

**ROLE OF GOVERNMENT IN ROAD TRANSPORT
DEVELOPMENT WITH SPECIAL REFERENCE TO INDIA AND
KENYA FROM 2000 TO 2010**

**A
Thesis submitted to
Tilak Maharashtra Vidyapeeth, Pune
For the Degree of Doctor of Philosophy (Ph. D.)**

[Handwritten signature]

In Economics Subject

Under the Board of Faculty of Moral and Social Science Studies

[Handwritten signature]
28/7/16.

Submitted By

Maake Albert Onguti

M. Joshi

Under the Guidance of

Madhura Joshi

[Handwritten signature]

January, 2016



DECLARATION

I hereby declare that the thesis entitled “Role of Government in Road Transport Development with Special Reference to India and Kenya from 2000 to 2010”, completed and written by me has not previously been formed as the basis for the award of any Degree or other similar title upon me of this or any other Vidyapeeth or examining body.

Place:

Date:

.....

Research Student

CERTIFICATE

This is to certify that the thesis entitled, “Role of Government in Road Transport Development with Special Reference to India and Kenya from 2000 to 2010”, which is being submitted herewith for the award of the Degree of Vidyavachaspati (Ph.D) in the Department of Economics of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by Shri/Smt. Maake Albert Onguti under my supervision and guidance. To the best of my knowledge and belief the work incorporated in this thesis has not formed the basis for the award of any Degree or similar title of this or any other University or examining body upon him/her.

Place:

.....

Date:

Research Guide

ACKNOWLEDGEMENT

First and foremost, I would like to thank my God the living Father in Heaven for His graciousness and mercies upon my life during my studies and as I undertook this research work.

I would like to convey my deepest appreciation to Dr. Madhura Joshi for her tireless and determined efforts to supervise the research exercise as a mentor and a research Guide. I am also deeply indebted to her as the Department Head for Economics, SNTD Pune being my champion at all circumstances.

I owe much to Dr. Madhavi S. Kulkarni of SNTD Arts and Commerce College, Pune and Dr. Sandeep L. Kachchhap for their selfless advisory assistance in terms of time and expertise in Statistical Analysis requirements for this research exercise. Your input and contribution to this work makes a lot of difference. Thank you.

I appreciate the assistance of the library staff of the Kenya National Bureau of Statistics, University of Nairobi, National Libraries in Nairobi County and Nakuru County in Kenya. Further mention is directed to the library staff of Tilak Maharashtra Vidyapeeth, Gokhale Institute of Politics and Economics, Economics Department Library of University of Pune, for their profound support and permission to utilize their library services for the period during the research exercise.

My love and gratitude go to my beloved parents Mr. and Mrs. Maake, my brother and sister Mr. and Mrs. Benard Magara, and my Uncle Mang'are Seth Ong'uti and family, Uncle Engr. Moguche John and family for their immense financial support, encouragements, and prayers towards this research.

I will not overlook the immense assistance from my friend Miss Ifunanya Isama for her sincere support with respect to this research work.

Lastly I adore all my friends; The Chariots Acappella Singers of Spicer Adventist University, Dr. Noble Pilli, Vice Chancellor of Spicer Adventist University, my father and landlord with his loving family Mr. K. Kunjukutty, Musa Mziba, Samingthong Thong Kasem, Dr. Oirere M. Aaron, Dr. Nyaga Nathan Gitonga, and all my other friends who stood by me in achieving this academic milestone.

ABSTRACT

The affluence of the economic development of a country, especially developing nations like India and Kenya would largely be influenced by the development of Road Transport sector. The Road transport sector is considered as the artery of economic development process, and therefore it is of benefit to understand the role of government in this respect at institutional and policy level. Consequently, this study purposed to investigate the role of government in road transport development considering a comparative perspective of India and Kenya as regards to public finance in road sector.

The study was based on the secondary data and central to this comparative investigation was the budget allocations for road transport development. Descriptive and statistical analysis gave results that indicated among other things, that the policy makers for road sector in India and Kenya practice defective fundamental budgeting principles that do not promote the effectiveness and efficiency of public expenditure. For instance, incremental and cumulative budgeting; results also showed poor implementation of performance-based budgeting; negligence in considering the impact of variables such as population density and road density index in the decision making process for resource allocation for road transport development. In addition to that, the results also indicated a similarity in trends for budget allocations in Indian and Kenya for road sector in terms of the influence of the bureaucracy and politicians on road sector policy.

