RESPONDENTS**	% OF RESPONSES
Promote coordination . . .	18	100%	116	100%
Regular consultation	18	100%	116	100%
Good communications	18	100%	90	78%
Good public relations	16	89%	90	78%
Meetings of representatives	14	78%	84	72%
Mutual respect	8	44%	40	34%
Fighting it out	2	11%	22	19%
Education	2	11%	20	17%

* N = 18

** N = 116

*** Percentages are approximated to the nearest whole number

Inherent in the management practices were some specific problems. In this section, these problems are briefly discussed.

Prominent among the problems indicated by the mailed questionnaire respondents in the survey were: inadequate funds, lack of coordination, lack of manpower, lack of effective leadership, lack of facts and data and inefficiency of highway safety officials. Table 4.67 presents the responses by the mailed questionnaire respondents in regard to the question: "What do you think are the important problems facing highway safety management in Nigeria today?"

Data in Table 4.67 show that of those responding to the mailed questionnaire, 100% felt that inadequate funds and lack of coordination ranked highest among the important problems facing highway safety management in Nigeria. Ninety-three percent of the respondents believed that lack of manpower was an important problem and 83% indicated lack of effective leadership. Seventy-one percent considered lack of facts and data an important problem and 52% attributed the problem to inefficiency of highway safety officials.

Apart from the problems identified by the mailed questionnaire respondents, the author, in the course of the survey identified some other important problems facing highway safety management in Nigeria. These problems were identified during the personal interview. They were lack of support, deficiency in the management process, lack of authority, lack of information, independence of line departments and non-use of research works. Below, these problems are discussed briefly.

Lack of Support

The author compared highway safety programs with other contemporary governmental programs like Price Control, Operation Feed the Nation,

Table 4. 67: Responses of the mailed Questionnaire Respondents in Percentages* relative to the question: "What do you think are the important problems facing highway safety management in Nigeria today?"

PROBLEM	RESPONDENTS	
	N = 116	Percentages
Inadequate fund	116	100%
Lack of coordination	116	100%
Lack of manpower	108	93%
Lack of effective leadership	95	82%
Lack of data and facts	82	71%
Inefficiency of safety officials	60	52%

*Percentages are approximated to the nearest whole number.

National Youth Corps, and Universal Primary Education. It seemed that highway safety did not enjoy the type of high support given to these programs. Data in Table 4.64 for instance which indicated that 89% of the interviewees felt that lack of support was one of the existing problems in both states and local intergovernmental relationship bore testimony to this problem. This problem of lack of support was also mentioned by interview respondents as being one of the greatest barriers for the RSC in implementing its charge in highway safety. (See Table 4.12)

Deficiency in the Management Process

In the review of the management process in the last section of this chapter, it was apparent that no specific evaluation method or technique was utilized in highway safety management practices in Nigeria. (See Table 4.50) Survey respondents believed there were no guidelines on all areas of management process. (See Tables 4.24, 4.32, 4.41, and 4.45) It was indicated that programs were not evaluated (Table 4.48) or reviewed (Table 4.53). It was indicated by most respondents that nobody seemed to be specifically responsible for performance of highway safety programming. (See Table 4.29) Alternative programs were indicated not to be considered in highway safety programming by a majority of the survey respondents. While highway safety programs and plans were indicated by a majority of survey respondents not to be fully prepared and documented (Table 4.30) or recorded (Table 4.22), objectives and priorities in planning were not set as indicated by majority of the survey respondents. (See Table 4.28) Also, a majority of the survey respondents indicated that budgets were not tied to planning

and programming.

Lack of Authority

During the interviews, most of the interviewees complained bitterly about lack of authority of the RSC in exercising its day to day activities in highway safety. All of the persons interviewed in the survey believed that of all the recommendations made by the RSC to the government, none had been implemented. (See Tables 4.68 and 4.69) These recommendations were:

1. ban all trucks from carrying passengers in cities;
2. compulsory bi-annual road test for all classes of vehicles,
3. pedestrian lanes must be created in cities; and
4. highway code should be improved and expanded.

All the respondents agreed on recommendations 1, 2, and 3, and 67% agreed on recommendation 4. The RSC had no executive powers to compel the implementation of these recommendations nor possessed any authority to implement the recommendations by iteself. In Table 4.69, all the respondents indicated none of these recommendations had been implemented.

Lack of Information

The author learned from some of the comments of the practitioners interviewed that there was minimal information exchange on highway safety activities among states, line departments and other units involved in highway safety. Some of these practitioners mentioned that some of the useful information on highway safety that

Table 4.68: Responses of the Interviewees in Percentages* relative to the question: "What have been some of the recommendations that the RSC has made to the government or other appropriate bodies?"

RECOMMENDATION	RESPONDENTS	
	N = 18	Percentages
1. Ban all trucks from carrying passengers in cities e.g. Bolekaja.	18	100%
2. Compulsory bi-annual road test for all classes of vehicles	18	100%
3. Pedestrian lanes must be constructed in cities	18	100%
4. Highway Code should be improved and expanded	12	67%

*Percentages are approximated to the nearest whole number.

Table 4. 69: Responses of Interviewees in Percentages* relative to the question: "Which ones of these recommendations** were ultimately adopted and implemented as a part of the traffic safety management program?"

RESPONDENTS									
N = 18 INTERVIEW									
RESPONSES									
Recommendation 1		Recommendation 2		Recommendation 3		Recommendation 4		None	
n	%	n	%	n	%	n	%	n	%
0	0%	0	0%	0	0%	0	0%	18	100%

*Percentages are approximated to the nearest whole number
** These recommendations are cantained in Table 4. 68.

was available was kept secret and classified. Thus practitioners had no access to them. An example was made of police accidents reports that were not made public or available on request to practitioners. The majority of the survey respondents, however, indicated that:

1. Planning information was not provided in highway safety (See Table 4.23)
2. Information on program execution and control was not available (See Table 4.43)
3. Current program information was not available (See Table 4.34).

Also, all the survey respondents believed that program execution information was not recorded. (See Table 4.44)

Independence of Line Departments

The author learned during the course of the interviews that the line departments involved in highway safety generally considered their respective functional responsibilities as top priority and gave secondary consideration to highway safety work. The author learned that as a result of this line departmental concept, when highway safety programs were consistent with departmental operations there was usually substantial acceptance and vice versa. In addition, a majority of the survey respondents indicated that safety programs that crossed departmental lines were not prepared and documented. (See Table 4.35)

Non-Use of Research Works

It was apparent from the survey that while all the survey respondents felt that research work could help to improve highway

Table 4. 70: Responses of Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Do you feel research work can help to improve highway safety management?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
18	100%	0	0%	0	0%	116	100%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

Table 4. 71: Responses of the Interviewees and Questionnaire Respondents in Percentages* relative to the question: "Do you think that with our present resources -- human and non-human --, Nigeria's traffic unsafety problems can be solved?"

RESPONDENTS											
N = 18 Interview						N = 116 Mailed Questionnaire					
RESPONSES						RESPONSES					
Yes		No		Don't Know		Yes		No		Don't Know	
n	%	n	%	n	%	n	%	n	%	n	%
18	100%	0	0%	0	0%	116	100%	0	0%	0	0%

*Percentages are approximated to the nearest whole number.

traffic safety management in Nigeria (See Table 4.70), data in Table 4.46 show that 83% of the interviewees and 88% of mailed questionnaire respondents indicated that decisions made during program execution were not based on research work. The author learned, however, from general discussion and comments by some interviewees that as a result of apparent non-use of research works by practitioners, decisions were indicated to be sometimes arbitrary. The Traffic Decree 1977 entitled "Warning to Motorists" was frequently cited as an example of non-use of research works in making decisions that affected highway safety.

SUMMARY

Presented in this chapter was an analysis of the data and information obtained from an 83% return of completed questionnaires from 140 highway safety practitioners throughout the country and the results of interviews with 18 influential highway safety practitioners.

The chapter was divided into five sections -- one for each of the areas of interest. Individual tables consisting of the percentages of responses toward certain items in each section and a narrative description presenting the findings for each table was included.

The statistical data indicated that highway traffic accidents, fatalities and injuries and costs have shown an upward trend over the past six years.

Regarding the organizational structure of highway safety management, four basic structures were identified.

The majority of the respondents thought that the states played the most prominent role in highway safety. While local governments were indicated to have made little contribution to highway safety, it was revealed by a majority of the respondents that the private sector was involved at the local level even though the public sector was not formally considered in a state's highway safety program. As indicated by a majority of the respondents, no resources were provided for the private sector.

The data revealed that there was no management process specifically geared to planning, programming and evaluation. Management practices were indicated to be characterized by lack of long-range planning. Data also show that budgeting was not tied to planning and programming while program execution was not based on research works.

The majority of the respondents felt that deficiencies existed in the flow of highway safety program information and indicated that communication channels were mainly by letters and through committees.

Regarding the RSC in highway safety activities, the majority of the respondents felt that the RSC had not been effective; that the RSC should continue to exist; that the RSC should be granted executive power; that the RSC was funded by the Federal Government; that no professional or specialist was employed or utilized by the RSC; and that the main functions of the RSC was the organization of Road Safety Week Campaigns.

Data indicate that not enough funds were provided for the operation of highway safety programs.

While a majority of the opinions of the respondents showed that problems of coordination existed among the various participants in highway safety management, they also indicated that there was a serious lack of any highway safety coordinating authority in highway safety management.

The opinions of the respondents from the mailed questionnaires relative to important problems facing highway safety management in Nigeria were in close agreement on the following: inadequate funds, lack of coordination, lack of manpower, lack of effective leadership, lack of facts and data, and inefficiency of safety officials.

Other relative problems facing highway safety management in Nigeria were identified by the author and these included lack of support, deficiency of line departments and non-use of research works.

In Chapter V, a summary, conclusion, guidelines and recommendations (management model), suggestions for further research and discussion will be reported.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, SUGGESTIONS FOR FURTHER RESEARCH AND DISCUSSION

In the preceding chapter, the findings of the survey were presented. The purpose of this chapter is to present:

1. A summary of the study, including the major findings
2. Conclusions which the data warrant
3. Certain recommendations (management model) based on the findings of this survey concerning highway safety management practices in Nigeria
4. Suggestions for further research
5. A discussion of general feelings of the writer which are not supported by the data.