The study is of benefit to policy makers and bureaucrats who are instrumental in designing of policy that impact the growth and development of road transport sector in India and Kenya.

TABLE OF CONTENTS

DECLARATION	ii
CERTIFICATE	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	xi
LIST OF CHARTS	xiii
LIST OF GRAPHS	xiii
LIST OF FIGURES	xiii
LIST OF ABBREVIATIONS.....	xiv

Chapter

1. ROLE OF GOVERNMENT IN ROAD TRANSPORT DEVELOPMENT WITH RESPECT TO INDIA AND KENYA FROM 2000 TO 2010

Introduction	1
Role of Road Transport in Economic Development	2
Role of Government in Road Transport in Europe and USA.....	6
Economic and Social Problems.....	6
Technology and R&D	7
Road Safety	8
Conclusion.....	9
Foreign Direct Investment (FDI) in Road Transport Development	10
Budget Allocations for Road Transport Development: Problems and Challenges	16
Land Acquisition	18
Statement of the Problem	19
Research Gap.....	21
Objectives of the Study.....	22
Limitations of the Study	22
Significance of Study.....	23
Hypothesis	24
Methodology	24
Research Area	25
Sources for Data Collection	25
Data Analysis and Interpretation.....	25
Scope of the Study	26
Chapter Scheme.....	26
References	28
2. REVIEW OF RELATED LITERATURE.....	31
Transport Problem	31
Transport Economics.....	36

Impact of Transport Development.....	40
Externalities of Road Transport.....	50
Role of Government in Transport Development	57
Resource Allocation for Road Transport Development	63
Transport Policy Development.....	72
References	79
3. COUNTRY PROFILE: INDIA	85
History.....	85
Ancient History	85
Modern/Current State of Country	87
Independent India	88
Indian political System and Governance Since Independence	89
Economic Overview since Independence.....	91
Location	93
Population	94
Agro-Climatic Zones	96
Topography	97
Soils	98
Rainfall and Climate.....	98
Rivers & Lakes	99
Land Utilization.....	100
Irrigation	101
Animal Husbandry and Dairy.....	101
Forest and Wasteland Development.....	102
Industry Development	103
History of Transport Development System of India	104
Development of Railway Transport.....	105
Development of Road Transport.....	107
Development of Water Transport.....	108
Development of Air Transport	110
Original And Current Status of Road Transport.....	112
Total Road Length.....	115
Road Density in India.....	116
Classification of India's Road Network.....	117
Major National Highways of India	118
Reforms in the Road Sector	121
Road Development Fund Allocation	124
Achievements of Road Development in India.....	125
Externalities and Problems of Road Transport Development in India.....	128
Road Safety and Road Accidents	128
Low Road Capacity and Congestion.....	129
Mixed Traffic	130
Pollution	131
Unstable Road Policy.....	131
Poor Highway Amenities	132

Shortage of Funds	132
Multiple Check Posts (Toll/Octroi taxes)	132
Suggested Solutions for Problems of Road Sector in India	133
COUNTRY PROFILE: KENYA.....	135
History	135
Pre-Colonial Period.....	135
Colonial Period.....	136
The Post-Independence Kenya to Date	141
Politically	141
Economic Overview since Uhuru (Independence).....	145
Location	148
Population	148
Agro-Climatic Zones	150
Topography	151
Soils	152
Rainfall and Climate.....	153
Rivers and Lakes	153
Land Holding Patterns	154
Agriculture	155
Irrigation	156
Animal Husbandry and Dairy.....	157
Forest and Wasteland Development.....	158
Natural Resources.....	159
Industry Development	161
History of Transport Development System in Kenya	162
Development of Road Transport.....	163
Development of Rail Transport.....	165
Development of Air Transport.....	166
Development of Water Transport.....	168
Original and Current Status of Road Transport.....	168
Reforms in the Road Sector	171
Administrative Structure of the Road Sub-Sector of Kenya.....	173
Road Density of Kenya	176
Road Sector Development Agenda	177
Agencies and Source of Funds for Road Development in Kenya...	178
Road Development Fund Allocation	179
Achievements of Road Development in Kenya	180
Externalities and Problems of Road Transport Development in Kenya.....	182
Road Accidents	182
Congestion.....	183
Poor Funding.....	184
Lack of Comprehensive and Integrated Transport	
Policy Framework.....	185
Taxes	185
Suggested Solutions for Problems of Road Sector in Kenya	187

References	189
4. PRESENTATION AND ANALYSIS OF DATA	196
Introduction	196
Budget Analysis of Road Transport Development: India	197
Survey of the Total Budget of Department of RT&H, 2000-2011	200
RT&H Budget in the GoI Central Budget, 2000-2011	203
Overview Head Wise Survey of the Budgets for RT&H, 2000-2011	208
RT&H Budget as Percentage of GDP, 2000-2011	210
GoI Central Budget as Percentage of GDP, 2000-2011	212
Per Capita RT&H of India, 2000-2011	213
Per Capita Availability of Roads in India	215
Budget Analysis of Road Transport Development: Kenya.....	216
Survey of the Total Budget of Ministry of Roads & Public Works, 2000-2011	219
R&PW in GoK Central Budget, 2000-2011	221
Overview Head Wise Survey of the Budgets for R&PW, 2000-2011	224
R&PW Budget as Percentage of GDP, 2000-2011	227
GoK Central Budget as Percentage of GDP	228
Per Capita R&PW of Kenya, 2000-2011	229
Per Capita Availability of Roads in Kenya	231
Comparative Analysis	233
Comparison of Items in RT&H and R&PW Budgets	233
Comparison of Budget Yearly Percentages & Incremental Percentages	238
Comparison of Central Budget and Departmental Budget	241
Comparison of RT&H and R&PW as Percentage of GDP	244
Comparison GoI Budget and GoK Budget as Percentage of GDP	246
Comparison India's RT&H Per Capita and Kenya's R&PW Per Capita	248
Road Density in India and Kenya	250
Road Density of India and Kenya compared to other Countries	252
Hypothesis Testing with Inferential Statistical Analysis	255
Hypothesis 1	256
Hypothesis 2.....	256
Significance of Correlation between GoI Budget, RT&H Budget, Per Capita RT&H, and Road Density in India.....	257
Significance of Correlation between GoK Budget, R&PW Budget, Per Capita R&PW, and Road Density in Kenya.....	259
Significance of Association between Per Capita RT&H and Road Density in India Tested by Regression Analysis	262
Significance of Association between Per Capita R&PW and	

Road Density in Kenya Tested by Regression Analysis.....	263
Testing Consistency in RT&H Budget of India and R&PW Budget of Kenya by Chi-Square Test	263
Significance of Association between Per Capita RT&H and Per Capita Availability of Roads in India Tested by Regression Analysis.....	265
Significance of Association between Per Capita R&PW and Per Capita Availability of Roads in Kenya Tested by Regression Analysis.....	267
Findings of the Study Based on Study Objectives.....	267
References	288
5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	290
Summary of the Whole Study.....	290
Discussions and Interpretations of Major Findings from the Study Objectives.....	293
Findings Out of the Research Study	295
The Major Findings Out of the Research Study Hereby Observed	296
Findings out of the Inferential Statistical Analysis	299
Hypothesis Testing.....	300
Conclusions	300
Contribution of the Study.....	304
Researcher’s Plan.....	306
Recommendations.....	307
Recommendations for Practice	307
Kenya	307
India	308
Kenya and India	309
Collaborations.....	311
Recommendations for Future Research	312
BIBLIOGRAPHY	314

APPENDIX

- A. Appendix 1(a): Political Map of India
- B. Appendix 1(b): Political Map of Kenya
- C. Appendix 2(a): Sample RT&H Budget (India)
- D. Appendix 2(b): Sample R&PW Budget (Kenya)
- E. Appendix 3: World Road Density Index