SUMMARY

Statement of the Problem

The basic concerns of the survey were:

1. To review the involvement of federal, state and local governments and the private sector in the highway safety field.
2. To present the management practices and identify the

specific and principal problems in highway/safety management in Nigeria.

3. To formulate and develop a highway safety management model for highway safety management in Nigeria.

Respondents were asked for opinions and comments on items dealing with highway safety management practices in Nigeria both in the public and private sectors. These items were included in the following three sections:

1. Highway Safety Management Structure and Organization in Nigeria
2. Highway Safety Management Practices (the management process -- planning, programming, budgeting, execution and control, and evaluation)
3. Highway Safety Intergovernmental and Private Organization Relationships.

The Method of Procedure

This research survey was limited to a sample of 161 highway safety practitioners throughout the country -- 21 were interviewed while the remaining 140 were surveyed through mailed questionnaire. An opinion questionnaire was developed to obtain opinions on items stated in the sections outlined above. Copies of the questionnaires can be found in Appendices A, B, C, and D.

Prior to the conduct of the interview and mailing of the questionaire, a panel of experts was selected to review the questionnaire. After the review, the questionnaire was pilot-tested. In addition, a letter of explanation was drafted and a letter of endorsement was obtained from

Professor Robert E. Gustafson, Professor of Criminal Justice and Driver and Traffic Safety Education of the Highway Traffic Safety Center at Michigan State University. (See Appendices E and F for copies of these letters)

After a period of four weeks, a follow-up letter was sent to those practitioners who failed to respond to the initial mailing. (See Appendix G for sample of the letter) The initial mailing and subsequent follow-up produced an 83% return of completed questionnaires. A total of 116 questionnaires was received from the 140 practitioners sampled. Also, an 86% participation in the interviews was obtained. A taotal of 18 practitioners out of 21 were interviewed.

The files for the interview survey and the mailed questionnaires were treated separately. Responses and comments from the respondents were reviewed and the tabulated findings were reported by a descriptive analysis using percentages in Chapter IV. Letters of appreciation were written to the respondents who returned their questionnaires to acknowledge the receipt of their responses. (See Appendix H for a sample of the letter)

The Major Findings

An analysis was made of the opinions of the respondents concerning highway safety management practices in Nigeria concerning certain items already listed in this section. An analysis was also made of the data collected and statistics collected on traffic accidents, drivers, vehicles, roads, highway safety expenditures and the highway transportation budget. Presented here is a summary of the major findings of this research survey.

1. The statistical data from the survey showed that highway traffic unsafety problems in Nigeria were extensive in type, magnitude and compexity. Data also indicate that highway traffic accidents fatality and injury rates and accident costs have shown an upward trand over the past six years.

2. Regarding the organizational characteristics of highway safety in Nigeria, the survey revealed that the organization of highway safety activities was not an integrated, cohesive operation. The majority of the survey respondents indicated that highway safety operating responsibilities were widely distributed among many federal and state governments, line departments and private sectors and administered by several individuals, group and institutions. The survey further indicated that at the federal level, highway safety was administered by the RSC; at the state level, by the state's Road Safety Operating Committee, line departments and functional agencies while at the local level by the private sectors through their established social and the civic organizations.

3. Another observation made was that the RSC was a non-executive commission and possessed no executive power. The survey respondents indicated that its main functions were organization of Road Safety Week and distribution of funds to state highway safety agencies. The majority of the respondents felt that the RSC had not been effective in managing highway safety programs in Nigeria; that the important accomplishment of the RSC was funded by the federal government; that no professional practitioners or specialists were employed or utilized

by the RSC and that, the RSC should be granted executive power. The majority of the respondents considered lack of executive power and lack of political support as the greatest barriers for the RSC in implementing its charge in highway safety. Most respondents recommended more funds, more power, more publicity and more personnel as measures to enhance the effectiveness of the RSC.

4. The survey revealed that four basic organizational structures were used to provide overall management direction in highway safety. They were identified as the commission system, the committee type, the line department type and the voluntary type.

5. The opinions of the respondents regarding the role, participation and involvement of the public and private sectors in highway safety were in close agreement that the states played the most prominent role in highway safety. The survey indicated that with few exceptions, highway safety at the local level did not command considerable participation in state government highway safety efforts. Generally, the survey showed that private sector activity in highway safety was very much in evidence and that the private sector involvement was carried out within three main categories: public interest, representational interest and donation and sponsorship of projects.

6. On the items on management practices in highway safety, a majority of the survey respondents believed that there were deficiencies in the management process in the current highway safety management practices in Nigeria.

- On planning, a majority of the respondents indicated that:

- planning objectives and priorities were not set
- planning was made short term rather than long term
- highway safety plans were not used for policy decisions
- guidelines were not provided for planning and,
- planning information was not provided.

On programming, most of the survey respondents observed that:

- programming of highway safety functions were not formalized
- programming were made short term
- current information on programming was not available
- highway safety programs were not formally prepared and documented
- there were no guidelines prepared for developing programs
- alternative programs were not considered and,
- highway safety programs that crossed departmental lines were not prepared and documented.

The survey on budgeting showed that a majority of the respondents were of the opinion that:

- budgeting did not relate to planning and programming
- no revenue source was provided for supporting the private sector
- there were no guidelines for preparing highway safety budgets
- highway safety was not entered as a separate budget category and was not considered as part of the total transportation budget
- the highway safety budget generally convered a short term period, usually one year and,
- the RSC members and state representatives did not participate in the budget process

On program execution and control, a majority of the respondents believed that:

- program execution and control decisions were not based on research works
- current information on program execution and control was not available and recorded
- there were no guidelines for accomplishing program execution and control and,
- no one could be specifically ascertained to be responsible for program execution and control.

On evaluation, it was observed that a majority of the respondents felt that:

- highway safety programs were not evaluated
- programs were never reviewed or re-evaluated
- no specific evaluation method or technique was found to be in use in highway safety
- nobody seemed to be responsible for evaluating highway safety programs
- evaluation of programs was not documented or distributed and,
- there were no guidelines for program evaluation of highway safety activities.

In reviewing survey information and data regarding inter-governmental aspects in highway safety, a majority of the respondents indicated that:

- a situation existed in which the Federal Government might contact the states for services in highway safety
- close associations did exist between federal and state but according to the respondents, these associations fell into the traditional political, functional, financial and intergovernmental relationships that existed between the federal and state governments.
- the states did not maintain relationships with local governments nor did they have any formal arrangements with the local governments in highway safety
- local government regulations did not complicate federal or state highway safety programs
- there was no form of financial aid relationship between the state and local governments nor between the federal and local governments and private sector
- establishing a working relationship with the private sector was not generally regarded as a priority area for the state and federal highway safety agencies
- communication channels between federal and state highway safety agencies were largely by official letters and through the RSC committee meetings
- there was no formal communication channel between federal and local and between state and local highway safety agencies
- no central coordinator existed among the council jurisdictions nor among the private sectors in highway safety

- prominent among the problems existing in state and local interrelationship were lack of coordination, lack of funds, lack of information, lack of political support and lack of consultation
- the main problem in private and public relationships in highway safety operation was lack of coordination and,
- nobody seemed to be responsible for applying for local highway safety funds for local highway safety projects.

7. A majority of the respondents recommended ways of promoting cordial interrelationships between the public and private sectors in highway safety. These recommendations included: promotion of coordination, regular consultation, good communications, good public relations and meetings of both representatives.

8. A majority of the respondents indicated that the important problems facing highway safety management in Nigeria included the following: inadequate funds, lack of manpower, lack of coordination, lack of effective leadership, lack of facts, data and records, and inefficiency of highway safety officials. Through the personal interviews, it was learned that there were also other problems facing highway safety management in Nigeria. They were: lack of support, deficiency in management process, lack of authority, independence of line departments and non-use of research works.

9. It was found that not enough funds were provided for the operation of highway safety operation when compared with other facets of the transportation system expenditures.

10. All respondents from the survey agreed that research work could help improve highway safety management in Nigeria.

11. The respondents believed that with the present resources of

Nigeria -- human and non-human --, the highway unsafety problems could be solved.

CONCLUSIONS

The following are the conclusions based upon the findings of the survey.

1. It was apparent that the magnitude of unsafety problems showed an upward trend over the past six years. While the author could not provide a full and detailed explanation for this trend, it was noted that the sudden increase in vehicles and drivers which was not matched with a corresponding appreciable growth in road mileage both in quantity and quality had contributed to this trend.

2. The Federal Government and states have distinctive, yet complementary roles in highway safety. Since highway safety was a tenuous concept at the local level and since local government regulations did not handicap nor complicate federal highway safety programs, there is a need for the federal and state governments to integrate local highway safety activities with the national safety programs through improved conditions, involvement and participation.

3. The private sector played a substantial role in nationwide highway safety programs, yet no attempt was made to coordinate the private sector efforts with the federal and state highway safety agencies. Federal and state highway agencies have not defined the roles of the private sector nor emphasized private sector involvement in highway safety.

4. The primary responsibility and authority for developing highway safety programs and organizing the Road Safety Week campaigns were vested in the RSC. Paradoxically, the survey showed that the RSC possessed no executive power to carry out those functions effectively, and had not been effective in managing highway safety programs in Nigeria. Establishing a commission with the primary role of creating a safe highway environment was necessary and essential but not sufficient for attaining that goal without executive power and an executive program director.

5. A majority of the respondents felt that highway safety functions were widely distributed and administered by several line departments, public and private agencies, individuals and institutions. It was believed that comprehensive highway safety planning and programs could be developed by incorporating all the various agencies currently involved in highway safety management within a single management framework at the federal level. Furthermore, with proper management techniques, adequate manpower, technical personnel, and abundant resources, the Federal Government could manage highway safety programs throughout the country effectively, identify highway safety goals and evaluate highway safety needs.

6. A majority of the respondents believed that the states played the most prominent role in all facets of highway safety activities. While present political intergovernmental structure in Nigeria required that highway safety goals and needs be set by the states, past experience indicated that this capability had not been shown. Consistent,

therefore, with the federal role of providing leadership in highway safety, the Federal Government occupies a favorable position to assume that role. Since most states are presently managing some comprehensive federal programs, a federal approach to the management of highway safety in Nigeria appears to be feasible.

7. The data presented in the survey indicated rather clearly that there were many deficiencies in the management process in highway safety management practices. Management practices were characterized by either limited or total lack of long range planning and programming, and evaluation techniques. The budgeting process was not formalized and not tied to planning and programming, and the highway. safety budget was not considered as part of the total highway safety transportation budget. Instead, it was entered under the recurrent expenditure. Program execution and control decisions were not based on research work and no comprehensive guidelines were provided for the essential areas of the management process. Thus, the need for improved program management was apparent.

8. Findings indicated that the prime areas requiring improvement in highway safety public and private inter-relationship were indicated to be in the reciprocal flow of program information, uniform records system, coordination, consultation, financial support, active particiaption, good communications and public relations.

9. The important problems identified facing highway safety management practices in Nigeria included: inadequate funds, lack of coordination, lack of manpower, lack of political support, lack of facts and data, lack of authority, independence of line departments

deficiencies in management process and non-use of research works.

10. Data indicated that not enough funds were provided for the operation of highway safety programs when compared to other areas of the transportation system. The highway safety fund of ₦400,000 ($600,000) per annum out of which ₦5,000 ($7,500) was allocated to each state was definitely inadequate to carry out effective highway safety efforts. In conventional terms, this was approximately one three thousandth of the total expenditure on highway transportation system per annum. There is much to be gained by investing more in highway safety. Moreover, there were indications from the survey findings that the criteria for distributing this fund was not only inconsistent but also not fully understood at the state level and often not understood at all at the local level.

11. The evidence presented in this survey showed clearly that highway safety management practices in Nigeria suffered from lack of facts and data. Essential data and facts on drivers' records, vehicle registrations, accident types, accident costs, highway safety expenditures, personnel, miles travelled, types of roads and population census were not available or known. The key problem in the lack of data in highway safety was primarily the lack of a good traffic records system and lack of organization of raw data for use by the practitioners, decision makers and researchers in highway safety. It is apparent therefore, that a good traffic records system would have to be initiated.

12. Survey findings howed that one prominent problem

inherent in highway safety management practices in Nigeria identified by all respondents was the lack of coordination. There is therefore a serious need for accomplishing nationwide coordination and cooperation among all highway safety agencies currently providing highway safety services.

RECOMMENDATIONS AND GUIDELINES

On the basis of the data collected and findings reported in this survey and the conclusion reached, the following recommendations and guidelines are made. These recommendations, in form of a management model, are presented in terms of:

1. organizational structure; and
2. management elements of coordination, planning, evaluation, programming, execution and control, and budgeting.

These recommendations were based on the working hypothesis that in the second half of the current five year Development Plan, the Federal Government would concentrate on the measures that could improve highway safety planning and management systems since the most pressing needs for improving highway safety lay in the areas of management systems and support. For the next 5-year Development Plan (1981-85) it was assumed that the recommendations in this study would provide the basis for establishing a viable highway safety management program.

It is recommended that, as the first approach to highway safety

management operation in Nigeria, the Federal Government raise public awareness concerning highway safety and promote increased visibility for highway safety issues through the following:

- disseminating literature on specific topics on highway safety
- conducting a public information service such as providing news releases and topical articles to the media, and
- providing roadside lectures and teaching of highway users

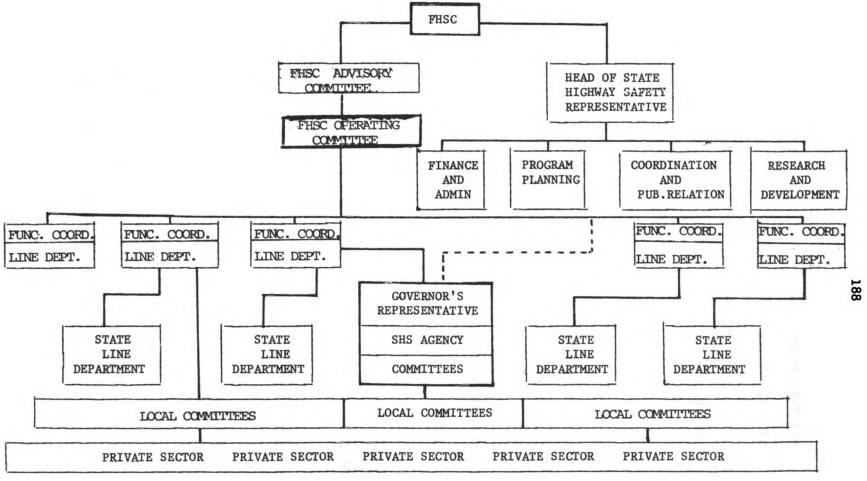
Organizational Structure

Federal Highway Safety Commission: The Federal Government should perform a leadership role in highway safety if the federal effort is not to be lost in the present fragmentation of highway safety. It is recommended, therefore, that the central authority in highway safety in Nigeria be vested in the Federal Government. In this respect, an executive Federal Highway Safety Commission should be established as a leadership element in the Federal Government to replace the existing RSC.
(See model legislative decree for such an establishment in Appendix I) (See also Figure 5.1 for this structure)

The Federal Highway Safety Commission (FHSC) should be established and charged with the following responsibilities:

- assisting the Federal Governemt in defining goals, setting safety priorities and objectives, and identifying safety needs
- promoting legislation for highway safety activities

Figure 5. 1: Proposed Highway Safety Organization Illustrated.



and standards

- initiating state and local highway safety efforts
- fostering increased and more coordinative private sector activities in highway safety
- attaining favorable political visibility for the highway safety program
- influencing state and line department budgets and programs
- coordinating state activities in highway safety and institute mechanisms for exchanging information systems within and between the states
- establishing a state level organizational structure and planning process and being responsible for their cooperation and coordination
- serving as a public information focal point on highway safety and contact point for citizen inquiries about highway safety
- developing reports on the states' highway safety programs for public consumption
- promoting an increased concentration on evaluation
- preparing an annual legislative agenda that incorporates states and line departments
- procuring adequate finances for operating a comprehensive highway safety program

- identifying highway safety projects that have been successful and developing a project profile for distribution to state groups
- undertaking research projects in highway safety
- developing an information data bank for highway safety
- preparing guidelines for highway safety program operation throughout the federation
- utilizing its own and line department field staffs for assisting states and localities.

Since establishing an executive organization with the primary role of creating a safe highway environment was necessary but not sufficient for attaining that goal, it is recommended that the Head of State should appoint a Highway Safety Representative to be designated as the director. It is desirable that the director be a civil servant who will continue in this role from administration to administration -- be it military or civil. The director must be professionally trained in highway safety. (See model required qualification and duties of a Director in Appendix J)

The director should act in a staff capacity to the Head of State and should have the following responsibilities:

- being the director of the FHSC
- managing the day-to-day administration of the FHSC
- defining the objectives of the comprehensive highway safety program and its component activities
- balancing, coordinating and directing resources for

the greatest overall highway safety program effectiveness

- conducting highway safety program development
- introducing significant changes and new activities into
- the program
- providing a focal point for program information, program funding, and program direction for local jurisdictions in highway safety
- providing liaison between the Federal Government and the state governments
- evaluating the nationwide highway safety program
- assisting in defining and upgrading nationwide highway safety manpower needs and resources
- undertaking research projects in highway safety and coordinating the activities of the highway safety research centers with the FHSC activities
- organizing seminars, workshops and annual federal highway safety conferences
- presenting expert testimony on highway safety at legislative hearings
- preparing an annual federal highway safety budget to reflect comprehensive highway safety needs.

In discharging these responsibilities, the director's authority must be felt across federal and state line agencies, e.g., Ministry of Works and Housing, Ministry of Education, Ministry of Health, Police, etc. He/she should be authorized to:

- review the highway safety program and make recommendations to the Head of State on methods to improve the program
- prepare a separate program budget that represents the highway safety program at the federal level
- maintain an advisory role to the federal line departments on highway safety, e.g., the director must be involved in the planning stages of highway projects
- formulate manpower development plans
- advise the legislature on needed highway safety standards
- review research plans and projects undertaken in highway safety.

The director should also provide advice, leadership, and coordination in seeing that the federal highway safety program and standards are effectively executed at the local level. In this position, the director should respond to local requests for highway safety funds and exercise financial review and approval of such requests. However, such requests must be channelled through the State Highway Safety Advisory Committee of the state concerned.

Although a considerable amount of his/her authority would depend on his/her personal abilities, his/her position should be strengthened by the publication of executive orders (decrees) or similar mandates to establish his/her plan for operation and his/her legal authority. Hiw/her role must be formalized.

The FHSC, for the purpose of administration, should have four divisions corresponding to its four basic areas of responsibility:

First, administration and finance; second, programming; third, coordination and public relations; and fourth, research and development. This internal structure should be designed to provide necessary cross departmental controls and coordination.

Highway Safety Policy Advisory Committee: It is recommended that a Highway Safety Policy Advisory Committee and a Highway Safety Operating Committee be established within the FHSC by the Federal Government to assist the Commission in its leadership and coordination functions. (See Figure 5.1)

The Highway Safety Policy Advisory Committee should be appointed by the Head of State upon recommendation of the director of the FHSC and should consist of private individuals with significant political influence and representatives from major organizations and private industry. The key element here is a politically influential individual. Committee membership should also include relevant high-ranking line department officials, the states' Governor's highway safety representatives, selected members from the military council, professional societies, labor groups and university groups. The Head of State or his representative should be the chairperson, and the director of FHSC may be designated as secretary of the Committee.

This coordinating policy advisory committee should have the following responsibilities:

. providing advice and information to the director of FHSC, the Operating Committee, and the Head of State

on highway safety

. expressing public attitudes, opinions, and ideas on highway safety

. promoting consensus on legislative needs

. providing a forum for communications between the public and policy makers and the private sector.

The Committee should meet infrequently, perhaps as little as three times a year. Since this is a policy-level committee, it should not concern itself with internal operations of the commission.