List of Tables

Table 2.1: Most Commonly Considered External Cost of Transport	52
Table 2.2: Schematic Outline of Private Finance Options.....	65
Table 2.3: Arguments For and Against Road Funds.....	67
Table 3.1: Pre-Historical Events of India.....	89
Table 3.2: Year and Formation of the States of India.....	90
Table 3.3: Political Parties and PMs of India since Independence	91
Table 3.4: India's Average Growth Rate and Development Strategy since Independence.....	92
Table 3.5: Population Growth of India, 1901 to 2011	95
Table 3.6: Railway Zones of India.....	106
Table 3.7: Classification of Inland Waterways of Indian	109
Table 3.8: Major Ports of India.....	110
Table 3.9: Major International Airports in India	111
Table 3.10: Historical Road Network Development in India	113
Table 3.11: Various Phases of NHDP.....	114
Table 3.12: Road Density of India.....	117
Table 3.13: Some of the Major National Highways of India.....	119
Table 3.14: NHs Expansion During the Five Year Plans	120
Table 3.15: Various Acts of Parliament for Road Development	122
Table 3.16: Progress of NHDP as of August, 2011	126
Table 3.17: Physical Progress of Non-NHDP during 11 th Five Year Plan	127
Table 3.18: Number of Road Accidents, Persons Killed/Injured, 2002-2011	129
Table 3.19: Number of Registered Vehicles in India, 2000-2011	130
Table 3.20: Problems of Road Sector in India.....	133
Table 3.21: Suggested Solutions to Problems of Road Sector in India	134
Table 3.22: Historical Development of Kenya's Road Transport System.....	164
Table 3.23: Historical Development of Rail Network of Kenya	166
Table 3.24: List of Airports in Kenya.....	167
Table 3.25: Road Network Development in Kenya since Independence	170
Table 3.26: Reforms in the Kenya's Road Sector.....	172
Table 3.27: Kenya's Road Networks in Kilometers	174
Table 3.28: Road Density of Kenya, 2000-2011	176
Table 3.29: Road Agency and Source of Funds for Road Development in Kenya	178
Table 3.30: Allocation Principle by the KRB.....	180
Table 3.31: Physical Progress of Road Development in Kenya, 2004-2010.....	181
Table 3.32: Employment Creation and Participation of Women in Road Development in Kenya, 2004-2010.....	182
Table 3.33: Number of Road Accidents, Persons Killed/Injured, 2001-2011	183
Table 3.34: Number of Registered Vehicles in Kenya, 2000-2011	184
Table 3.35: Problems of Road Sector in Kenya.....	186
Table 3.36: Suggested Solutions to Problems of Road Sector in Kenya	188
Table 4.1: Total Budget of RT&H, 2000-2011	200
Table 4.2: Percentage of RT&H Budget in the Total Budget of GoI	203
Table 4.3: Percentage Contribution of Various Transport Modes to GDP of India, 2001-2012	206

Table 4.4: Major Head Budget Allocations for RT&H, 2000-2011	208
Table 4.5: RT&H Budgets as Percentage of GDP of India, 2000-2011	211
Table 4.6: GoI Central Budgets as Percentage of GDP of India, 2000-2011	212
Table 4.7: Per Capita RT&H of India, 2000-2011	213
Table 4.8: Per Capita Availability of Roads in India, 2000-2011	215
Table 4.9: Total Budget of Ministry of R&PW, 2000-2011	219
Table 4.10: Yearly Percentage of R& PW Budget in the Total Budget of GoK, 2000-11	222
Table 4.11: Budget Allocations for the Heads of R&PW, 2000-2011	225
Table 4.12: R&PW Budget as Percentage of GDP, 2000- 2011	227
Table 4.13: GoK Budget as Percentage of GDP, 2000-2011.....	229
Table 4.14: Per Capita R&PW of Kenya, 2000-2011.....	230
Table 4.15: Per Capita Availability of Roads in Kenya, 2000-2011	232
Table 4.16: Comparative Item Heads for RT&H (India) and R&PW (Kenya) Budgets.....	233
Table 4.17: List of Items with Significance Across the Budgets.....	237
Table 4.18: Budget Yearly Percentages and Incremental Percentages.....	238
Table 4.19: Percentage Proportion of RT&H and R&PW in Central Budgets, 2000-2011.....	241
Table 4.20: RT&H and R&PW as Percentage of GDP, 2000-2011	244
Table 4.21: GoI Budget and GoK Budget as Percentage of GDP, 2000-2011	246
Table 4.22: Per Capita RT&H and Per Capita R&PW, 2000-2011.....	248
Table 4.23: Comparison of India and Kenya Road Density, 2000-2012.....	250
Table 4.24: Comparison of India and Kenya to Other Countries on Road Density Index	253
Table 4.25: Analysis of Correlation between RT&H Budget, GoI Budget, Per Capita RT&H and Road Density in India	257
Table 4.26: Analysis of Correlation between R&PW Budget, GoK Budget, Per Capita R&PW and Road Density in Kenya.....	260
Table 4.27: Regression Analysis between Per Capita RT&H and Road Density in India	262
Table 4.28: Chi-Square Analysis for Rate of Budget Allocation between R&PW and RT&H	264
Table 4.29: Analysis of Correlation between Per Capita RT&H and Per Capita Availability of Roads in India	266
Table 5.1: Comparative Country Profile Summary	303