Highway Safety Operating Committee: The Highway Safety Operating Committee should be appointed by the Head of State (or as otherwise provided by appropriate statute). Since this is intended to be a working committee, committee members should be drawn from knowledgeable career professionals, university groups and professional societies. The Committee should meet on a monthly basis. The agenda and administrative details of the meetings should be coordinated by the Federal Highway Safety Commission. The Commission should also ensure that these meetings have a constructive purpose that justifies the time spent on them. The director of the FHSC should be the charperson of the Committee. The director, in conjunction with the Operating Committee, could create sub-committees to study methods for implementing new program element. (See Figure 5.1)

The functions of the Operating Committee should include:

- reviewing progress of the federal program and discussing problems
- assisting the director in setting highway safety needs and priorities
- recommending changes and additions to current program operations
- identifying areas of expertise within line departments that can be applied to specific problems
- identifying potential projects for sponsorship by states, line departments and local governments; and
- identifying areas for interdepartmental and intergovernmental consideration, and organizing appropriate sub-committees or task forces

Departmental Highway Safety Coordinators: Functional coordinators should be established in line departments for all elements of the highway safety program as well as departmental highway safety coordinators in the major relevant line departments. The purposes of these functional and departmental highway safety coordinators should consist of:

- proposing projects for meeting the long-range objectives of the functional areas
- identifying federal resources that may be applied to a problem area
- providing a technical resource to the Federal Highway Safety Commission on specific functional areas

- participating in developing multi-year plans for functional areas
- reviewing project requests relevant to functional areas and ranking them according to priority
- providing a communications link between a particular functional area and the other functional areas and departments involved in the highway safety programs.

These functional coordinators in the line departments should be at the Senior Assistant Secretary level and be responsible for a particular functional area relative to highway safety in a line department. The departmental coordinators should be in the Ministry's office and may have other duties to perform in addition to highway safety if there is an insufficient level of departmental highway safety activity or resources.

Field Staffs: In addition to the functional coordinators, it is recommended that the FHSC establish field staffs in local government council areas to serve the localities. The primary purpose of field staffs should be to:

- provide more direct services to localities
- make the authority of the FHSC felt in the localities
- provide long-term personal contact and thereby foster strong working relationships between the FHSC and localities
- emphasize the importance of local participation in

the state highway safety program

. coordinate with state line department field staffs so they can become a resource to localities.

The Federal Highway Safety Commission field staff should be residents in the local council areas they serve.

State Highway Safety Agency: The State Highway Safety Agency should provide the leadership necessary to carry out FHSC program activities within the state.

The major concern of the State Highway Safety Agency should be to gain political visibility and support for necessary legislation for FHSC highway safety programs and operations within the state. This should entail generating support at the grass-roots level among private sector groups and local governments and at the state level among the key state legislators or decree makers.

The State Highway Safety Agency should, in addition, conduct an annual statewide highway conference. The purposes of this conference should be to gain political exposure for the FHSC program and to motivate local persons involved in the program. The Military Governor or Premier and other high-ranking officials could address the conference and thereby generate public and political support for the FHSC highway safety program. In addition, the conference could offer workshops to develop ideas for local projects and organizational development and for support of various legislative proposals. Considerations should be given to structuring a

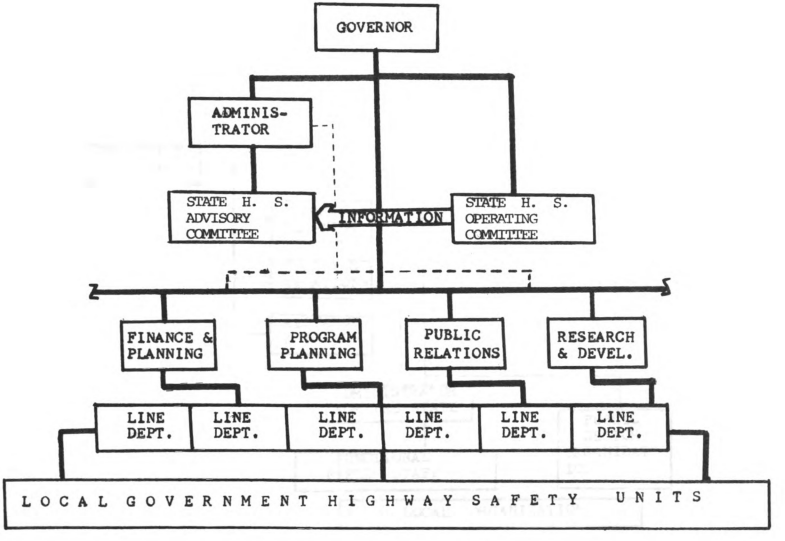
formal adoption process for program goals and objectives at the conference. The statewide conference should be followed by local council workshops and seminars.

The State Highway Safety Agency should be a special office reporting directly to the FHSC with primary highway safety operating responsibilities. (See Figure 5.2)

The FHSC should appoint the Chief Administrative officer of the State Highway Safety Agency with the consent and approval of the FHSC Advisory Policy Committee but their transfer or posting should be done by the director. (See Figure 5.3) Resignation and termination of these officials must be approved by the FHSC Advisory Policy Committee acting on the director's confidential report. This FHSC representative should be designated as the Administrator of the State Highway Safety Agency and should be the State Governor's technical adviser in highway safety, the Chairperson of the State's Operating Committee and the Secretary to the State Highway Safety Advisory Committee.

Governor's Highway Safety Advisory Committee: The State Highway Safety Agency should establish a Governor's Highway Safety Advisory Committee as a private sector, local government and state's highway government officials coordinating committee with the primary functions of advising the Governor and the Administrator on highway safety and to express public attitudes, opinions and ideas on highway safety. The Governor should be the Chairperson or his

Figure 5. 2: Proposed Highway Safety Organizational Structure at the State level



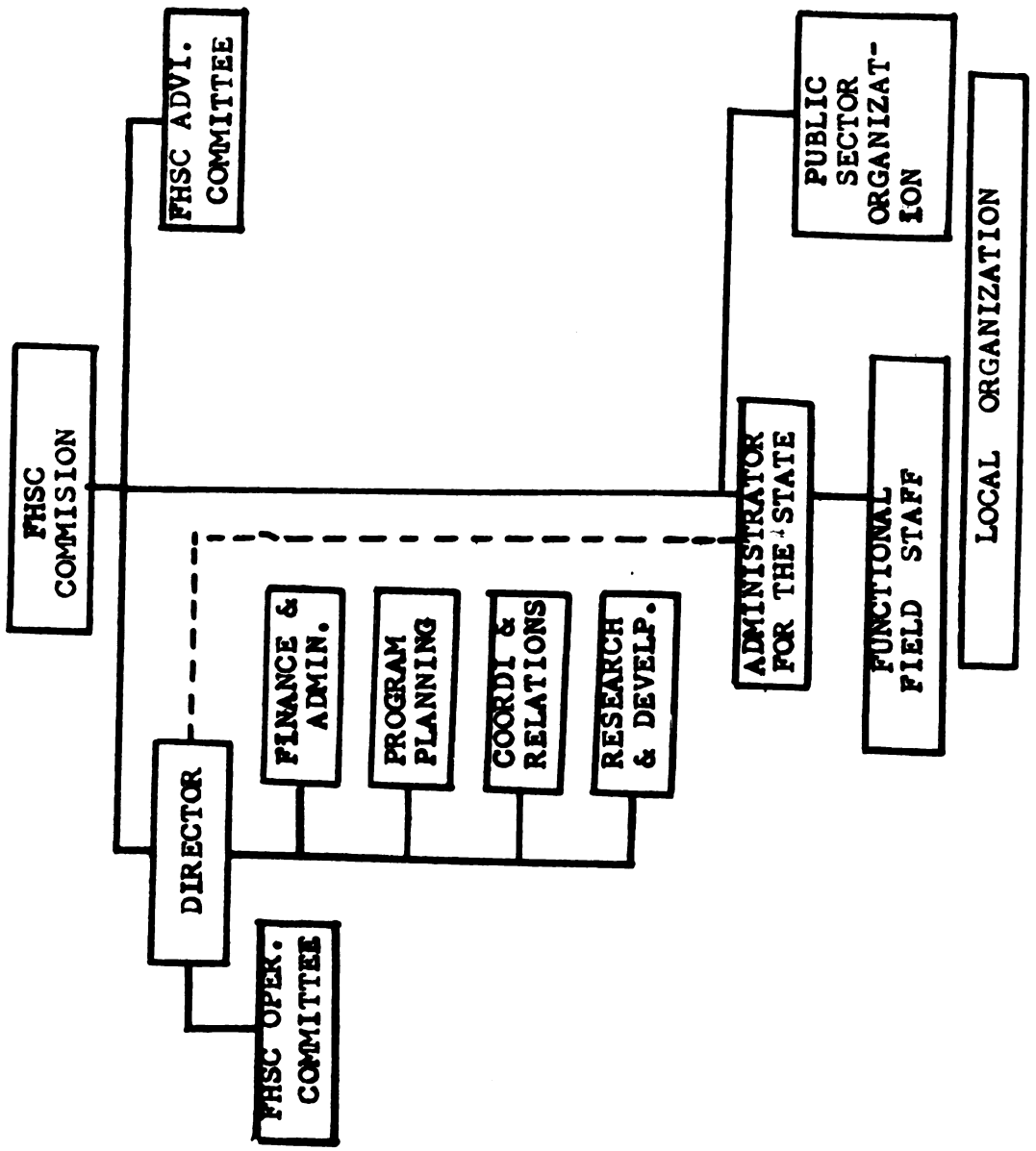


Figure 5. 3: Proposed Highway Safety Organizational Structure at the Federal Level

appointee and the Administrator, the Secretary. Representatives in the committee should be drawn from but not limited to the following:

. private citizens and groups and labor groups

. university and academic groups

. professional societies

. industry and market women group

State Highway Safety Operating Committee: The Governor should establish a Highway Safety Operating Committee to provide technical advice to the Governor and the Administrator. (See Figure 5.2) Since this should be a working committee, the Administrator should be its Chairperson and a professional secretary, preferably a staff member of the State Highway Safety Agency should be the secretary. The Committee, kike its federal counterpart, should meet on a monthly basis. The committee could regroup into various task forces or sub-committees to study methods of implementing FHSC programs effectively at the state level. This committee should be involved in the technical organization of the road safety week campaigns.

The Administrator should coordinate all the activities of the FHSC field staff operating in his/her state and be responsible for writing its confidential reports to the director of the FHSC. In Overseeing the statewide highway safety program the Administrator should formalize channels of communication with local jurisdictions which may take the form of telephone calls, letters, or a formal reporting system.

Local Highway Safety Coordinators: At the local level, it is recommended that the FHSC field staff serve as surrogate local highway safety coordinators, and provide technical advice and information to the chairperson of the local council areas they serve.