List of Charts

Chart 3.1: India's Total Road Length, 1950-1951 to 2010-2011	115
Chart 4.1: Yearly RT&H Allocation and Percentage Increase, 2000-2011	202
Chart 4.2: Percentage of RT&H Budget in Total Budget of GoI, 2000-2011	204
Chart 4.3: Plan and Non-Plan Budget Allocation in India, 2000-2011	209
Chart 4.4: RT&H as Percentage of GDP, 2000-2011	212
Chart 4.5: R&PW Yearly Allocations and Percentage Increase, 2000-2011.....	221
Chart 4.6: Yearly Percentage of R&PW Budget in Total Budget of GoK, 2010-2011	223
Chart 4.7: Budget Allocations for the Heads of R&PW, 2000-2011.....	226
Chart 4.8: R&PW Budget as Percentage of GDP, 2000- 2011	228
Chart 4.9: RT&H and R&PW, 2000-2011.....	240
Chart 4.10: Percentage Proportion of RT&H and R&PW in Central Outlays, 2000-2011	242
Chart 4.11: Yearly Percentage of Total for GoI and GoK Budgets, 2000-2011.....	243
Chart 4.12: GoI and GoK Budgets as Percentage of GDP, 2000-2011	247
Chart 4.13: Comparative Road Density for India and Kenya, 2000-2012.....	251

List of Figures

Fig. 2.1: Types of Economic Development Impacts.....	45
Fig. 2.2: Relation between Transport System and Life Quality	56
Fig. 2.3: Aspects of the Role of Government	62
Fig. 3.1: Land Utilization Classification in India.....	100
Fig. 3.2: Organizational Chart for MoRT&H of India.....	122
Fig. 3.3: Administrative Structure of the Road Sub-Sector of Kenya	173

List of Graphs

Line Graph 3.1: Population of Kenya, 1969-2009.....	150
Line Graph 4.1: Contribution of Various Transport Modes in India to GDP to GDP, 2001-2012	207
Line Graph 4.2: Per Capita RT&H (US\$), 2000 to 2011	214
Line Graph 4.3: Per Capita R&PW (US\$), 2000 to 2011	231
Line Graph 4.4: Comparative Percentage Increase for RT&H and R&PW, 2000-2011.....	239
Line Graph 4.5: RT&H and R&PW as Percentage of GDP, 2000-2011	245
Line Graph 4.6: Comparative RT&H and R&PW Per Capita (US\$), 2000-2011	249
Line Graph 4.7: Percentage Difference/Gap between India and Kenya Road Density, 2000-2012.....	252

List of Abbreviations

ABS	Additional Budgetary Support
ADB	Asia Development Bank
AfD	Agence Française de Développement
AfDB	African Development Bank
AMS	Asset Management Systems
AP	Andhra Pradesh
B&W	Building and Works
BoP	Balance of Payments
BOT	Build Operate Transfer
BRDB	Border Road Development Board
BRICS	Brazil, Russia, India, China and South Africa
BRO	Border Road Organization
CAC	Command-and-Control
CRF	Central Road Fund
DANIDA	Danish International Development Agency
DETR	Department of Environment, Transport and Regions
DPA	Directly Productive Activities
EAC	East Africa Community
ECMT	European Conference of Ministers of Transport
EPC	Engineering, Procurement & Construction
EU/EC	European Union/European Commission
FDI	Foreign Direct Investment
GA&P	General Administration and Planning, Building and Works
GBS	Gross Budgetary Support
GDP	Gross Domestic Product
GoI	Government of India
GoK	Government of Kenya
GQ	Golden Quadrilateral
HP	Himachal Pradesh
IB	Incentive Based
IBEAC	Imperial British East African Company
ICT	Information and Communication Technology
ISI	Institute of Scientific Information
ITS	Impact of Intelligent Transportation System
JK	Jammu & Kashmir
KADU	Kenya African Democratic Union
KANU	Kenya African National Union
KAU	Kenya African Union
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KfW	Kreditanstalt für Wiederaufbau
KIHBT	Kenya Institute of Highways and Building Technology
KNBS	Kenya National Bureau of Statistics
KRB	Kenya Roads Board