Local Highway Safety Advisory Committee: The Federal Government should establish a local council Highway Safety Advisory Committee to assist the field staff in its leadership and coordinating functions. This committee should include representatives from all the political sub-dividisions of the local council area. The primary functions of this committee should be collecting and forwarding useful information from their various sub-divisions to the local council program management office. The local government's representative at the State's Highway Safety Advisory Committee should be the chairperson of the local committee while the FHSC field representative should be secretary.

The local highway safety coordinator, i.e., the FHSC field staff, should encourage the development of local highway safety groups. Grassroots organizations should be encouraged and supported.

Private Sector Groups: It is recommended that the private sector, being independent of government and subject to its own voluntary association with the highway safety program, establish a closer working relationship and a constructive interface with the FHSC,

and State level highway safety officials. (See Figure 5.1 for the relationship)

At the federal level, private sector groups should be encouraged encouraged to donate funds for carrying out special highway safety programs and help determine ways that FHSC and private sector groups could coordinate with and assist the state highway safety agency through such measures as establishing statewide cooperation.

Management Elements

The Federal Government, through the FHSC, should develop a program planning process for all highway safety functions and activities. The emphasis should be on a dynamic policy development "process" and not be mere "paper" work, or "academic exercise."

The product of this planning process should be a concise policy-oriented document, not a master plan, static and complete in an unwieldy document. The planning should be a continual undertaking that relies heavily upon state governments, line departments, local governments and the private sector. Through this process, state goals and objectives for highway safety should be established based on traffic accident experience and the anlysis of crash data. It also should produce multi-year plans, e.g., 5-year development plan, for functional areas developing out of line department long-range plans, interdepartmental task forces and considerations emerging from individual projects. The planning document must have all the components of a master plan. Since this document must concentrate

Figure 5.4: An ideal Financial Plan illustrated

MULTI-YEAR PROGRAM AND FINANCIAL PLAN							
PROGRAM GROUP	PROGRAM DESCRIPTIONS	PAST BUDGET	CURRENT BUDGET	FY+1	FY+2	FY+3	FY+4
HUMAN	. . . . .	2000	4000	5000	6000	7000	9000
VEHICLE	. . . . .	2000	4000	5000	6000	7000	9000
ROADWAY	. . . . .	2000	4000	6000	7000	8000	9000
MANAGE-MENT/SYS-SUPPORT	. . . . .	2000	4000	5000	6000	8000	9000
TOTAL		8000	16000	21000	25000	30000	36000

FY = Fiscal Year

Figures are in Nigerian currency (₦)

on annual program information, it must be updated each year. The projections in the multi-year plans should be extend on the basis of the past year's progress. (See Figure 5.4)

It is recommended that each year the state highway safety agency in collaboration with its political sub-divisions prepare a short policy-oriented document outlining the state's highway safety programs with special emphasis on the state's unique position such as the size of populations affected, special political circumstances, physical highway conditions, etc., with relevant policy considerations requiring review. This annual state highway safety program plan should specify long-term goals and objectives and relate current agency-related strategy, line department budget and legislative requests and generalized local government activity to the accomplishment of these goals and objectives. This plan should be submitted to the FHSC. If the FHSC does not reject the document, the plan should be issue in addition to or incorporated in the FHSC master plan.

The FHSC should promote the development of planning at the local level. These efforts should include making the planning more applicable to local government level input. The planning process should reflect the rules and regulations existing in the localities.

It is further recommended that the FHSC clearly establish and demonstrate the effectiveness of the FHSC programs in reducing fatalities and accidents. As both an example to the public and as a clear justification for their advocacy, the Federal Government should

conduct long-term evaluations of progtams. This evaluation should include the establishment of effective measures that would have general acceptance among highway safety professionals. These measures could be adapted for state and local use in evaluating their individual individual applications of the FHSC uniform programs.

The private sector (whether collectively or separately) should promote the evaluation of federal highway safety programs. The private sector especially through the universities and sponsored research works, should encourage the FHSC, and the state and local governments to evaluate the safety programs, in terms of their impact on fatalities.

Since evaluation was an essential link in the program planning and implementation cycle of highway safety, evaluation requirements and criteria should be established during the planning process to assure efficient countermeasure implementation, and most importantly, to provide the basis for measuring countermeasure results. Therefore, the evaluation process including development of data sources and study design needs should be strengthened at the federal, state and local levels to assure that the available resources are utilized more effectively.

In executing and controlling highway safety programs, it is recommended that the following basic questions be answered:

. Who is currently doing the work?

. Is the jurisdiction large enough or too large to do the work effectively and efficiently?

- Does the agency have sufficient skills and resources to do the work?
- What organization, agency or jurisdiction should be responsible for a new activity?
- How long will it take the agency to complete the assignment?
- Is there an alternative way of doing the work, e.g., should the FHSC-state-local charing of work be considered or should multiple community sharing of work be considered?

It is also recommended that the following criteria be used in assigning highway safety activities:

- Responsibilities should be assigned to jurisdictions that have the ability to plan effectively for the particular activity required.
- A jurisdiction or agency should have the appropriate authority to exercise the responsibility and must be accountable for performance
- Responsibilities should be assigned to jurisdictions that geographically or functionally are best equipped to effectively accomplish the activity
- Jurisdictions or agencies should have adequate financial resources avilable to support their responsibilities and should have the financial flexibility to support the changing requirements that are associated with the responsibilities

. The overall distribution of responsibilities must provide a balance of highway safety activities for all government operations that promotes an effective FHSC highway safety program.

Traffic records systems must be initiated. This was one of the most pressing needs for improving the highway safety planning and management. It is recommended that each state in cooperation with its political sub-divisions maintain a traffic records system like the United States Highway Safety Program Standard 4.4.10 Traffic Records[1] which stated:

> "The statewide system, which may consist of compatible sub-systems, should include data for the entire state. Information regarding vehicles, drivers, accidents, other highway users and systems support should be compatible for purposes of analysis and correlation. systems maintained by local governments should be compatible with and capable of furnishing data to the state system. The state system should be capable of providing summaries, tabulations and special analysis to the federal and local governments on request. The record system should provide easy and rapid entry of new data into the records or data system; the data should be available for statistical compilation as needed by authorized sources and provide a visual and audio response upon receipt at the records station of any priority request for information, as long as the information is not related to personal information of; the person concerned."

---

1. This standard is one of the Highway Safety Program Standards promulgated under the authority of the United States Public Law 89-564.

Also,

> "All traffic records relating to traffic accidents collected should be open to public consumptions in a manner which would not identify individuals."

In addition, each state agency and political division should collect and transmit the same types of data, using common recording forms and terms. All participanting agencies in highway safety should identify the specific data they would expect to collect and transmit as well as what data and information they need to compile and process. In each case, it must conform with the FHSC standards. The traffic records systems should be periodically evaluated by the FHSC. An evaluation summary should be provided for the State.

Recognizing the acute shortage of funds and deficiencies in the budgeting process in the current highway safety operation, it is strongly recommended that the Federal Government vote more funds for highway safety program operation. The fund provided should be reflected in the budget since the budget represents the Director's final selection of program elements to meet highway safety needs. This recommended highway safety budget should be entered as a separate heading entitled "Highway Safety Fund" in the overall Federal Government Budget Plan.

In preparing the budget, the following actions should be included in the budget process.

- The budget must be tied to planning and programming
- The total program costs including investments and

operating costs must be estimated

- The costs and benefits of alternative program elements must be evaluated
- A budget strategy including identification of revenue services must be developed
- The rationale for the program cost must be documented and explained
- The budget submission must be scheduled to coordinate Federal Government Budget Cycles. (The timing of budget submission is critical to the approval of the budget.)
- The budget must be submitted to the FHSC Policy Advisory Committee for approval
- The Director should lobby (if necessary) for the approval of the budget among the legislators.

Apart from the preparation of the budget, the FHSC must compile a financial plan built into the master plan cited earlier in this section. Figure 5.4 presents in tabular form partinent data and format of such a financial plan.

In the financial plan allocation of funds to meet current highway safety needs should be determined and recorded. Once the financial decisions on the expenditures for the fiscal year are made, the multi-year financial plan should subsequently be developed. (See Figure 5.4) This multi-year financial plan will form the basis for the long-term budget forecast in highway safety.

The Budget and Financial Plan should be well and carefully documented since it then could become the most valuable support

document to the Director during budget defense and discussions with the FHSC Policy Advisory Committee and hearings with federal legislative committees on the budget. The document also would enable the Director to have a more precise understanding of the use of highway safety resources and how a shift or cut in resources would affect the entire programs.

It is further recommended that the FHSC prepare a highway safety fund guideline which would contain criteria for distribution of funds and the application process. This guideline should be well documented and written in a way that would be understandable and meaningful to all agencies involved in highway safety operation. In this respect, the guideline should take into account the different local languages spoken by Nigerians who would be found in the management and support levels in highway safety. The guideline should also take into account the program needs of each state and their political sub-divisions, as well as the population and geography of each state. The private sector must be given consideration in the toal distribution of funds.

It is recommended that the Federal Government establish a strong highway safety research center to provide leadership in the field; provide a means for assessing the efficacy of proposed or existing remedies; provide a basis for the development of meaningful and constructive standards relating to highways and motor vehicles; develop curricula for highway safety education at all levels; offer suitable manpower training progams in various skills classifications in highway safety; provide course offerings

as inservice adjuncts to on-going technical work assignments in highway safety and provide materials and literature on highway safety for the interested researcher, planner, or the general public. The mechanism for establishing and staffing this center should be carefully considered in order to maximize the ability to obtain and maintain staff of the highest professional caliber.

The Head of the Research and Development division of the FHSC should be appointed as the director of the Center. In this respect, the coordinating activity between the Center and the FHSC could be guaranteed.

Uniform highway safety standards should be established. Full dissemination of these uniform standards for traffic safety should be accomplished.

There must be uniform traffic safety codes and laws enforced and maintained through the judicial system. Because the success or failure of the highway safety programs could be significantly affected by the adequacy of codes and laws, and related judicial support, the Federal Government should emphasize this uniformity of traffic codes and laws throughout the country.

It is recommended that the decision makers in highway traffic safety at all levels be encouraged to use research results in their decision-making process. The proposed highway safety center should sponsor research projects and evaluate their validities before their applications to highway safety activities. The mail-out survey technique should be administered annually to at least a sample of the total list of current practitioners in

highway safety. The information generated could provide excellent back-up references to the administrators in highway safety. However, research should be tailored to highway safety needs.

Finally, it is recommended that various accident countermeasures be developed to tackle the recurrent unsafety problems prevailing in Nigeria.

SUGGESTIONS FOR FURTHER RESEARCH

The following suggestions for further research are made as a result of the findings of this study.

1. A study should be undertaken to determine various social, economic, political and environmental factors that can affect highway safety program management implementation in the states.
2. A further field survey should be conducted to review the involvement of state governments in highway safety in order to determine the base for formulating management requirements of state governments.
3. A study should be undertaken to identify management requirements for local governments' highway safety practices.
4. A study for identifying highway safety needs and concomitant pay-off within a changing traffic safety setting should be pursued. Concentration should be on methodology development and validation seeking to improve countermeasure evaluation design.

5. A study should be undetaken to determine the feasibility of applying the systems approach and multidisciplinary approach to the management of highway safety in Nigeria.
6. A feasibility study should be made to determine criteria for establishing a Highway Safety Center in Nigeria.
7. A study should be undertaken to determine and develop constructive and meaningful safety standards relating to highways and motor vehicles in Nigeria.
8. A study should be undertaken to identify approaches and problems in coordination between local jurisdiction and the state in carrying out highway safety programs.
9. A further study of the integration of developed planning and evaluation methods with the established administrative process for highway safety at federal and state levels should be pursued vigorously.
10. A study of how to improve the three management processes -- coordination, planning, evaluation -- must be undertaken.
11. A field survey of how to integrate the private sector with the public sector in highway safety operations in Nigeria should be conducted.

Discussion

The major purpose of this study was to present a review of highway safety management practices in Nigeria.

The results shown from the survey indicated that highway management practices in Nigeria were still in the developmental stages and that modern management system concepts applied in highway safety planning have not been effective.

The survey also indicated that over the years a myriad of private and public agencies have emerged to provide a multitude of activities and programs in response to the complex set of highway traffic unsafety problems. Diverse responsibilities have been assigned to or assumed by the various state and local agencies, resulting in a severely fragmented set of responses and services. This fragmentation had led to a number of inefficiencies and deficiences in the management of highway safety resources and activities.

It was the author's observation that such a multi-jurisdictional situation would require some coordinative mechanism that is effective, yet does not deprive the autonomous jurisdictions of their rightful decision-making authority. It was against this premise that the author developed a model of such a mechanism which could encourage and facilitate the coordinated execution of unified planned actions by the diverse autonomous institutions presently exercising some form of management control in highway safety operations in Nigeria. This mechanism, contained under "Recommendation" could be termed "management system model."

It was interesting to know that the overwhelming carnage on the nation's highways had led the public to question the effectiveness of highway safety administration even though the public

was really not aware of how highway safety was administered, what roles the various government jurisdictions played, and how the public itself affected the highway safety system by individual actions and demands for highway facilities. The current nature and magnitude of the highway safety problem, the insistence by the general public that a safer roadway environment be created, and the available technology in management combined with the readiness of the Federal Government (through RSC) to support initiatives at the federal and state levels, provided an encouraging situation for federal and state officials to bring about dramatic accident reductions and significant personal impact in their work in the highway safety field. It is to these federal and state officials that the recommendations and guidelines in this study were addressed.

Certainly, all of the recommendations made as a result of these survey findings are important to the operation of the envisaged management system. However, some are more critical or more pressing, timewise, than others. The first and most crucial point is to obtain the necessary commitment from the Federal Government. This could be accomplished in the short-term if the right people in authority were approached and convinced.

Regardless of how that decision by the Federal Government goes, the next highest priority action on the parts of the officials should deal with the implementation and evaluation of the recommendations. The importance of implementation and evaluation activities will be derived from the fact that both future resources and future improved programs depend on actions taken now and their

impact on the traffic safety situation. Implementation and evaluation thus become the impetus for perpetuating the entire management system.

Finally, it must be remembered that the Program Management system recommended as a result of the findings of this survey is in itself an experiment. The recommendations are perceived as the best hypothesis about how multi-jurisdictional management activities should fit together. The important thing, when implementing the various recommendations, is to keep the overall system in view and not to deal with particular recommendations as if they were ends in themselves. Within this requisite overview, it is incumbent upon the Federal Government, as the primary implementing organization, to systematically and conscientiously review and evaluate the progress of the experiment.

Only in this manner will it be possible to learn from the attempt, refine the experimental program management design and make this study as the beginning of an ongoing adaptive process. It is also only in this manner that this study will not turn out to be a mere academic exercise. The author believes that with our present resources -- human and non-human -- if properly utilized, Nigeria's traffic unsafety problems could be solved. All the practitioners surveyed in this study have the same belief.

BIBLIOGRAPHY

BIBLIOGRAPHY

Aaron, James E. and Strasser, Marland K. Driver and Traffic Safety Education. New York: The MacMillan Company, 1966.

Altschuler, Walter. Car Owner's Guide to Care and Repair. New York: Tudor Publishing Co., 1958.

Anderson, Richard, C.: Management Practices: New York. McGraw Hill, 1960.

Anthony, R.: Planning and Control Systems: A Framework for Analysis. Harvard Press: Cambridge, 1965.

Little, Arthur D., Inc., 1966: The State of the Art of Traffic Safety. Cambridge, Mass.: Automobile Manufacturers Assn.

Automotive Safety Foundation: Highway Safety Program Management, Washington, D.C., 1968.

Backstrom, C.H. and Hursh, C. H.: Survey Research. Evanston: Northwestern University Press, 1963.

Baker, J. Standard and Horn, Leroy R.: An Inventory of Factors Suggested as Contributing to Traffic Accidents. Chicago: Traffic Institute, Northwestern University, 1969.

Beckett, JA.: Management Dynamics -- The New Synthesis. New York, McGraw Hill, 1971.

Bishop, Richard W. One Car Accidents and the Young Driver. Automobile Club of Michigan, Safety and Traffic Division, 1963.

Buckley, Walter Fredrick: Sociology and Modern Systems Theory, Englewood Cliffs, N.J., Prentice Hall, 1967.

Bull, J.P.: International Comparisons of Road Accident Statistics. Accident Analysis and Prevention I, 293-300, 1969.

Buros, O. K. (ed.). The Sixth Mental Measurements Yearbook. Highland Park, J.J.: The Gryphon Press, 1965.

Campbell, W.C. Form and Style in Thesis Writing. Boston: Houghton-Mifflin, 1954.

Colton, Theodore and Baxhaum, R.C. "Motor Vehicle Inspection and Motor Vehicle Accident Mortality." American Journal of Public Health and the Nation's Health, Vol. 58, No. 6, pp. 1090-96, June, 1968.

Crouse, William Harry: Automotive Chassis and Body: Construction, Operation and Maintenance. New York: McGraw Hill, 1971.

"Driver Education" Highway Safety Program Manual, Department of Transportation, Federal Highway Administration National Highway Safety Bureau, Vol. 4, January, 1969.

Eames, Wendell G., Lee, Scott N., and Fell, James C. State-of-the Art: Motor Vehicle Accident Studies. International Automobile Society Conference Compendium, Detroit, Michigan May 13-15, 1970.

Goen, R.L., 1965. Drastic Measures for Reducing Traffic Casualties, Standford Research Institute, Menlo Park, California.

Goldstein, L.G., 1961. Research on Human Variables in Safe Motor Vehicle Operation: A Correlational Summary of Predictor Variables and Criterion Measures. Driver Behavior Research Project, George Washington University, Washington, D.C.

Goldstein, L.G., 1972. Youthful Drivers as a Special Safety Problem. Accident Analysis and Prevention, 4, 153-189.

Good, Carter V. and Scates, Douglas E. Methods of Research. New York: Appleton-Century-Crofts, 1954.

Grayton, E. and others: Highway Transportation Management. New York, McGraw Hill, 1963.

Greenshields, B.D., 1961. Investigating Traffic Highway Events in Relation to Driver Actions. Traffic Quarterly, 15, 664-676.

Haddon, W., Jr., 1969. Insurance Industry's Interest and Role in Traffic Safety. "Man and the Traffic Safety Process" Proceedings of the Third I.I.H.S. Traffic Safety Research Conference, Chicago, Illinois, January, 1969. Insurance Institute for Highway Safety, Washington, D.C., pp.43-48.

Haddon, W., Jr., 1972. A Logical Framework for Categorizing Highway Safety Phenomena and Activity. Journal of Trauma, 12, 193-207.

Hakkinen, S., 1958. Traffic Accidnets and Driver Characteristics. A Statistical and Psychological Study. Finland's Institute of Technology, Scientific Researches, No. 13.

Halsey and Kaywood. Let's Drive Right. Glenview, Illinois: Scott-Foresman and Company, 1968.

Hooper, Fredrick Collings: Management Survey -- The Significance of Management in Modern Community: New York, 1948.

Hyman, Herbert, Survey Design and Analysis. Glencoe, Illinois: The Free Press, 1955.

Instructional Materials Laboratories, Inc. A Safe Start. New York: Uniroyal, United States Rubber Company, 1967.

Kahn, Robert L., and Cannell, Charles F. The Dynamics of Interviewing. New York: John Wiley & Sons, 1957.

Klein, D., 1971, The Influence of Societal Values on Rates of Death and Injury. Journal of Safety Research, 3, 2-8.

Little, Arthur, Inc. The State of the Art of Traffic Safety. A report prepared for the Automobile Manufacturers Association, Inc., June, 1966.

MacDonald, J.M.: Suicide and Homicide by Automobile. American Journal of Psychiatry, 1964, 121, 366-370.

Matthies, Leslie H., The Management System -- Systems are for People; New York, Wiley, 1974.

Mayer, Albert and Hoult, Thomas. Motor Vehicle Inspection -- A Report on Current Information, Measurement and Research. Detroit: Wayne State University, January, 1963.

McDough, Adrian M.: Management Systems, Working Concepts and Practices, Homewood, 1967.

McFarland, D.E.: Management Principles and Practices: New York, 1974.

McFarland, R.A. and Maseley, A.L., 1954: Human Factors in Highway Transport Safety. Harvard School of Public Health, Boston, Massachusetts.

Menzies, Isabel, A Note on Driving and Road Accidents, British Safety Council, 1965.

Michigan Driver Education Association. Newsletter, Vol. 2, No. 8, October, 1971.

Ministry of Transportation: Road Safety Legislation 1965-6, White Paper on Alcohol and Road Accidents, H.M.S.O., London, 1965. Road Accident Annually, 1951-1965, H.M.S.O, London, 1952-1967.