KURA	Kenya Urban Roads Authority
LCU	Local Current Unit
LWE	Left Wing Extreme
MCA	Model Concession Agreement
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MH	Maharashtra
MP	Madhya Pradesh
MTD	Mechanical and Transport Department
NAAS	National Asset Administration System
NARC	National Rainbow Coalition
NH	National Highways
NHAI	National Highways Authority of India
NHDP	National Highways Development Project
NS & EW	North South & East West Corridors
ODM	Orange Democratic Movement
OECD	Organization of Economic Co-operation and Development
OS	Other Services
PFI	Private Finance Initiative
PPP	Public Private Partnerships
R&D	Research and Development
R&PW	Ministry of Roads and Public Works, Kenya
RBI	Reserve Bank of India
RF	Road Fund
RMLF	Road Maintenance Levy Fund
RT&H	Department of Road Transport & Highways, India
SAGA	Semi-Autonomous Government Agency
SAP	Structural Adjustment Policies
SARDP-NE	Special Accelerated Road Development Program for North East Region
SHs	State Highways
SIDA	Swedish International Cooperation Development Agency
SOC	Social Overhead Capital
TN	Tamil Nadu
UNEP	United Nations Environmental Programme
UNO	United Nations Organization
UTs	Union Territories
WB	The World Bank
WHO	World Health Organization

ROLE OF GOVERNMENT IN ROAD TRANSPORT DEVELOPMENT WITH RESPECT TO INDIA AND KENYA FROM 2000 TO 2010

1.1 Introduction

The affluence of the economic development of a country, especially developing nations like India and Kenya would largely be influenced by the development of Transport sector. The guiding principle in transport and development mechanism is that it contributes to the macroeconomics and plays a role in determining development and the environment. Since the transport modes and channels operate as a circulatory system in the economic development process, it therefore lays the foundation for economic, social and commercial advancement.

India is among the richest nations in Asia and its economic scene is intriguing simply because its economy is among the most competitive and developed in the Asian block. However, the economic development of India is not as rosier as one would have expected it to be due to the fact that the role of road transport sector is somehow still undermined. Kenya on the other hand is the leading economy in the East African Community which is comprised of Kenya, Tanzania, Ugandan, Rwanda, Burundi, South Sudan. The Kenyan economy significantly depends on roads and road transport and this will continue to be Kenya's principal transport system. However, a deficient road transport infrastructure is the order of the day and this calls for the situation to be addressed.

A healthy, broad based and inclusive growth of the Road Transport Sector is the key to further economic development of India and Kenya. Great importance should be given to the Road Transport Sector as it is, basically, the lifeline of economic development and therefore, both governments should employ all probable resources both

financial and technical so that more emphasis is given towards Road Transport Development.

To this end, a crucial role is played by the government through the budgetary provision in place in the concerned governments. The process of budget allocation is a paramount tool to be used to see it that the financial resources of both governments are harmoniously, fairly distributed and allocated more to the realm of Road Transport Sector so that employment opportunities may be generated, leading to increased levels of productivity, foster wealth accumulation and improved local environment among other things may be a realization.

1.2 Role of Road Transport in Economic Development

The current study sought to highlight the role of government in Road Transport Development. It was therefore of critical importance to first establish the significance of road transport in economic development. Questions that sought answers are such as: Is there a need for road transport? Why road transport? This was to further give impetus into the quest for establishing a firm foundation as to the role of road transport in economic development, and also the relevance of the government policy in economic development through Road Transport Development.

Vaidya pointed out that for regional development to occur in any country, transport network plays a vital and basic role in the regional-cum economic development. He further highlighted that transport network facilitates relation and integration among the economic activities over space. He additionally asserted that there is a high and definite correlation in regards to economic development and transport network, “the

higher economic development, the higher the transport network development.”¹ The current study sought to understand the clear role of Government in Road Transport Development in the case of India and Kenya. These two countries are on their early, yet young development paths in comparison to the developed nations like those in Europe such as the United Kingdom and USA in the west. For economic development to pick up pace, connectivity and accessibility over space is therefore critical. At their current development stage, Road Transport Development will therefore play a vital and basic role in facilitating mobility and functionality of the economic development process since these two aspects are greatly and intimately related.

Road Transport Development supplies the prospective for speedy economic development more especially in the light of agricultural and industrial development. The rationale is such that road transport rightfully facilitates accessibility and mobility in short and medium distances of which is usually the context for agricultural and industrial centers. In addition to that, the fringe, backward rural communities are brought into the mainstream of progressive economic, social and commercial activities through Road Transport Development.