National Automotive Trouble Quiz. Aired March 26, 1972

O'Day, James and Creswell, J.S., Jr.: "Peroodic Motor Vehicle Inspection and Predictive Analytical Modeling." Research Report No. 3. Ann Arbor: Highway Safety Research Institute, University of Michigan, October, 1968.

Oppenheim, A. N. Questionnaire Design and Attitude Measurement. New York: Basic Books, 1966.

"Papers Presented During the Conference on Inspection Testing of Automobiles: Its Prospects for Accident Reduction." Washington University and Missouri Auto Club, St. Louis, Missouri, January 25-26, 1969.

Payne, Stanley L. The Art of Asking Questions. Princeton: Princeton University Press, 1951.

"A Resource Curriculum in Driver and Traffic Safety Education." Automotive Safety Foundation.

Rosenberg, Morris. The Logic of Survey Analysis. New York: Basic Books, 1958.

Rudiger, Elmer Robert. "Educational Needs and Interests of People Concerning the Selection, Operation and Care of the Automobile." Unpublished Ph.D. Dissertation, University of Missouri, 1952.

Safety for Motor Vehicle Use. A report to the Congress by the Secretary of Transportation. Washington, D.C.: U.S. Department of Transportation, June, 1968.

Sax, Gilbert, Empirical Foundations of Educational Research. Englewood Cliffs, N.J.: Prentice-Hall, International, 1968.

Schoderbeck, R.: Management Systems Theory. New York, Wiley, 1967.

Skillman, T.S., Road Safety, How to Reduce Road Accidents, The Reappraisal Society, London, 1965.

Smeed, R.J., 1949. Some Statistical Aspects of Road Research. Journal of the Royal Statistical Society, Series A, 112, 1-28.

Smeed, R.J., 1968: Variations in the Pattern of Accident Rates in Different Countries and Their Causes. General Report. Paper presented at Ninth International Study Week in Traffic and Safety Engineering, Munish, September, 1968.

Smeed, R.J., 1972: The Usefulness of Formulae in Traffic Engineering and Road Safety. Accident Analysis and Prevention, 4, 303-312.

Smeed, R.J. and Jeffcoate, G. O., 1970. Effects of Changes in Motorization in Various Countries on the Number of Road Fatalities. Traffic Engineering and Control, 12, 150-151.

Spar, Walter E., and Swenson, Rinehart J.: Methods and Status of Scientific Research. New York: Harper and Brothers, 1930.

Stanford Research Institute. "Relationship Between Vehicle Defects and Vehicle Crashes." Technical Reports, Vol. 11. Menlo Park, Calif.: Prepared for the U.S. Department of Transportation, National Highway Safety Bureau.

The State Journal. Lansing-East Lansing, Michigan, Thursday, October 21, 1971.

Strasser, Marland K., Eales, John R., and Aaron, James E; Driver Education: Learning to Drive Defensively. River Forest, Ill: Laidlaw Brothers, A Division of Doubleday & Company, 1969.

Strasser, Marland K., Bales, John R., and Suam-Mushlits. When You Take the Wheel. River Forest, Ill.: Laidlaw Brothers, 1963.

Tharp. K.J., and Garrett, J.W. "Organization and Methodology of Intensive Accident Investigation." Multi-Disciplinary Investigations to Determine Automobile Accident Causations: Report No. 1. Prepared Under Agreement with the Automobile Manufacturers Association, Inc., Detroit, Michigan, December, 1968.

"The Value of Periodic Motor Vehicle Inspection to Motorists," National Symposium on Diagnostic Vehicle Inpsection, Washington, D.C., April 22, 1971.

United Nations, Economic Commission for Europe. 1974: Statostocs pf Road Traffic Accidents in Europe, 1972. New York: The Author.

Van Dalen, Deobold D. and Meyer, William J. Understanding Educational Research: An Introduction. New York: McGraw-Hill Book Company, 1962.

Wells, R. 1972. The Lost Years on the Road. Medical Journal of Australia. (January, 183-188.

Whitlock, F. A. 1971. Death on the Road: A Study in Social Violence. London: Tavistock.

Wilde, G.J.S., L'Hoste, J., Sheppard, D., and Wind, G. 1971. Road Safety Campaigns: Design and Evaluation. The use of mass communications for the modification of road use behavior. Road Research, Organization for Economic Co-operation and Development, Paris.

APPENDICES

APPENDIX A

HIGHWAY SAFETY MANAGEMENT ORGANIZATION AND STRUCTURE

APPENDIX A

HIGHWAY SAFETY MANAGEMENT ORGANIZATION AND STRUCTURE

1. What is the Road Safety Commission (RSC)? What does it do?
2. What are or is, the role of members of the Road Safety Committees?
3. By what process were the members selected to the RSC?
4. What act brought about the existence of the RSC?
5. What have some of the Road Safety Commission's accomplishments been?
6. What have been some of the recommendations that the RSC has made to the government or other appropriate bodies?
7. Which ones of these recommendations were ultimately adopted and implemented as a part of the traffic safety management program?
8. Who does the RSC communicate with relative to its activities?
9. How important is the RSC in influencing road construction that will reflect the inclusion of traffic safety devices?
10. Do you think the RSC has been effective in managing highway safety programs in Nigeria?
11. What have been the greatest barriers for the RSC in implementing its charge?
12. Do you think the RSC should be granted an executive power?
13. Do you think the Road Safety Commission should continue to exist?
14. Do you feel research work can help to improve highway safety management?

15. How is the RSC funded?
16. Which government jurisdictions are providing services (federal, state, and local) in highway traffic safety?
17. Does a situation exist in which the federal government may contact with the state for services? Vice versa?
18. Is there any professional practitioner or specialist employed by the RSC?
19. Which governmental agency is responsible (e.g., Nigeria Police, Courts, Armed Forces, Line Departments) for highway traffic safety works?
20. What do you think is or are the most important problems facing the highway traffic safety management in Nigeria today?
21. Do you think the present highway safety management system is ideal for Nigeria?
22. How will you like the highway safety management to be structured and organized in Nigeria?
23. What changes would you recommend to enhance the effectiveness of the Road Safety Commission?
24. Do you have any comment or remarks?
25. Do you think that with our present resources -- human and non-human -- Nigeria's highway traffic unsafety problems can be solved?

APPENDIX B

HIGHWAY SAFETY MANAGEMENT PRACTICES

APPENDIX B

Planning:

1. Are objectives and priorities set for highway safety programs?
2. To what period in the future are plans made (short-term or long-term)?
3. Are planning information provided in highway safety?
4. Are highway safety plans formally documented?
5. How are highway safety plans used (e.g., for policy, by operating departments, for budgeting, etc.)?
6. Are there any guidelines for planning?

Programming:

1. Are highway safety programs that cross departmental lines prepared and documented?
2. Are alternative programs considered?
3. Who assigns responsibilities for the performance of highway safety activities?
4. Are programs developed for more than a one year period of time? For how long?
5. Are there any guidelines of information for developing programs?
6. Are these programs formally recorded and documented?
7. Is this information currently available?

Budgeting:

1. Is highway safety entered as a separate budget category?
2. What is the time or period covered by the budget?
3. Is the budget tied to planning or programming activities?
4. In what way does the RSC members and the state representatives participate in the budget process?
5. What are the total highway safety expenditures per year?
6. What are the revenue sources, in percentages, for supporting private highway safety activities?
7. Is there any guideline for making the budget?

Program Execution:

1. Who is responsible for program execution and control in highway safety?
2. What information is needed to control the execution of highway safety programs?
3. Are decisions made during program execution based on research work?
4. Is information on program execution and control currently available?
5. Is program execution information recorded? If so, in what form?
6. Are there any guidelines for program execution and control?

Program Evaluation:

1. Who is responsible for the evaluation of programs?
2. Are programs evaluated in your highway safety unit?

3. Are results of evaluation utilized for modifying activities or for undertaking new ones?
4. Are evaluations of programs documented and distributed?
5. How often are programs reviewed?
6. Is there any specific evaluation method or technique?
7. Is there a re-evaluation of projects?
8. Is there any guidelines for program evaluation of highway safety activities?

APPENDIX C

HIGHWAY SAFETY INTERGOVERNMENTAL AND PRIVATE ORGANIZATIONS RELATIONSHIPS

APPENDIX C

HIGHWAY SAFETY INTERGOVERNMENTAL AND PRIVATE ORGANIZATIONS RELATIONSHIPS

1. Who is responsible for applying for state and Federal funds for local highway safety projects?
2. Does local government regulation complicate Federal highway safety programs?
3. What communication channel is used between Federal, state and local levels?
4. What relationships exist between Federal and state for providing services?
5. What financial relationships exist between Federal and state to share costs?
6. If none exist now, do you foresee them as possibilities in future?
7. What information is necessary from the state for Federal government to effectively carry out programs?
8. Does the state have formal arrangements with other local jurisdictions in highway safety?
9. Do other council jurisdictions have a central highway safety coordinator?
10. Is there any coordination in planning among the Federal, state and local governments and the private sector?

11. What relationship does the state maintain with the local governments in the area of highway safety?
12. What problems exist in state and local intergovernmental relationships?
13. Does the state maintain relationships with private sector in highway safety activities?
14. Are these relationships formal (law). informal (agreements) or cooperative?
15. Do private sectors have a central highway safety coordinator?
16. In what activities are the private sectors involved in highway safety?
17. What information must the state provide in order to help the private sector in its program?
18. Are the problems in private and intergovernmental relationships in highway safety due to lack of coordination or cooperation, different objectives, political consideration, geography, etc.?
19. What will you recommend as a measure to promote the interrelationship between the public and private sectors in highway traffic safety in Nigeria?

APPENDIX D

MAILED QUESTIONNAIRE

APPENDIX D

MAILED QUESTIONNAIRE

1. What is the specific and full name of your organization? (include bureau, agency, division, department or any other sub-unit name.)