With the continued expansion and spread of agriculture and industries and the opening up of new areas, road transport plays a supportive but yet key role in the movement of inputs and the movement of produces from farms and industries to their intended markets. Further observations indicate that road transport presents speed, flexibility, dependability, and advocates for door to door services besides being a well for employment for skilled and unskilled labour. It is to be also noted that other transport

¹ B.C. Vaidya, ed, *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 221.

modes function effectively when linked to road transport.² The only question that remains is, how inclusive can this process of economic development be through the role of road transport? Consequently, it is at this point that the role of the government supplies the solutions.

A special significance is accorded to the role that road transport plays in automobile transport. The demand for the movement of goods, raw materials and people results to the need for an improved domestic interlinked road transport system. Since the genesis of mechanized road transport, the traditional forms of transport i.e. horse and bullock carts, have resided to the peripheral and their place has been taken up by the use of motor cars, buses and trucks as the agents for economic developments. As regards to India and Kenya, automobile transport is at the core of transport activities in these two economies. Therefore, Road Transport Development is an important agenda and the government must therefore play a vital role to provide smooth and efficient systems that supports the automobile transport.³

In the pursuit of development objectives of a country, road transport cannot be ignored in this respect especially in the light of Rural Development with an added emphasis to the backward regions. It has been established that road transport promotes the efficient distribution of population, industry and income. More than that, road transport uniquely plays a role in the rural areas and backward regions by providing access to villages, markets, schools, medical, economic, administrative and social

² B.L. Mathur, *Towards Economic Development* (New Delhi: Discovery Publishing House, 2001), 386.

³ Sukla Bhaduri, *Transport and Regional Development: A Case Study of Road Transport of West Bengal* (New Delhi: Concept Publishing Company, 1992), 165.

service.⁴ In light to the current study, India and Kenya in the past and present have had and implemented aggressive Rural Development Programs and the development of backward regions. To this end, the role of Road Transport Development has been and is of high significance in achieving this developmental objective i.e. the development of roads and highways in rural areas and backward regions of the country reduces regional disparities.

Another important role that road transport contributes to economic development is to be considered in light of its impact to economic development. Rodrigue *et al* argue that transport brings about economic impacts in these facets i.e. direct, indirect and related impacts. Direct impacts entail the outcome of accessibility modifications where transport facilitates employment, adds value, facilitate larger markets, and encourage time and cost savings; on the other hand, the indirect impacts comprise of the upsurge or decline in prices for merchandise, goods and services by reason of the outcome of economic multiplier; and thirdly, related impacts include the outcome of economic activities and business units to a certain extent rely on cost effective transport services.⁵

In light of the current study and considering the arguments of Rodrigue *et al*, road transport significantly contributes to economic development with regards to the direct, indirect and related impacts resultant thereof. However, looking at the scenario of India and Kenya much is yet to be achieved in this perspective. The role of the government in Road Transport Development therefore is of critical importance so as to enhance the role

⁴ Ceaser Queiroz and Surhid Gautam, *Road Infrastructure and Economic Development: Some Diagnostic Indicators* (Washington D.C.: World Bank, 1992), 2.

⁵ Jean-Paul Rodrigue et al, *The Geography of Transport Systems 3rd ed* (New York: Routledge, 2013), n.p.

of road transport in India and Kenya with the objective of extending the full positive impacts in order to promote economic development.

1.3 Role of Government in Road Transport in Europe and USA

In this section, the researcher attempted to explore the role of government in the developed nations. For the current study, the developed nations of Europe and United States of America will be considered so as to give a rather comprehensive approach as to the role of the government in shaping up the Road Transport Development in terms of policy. This is of importance to the current study, as the observations from these developed countries gave the benchmark as to what the developing and undeveloped countries could emulate. In this regard, Kenya and India are to greatly benefit.

1.3.1 Economic and Social Problems

Road transport in Europe is plagued with economic and social problems that are rooted from the wage problem and working conditions respectively. It was observed that aspects such as remuneration, working time, over time, holidays, pensionable age, admission to occupation and subcontracting could be explosive in nature and thus a drawback for the road transport sector. The European Conference of Ministers of Transport (ECMT) supplied that the role of the government was to provide a regulatory body that would facilitate the activities of the road transport sector to improve organization and working conditions among the road transport unions and the government.⁶

⁶ ECMT, *Social Aspects of Road Transport* (France: OECD Publication Services, 1999), 44-45.