2. Does a traffic safety division or unit exist within your organization? Yes _____ No _____ Don't Know _____

3. Is there any professional practitioner, specialist or consultant employed by your highway safety unit?
   Yes _____ No _____ Don't Know _____

4. Judging from your experience of the activities of the Road Safety Commission, do you think the Road Safety Commission has been effective in managing highway traffic safety activities?
   Yes _____ No _____ Don't Know _____

5. Do you think the Road Safety Commission should continue to exist?
   Yes _____ No _____ Don't Know _____

6. Do you think the Road Safety Commission should be granted an executive power?
   Yes _____ No _____ Don't Know _____

7. Do you think the Road Safety Commission should be created as an independent agency of the Federal Government?
   Yes _____ No _____ Don't Know _____

8. What changes would you recommend to enhance the effectiveness of the Road Safety Commission?

   _____

   _____

9. What do you think are the important problems facing highway safety management in Nigeria today?

   _____

   _____

10. Do you think research work can help to improve highway traffic safety management in Nigeria?
Yes _____ No _____ Don't Know _____

11. Are objectives and priorities set for highway safety programs in your unit?
Yes _____ No _____ Don't Know _____

12. To what period in the future are plans made (short-term or long-term)?

_____

_____

13. Are planning information provided in highway safety?
Yes _____ No _____ Don't Know _____

14. Are highway safety plans formally documented?
Yes _____ No _____ Don't Know _____

15. How are highway safety plans used (e.g., for policy, by operating departments, for budgeting, etc.)?

_____

_____

16. Are there any guidelines for planning?
Yes _____ No _____ Don't Know _____

17. Are highway safety programs that cros departmental lines prepared and documented?
Yes _____ No _____ Don't Know _____

18. Are alternative programs considered?
Yes _____ No _____ Don't Know _____

19. Who assigns responsibilities for the performance of highway safety activities?

_____

_____

20. Are programs developed for more than a one year period of time?
Yes _____ No _____ Don't Know _____

21. Are there any guidelines or information for developing programs?
Yes _____ No _____ Don't Know _____

22. Are these programs formally recorded and documented?
Yes _____ No _____ Don't know _____

23. Is this information currently available?
Yes _____ No _____ Don't Know _____

24. Is highway safety entered as a separate budget caterogy?
Yes _____ No _____ Don't Know _____

25. What is the time or period covered by the budget?

_____

_____

26. Is the budget tied to planning or progamming activities?
Yes _____ No _____ Don't Know _____

2 7. In what way does the RSC members and the state representatives participate in the budget process?

_____

_____

28. What are the total highway safety expenditures per year?

_____

_____

29. Is there any guideline for making the budget?
Yes _____ No _____ Don't Know _____

30. Who is responsible for program execution and control in highway safety

_____

_____

31. Are decisions made during program execution based on research work?
Yes _____ No _____ Don't Know _____

32. Is information on program execution and control currently available?
Yes _____ No _____ Don't Know _____

33. Is program execution information recorded?
Yes _____ No _____ Don't Know _____

34. Are there any guidelines for program execution and control?
Yes _____ No _____ Don't Know _____

35. Who is responsible for the evaluation of programs?

_____

_____

36. Are programs evaluated in your highway safety unit?
Yes _____ No _____ Don't Know _____

37. Are results of evaluation utilized for modifying activities or for undertaking new ones?

_____

_____

38. Are evaluations of programs decumented and distributed?
Yes _____ No _____ Don't Know _____

39. How often are programs reviewed in your organization or jurisdiction?

Quarterly _____
Yearly _____
Not at all _____
Don't Know _____

40. Is there any specific Evaluation method or technique?
Yes _____ No _____ Don't Know _____

41. Is there a re-evaluation of projects?
Yes _____ No _____ Don't Know _____

42. Is there any guideline for program evaluation of highway safety activities?
Yes _____ No _____ Don't Know _____

43. Does local rule complicate Federal highway safety programs?
Yes _____ No _____ Don't Know _____

44. Doe the state have formal arrangements with other local jurisdictions in highway safety?
Yes _____ No _____ Don't Know _____

45. Does the state maintain relationships with private sector in highway safety activities?
Yes _____ No _____ Don't Know, _____

46. Is there any coordination in planning between your organization and the government or private officials in highway safety activities? Yes _____ No _____ Don't Know _____

47. What will you recommend as a measure to promote the interrelationship between the private and public sectors in highway traffic safety field in Nigeria?

_____

_____

48. To what factors can the highest incidence of traffic accidents be attributed to apart from the management factor? Please state:

_____

_____

49. What improvement will you suggest to enhance highway traffic safety management practice in Nigeria? Please state:

_____

_____

50. Do you think that with our present resources - human and non-human, Nigeria's traffic unsafety problems can be solved?
Yes _____ No _____ Don't Know _____

Comments and Remarks:

_____

_____

_____

_____

_____

_____

_____

_____

APPENDIX E

LETTER OF INTRODUCTION FROM THE ACADEMIC ADVISOR

APPENDIX E

Highway Traffic Safety Center
Michigan State University
East Lansing, MI 48824

Dear

You have been selected in connection with a study survey of Highway Traffic Safety Management practices currently underway in Nigeria. This survey is being conducted by Christian Olukayode Oluduro, a doctoral student in Highway Traffic Safety of this University. The information from the survey is to be used for his dissertation for the Ph.D. degree.

As the Researcher's academic adviser, this traffic safety survey has my full support. We are inviting you to participate in this survey by granting the Researcher an interview.

The information obtained will be strictly used for research purposes. Your answers will be completely confidential and known only to the Researcher. Your interview will be given a scrambled code number, and your actual name will not even be recorded on the files. Under no circumstances could any information you might give the Researcher be used against you or anyone. The information you give is a matter of your own conscience and free decision.

Only very few persons are being interviewed. Thus, you are being offered a unique opportunity to aid meaningful reasearch on highway traffic safety in Nigeria.

Thank you very much for your considerations and cooperation in this project. It is a study that we hope will make a significant contribution to future safety and reduction of those meaningless tragedies on Nigeria's highways.

Sincerely,

Robert E. Gustafson, Ph.D.
Professor of Driver & Traffic Safety
and Highway Traffic Administration

APPENDIX F

COVER LETTER TO RESPONDENTS FROM THE AUTHOR

APPENDIX F

Highway Traffic Safety Center,
Michigan State University,
East Lansing, Michigan 48824.

Dear .....:

You are undoubtedly aware that the death toll on Nigerian roads has reached a staggering dimension and that this must be arrested. You are also aware that safety on the nation's roads and highways is a subject which affects virtually our entire population. Everyone therefore, has a very high stake in the promotion of traffic safety. But safety measures and remedial programs can succeed only if they have active support from you and I, of governments, of business and industry, and of the general public.

This survey is an attempt to identify those existing traffic unsafety problems and current traffic safety programs in Nigeria. We hope to catalog the traffic programs for possible publication and better planning of traffic safety activities.

You have been selected as a respondent in this survey because you play a significant role in traffic safety programs in our country, and because as a key member of your organization, you have specialized and personal knowledge of traffic safety organization and management practices.

Your reply will be treated in a confidential manner. Your responses will be integrated into a final report that will omit identifying data by respondents. Return of the completed questionnaire by March 15, 1977 would materially assist the time completion of this survey. A stamped, self-addressed envelope is enclosed.

Thank you for your co-operation. Your assistance is greatly appreciated.

Sincerely yours,

Olukayode Oluduro
SPECIALIST, HIGHWAY TRAFFIC SAFETY.

APPENDIX G

A REMINDER TO THE MAILED QUESTIONNAIRE RESPONDENTS

APPENDIX G

Highway Traffic Safety Center,
Michigan State University,
East Lansing, MI 48824.

Dear .....:

The opinion questionnaire mailed to you on ..... has not been received.

Your response is urgently needed in order to help complete this study.

Your assistance in completing and returning the questionnaire would be sincerely appreciated.

Thanking you in advance for your quick response to this letter.

Yours sincerely,

Olukayode Oluduro,
SPECIALIST, HIGHWAY TRAFFIC SAFETY.

APPENDIX H

A LETTER OF ACKNOWLEDGEMENT FROM THE AUTHOR TO THE MAILED QUESTIONNAIRE RESPONDENTS

APPENDIX H

Highway Traffic Safety Center,
Michigan State University,
East Lansing, MI 48824

Dear .....:

I am writing to acknowledge the receipt of the opinion questionnaire returned by you.

Thank you very much for your considerations and co-operation in this survey. The information you give will be treated confidentially and will be used strictly for research purposes.

I sincerely appreciated your effort in aiding meaningful research on highway traffic safety in Nigeria. I hope you will participate in future projects.

Sincerely,

Olukayode Oluduro,
SPECIALIST, HIGHWAY TRAFFIC SAFETY.

APPENDIX I

FEDERAL REPUBLIC OF NIGERIA

Decree

WHEREAS: The death toll, personal injuries and property damage upon our nation's highways are reaching intolerable proportions and

WHEREAS: It is recognized by the Federal Government of Federal Republic of Nigeria that this is a matter of national concern demanding positive action to meet this growing problem and

WHEREAS: No formal mechanism exists for the integration and coordination of existing safety efforts; it is therefore

ORDERED: That the Federal Military Government establish a nationwide highway safety program, under the guidance and direction of the Head of State, which will provide for the unification of State and local efforts in the struggle to reduce highway deaths, personal injuries and property damage; and it is further

ORDERED: That the Chief Administrative Officer of the Office of Highway Safety be appointed by the Head of State and responsible to him for the conduct of the National Safety Program.

Enacted this _____ day of _____ in the year one thousand and _____.

_____
Head of State

ATTEST:

_____
Secretary to the Military Government

APPENDIX J

POSITION DESCRIPTION FOR THE HEAD OF STATE HIGHWAY SAFETY REPRESENTATIVE

APPENDIX J

HEAD OF STATE HIGHWAY SAFETY REPRESENTATIVE

Position Description

Position

Director, Federal Highway Safety Commission

Primary Functions

Advisor to the Head of State on Highway Safety
Policy and administrative direction of the Federal Highway Safety Commission
Political liaison for the Federal Highway Safety Commission
Secretary, Federal Highway Safety Policy Advisory Committee

Primary Responsibilities

Prepare an annual federal highway safety budget
Prepare an annual highway safety legislative package
Provide support to the Federal Highway Safety Policy Advisory Committee
Develop federal highway safety goals and objectives
Present expert testimony on highway safety at legislative hearings
Organize an annual Federal Highway Safety Conference;
Line department budget review
Plan and organize Road Safety Campaigns

Qualities

A good or advanced degree in highway safety or related subjects
Proven managerial effectiveness
Considerable political and/or state/local government experience
Full-time efforts devoted to the State Highway Safety Agency
Comprehensive and project planning experience
Program evaluation experience