In light of this, the Kenya and Indian government must play a facilitating role by creating a regulatory framework that addresses the economic and social problems of road transport sector. This is not to suggest that such institutions or frameworks are not in place, but rather, a better framework of functions should be established most probably through sweeping reforms so as to provide an integrated transport system that addresses the economic and social challenges of road transport sector.

1.3.2 Technology and R&D

Considering the emerging economies of the world today, Asia and Africa are prime destinations. In these two continents, India and Kenya present great potential as competitive economies in their local contexts. In this process, therefore, there is and will be an increased demand for movement of goods, services and materials. This creates a dilemma, as it is in the Europe and USA, the dilemma of “promoting economic growth, serving the aspirations of people and improving environmental sustainability.”⁷ It is at this point that the emergence of green technology for road transport has attracted considerable attention-road transport technologies that for example reduce the CO₂ emissions. Successful case studies in Sweden and USA clearly pointed out that there is a role to be played by the government in facilitating technology innovations into road transport sector through public or public-private governance.⁸

In this respect, the governments of Kenya and India have a role to play in shaping and facilitating innovative technologies into road transport by supplying R&D facilities that will advance the development of scientific or technological understanding and

⁷ Mans Nilsson et al eds., *Paving the Road to Sustainable Transport: Governance and Innovation in Low-Carbon Vehicles* (New York: Routledge, 2012), 277.

⁸ Ibid, 277.

dissemination. This results to nurturing of knowledge resource and competence that permits government departments, companies and research institutes to develop indigenous technology solutions for road transport problems. It cannot be taken lightly that the scope of government's role is not be limited to policy only but more importantly in terms of budget fund allocations for R&D facilities which require large scale funding.

1.3.3 Road Safety

Road safety is an important aspect that must be considered when considering the scope of Road Transport Development. This is of significance because road traffic injuries are a burden to the national economy and therefore, road safety is of priority. The trend in Europe with Great Britain as a leading example is that all government operations that involve road safety are managed at the national level. However, in the USA we saw a different scenario whereby the government operations in the federal system of the USA are decentralized in terms of decision making and execution that covers various divisions and agencies of the federal government.⁹

The role of the government from both scenarios therefore involve aspects such as conducting investigations and offer technical guidance for planning and building safe highways, promoting enhanced harmonization in terms of capabilities and resources of all the concerned government parties to advance road safety. Added emphasis is to be given to encourage scientific precision in supervision and understanding safety needs and in

⁹Transport Research Board, *Building the Road Safety Profession in the Public Sector: Special Report 289* (USA: National Academy of Science, 2007), 21.

developing, implementing, and appraising solutions that work together to improve road safety on a systemic level.¹⁰

As regards to the question of road safety and the governments of Kenya and India, much is yet to be done though there is little progress on the ground. However, there should be a deeper commitment by individual governments in promoting road safety by involving the public in policy process, encouraging institutional framework that fosters road safety, increasing significantly the funds for road safety programs with an objective of attaining “‘Vision Zero’ which provides that in the long run no one will be killed or seriously injured within the road transport system...”¹¹ as it is in the case of Lithuania, in the EU.

1.3.4 Conclusion

There are many other areas of interest that affect the Road Transport Development and also demand the attention from the role of government. The areas highlighted above are just a tip of the iceberg and are sufficient enough to demonstrate as to what role the governments have to play especially in regards to the current study. However, it must be emphasized once more that the governments of Kenya and India have a clear role to play in their economic development fabric and in the role that road transport can play.

Dell *et al* suggests that for sustainable road transport to be a reality now and in the future, the governments must resort to instruments termed as the ‘carrot’ and ‘stick’ policy. These policy instruments provide that incentives can be designed to equally

¹⁰ Transport Research Board, *Building the Road Safety Profession in the Public Sector: Special Report 289* (USA: National Academy of Science, 2007), 31.

¹¹ ECMT, *Road Safety Performance: National Peer Review-Lithuania* (France: OECD Publication Service, 2004), 91.

persuade the automobile manufacturer and traveler to make resolutions that will be harmonious with the shift in the direction for a sustainable future for road transport and/or, legislation can be ratified that compels penalties for nonconformity with sustainable directives. Both instruments ought to be considered circumspectly to facilitate approval in principle of all parties concerned.¹² Additional fundamental questions for the future that will undeniably impinge road transport include:

- i. The attitude of future generations to environmental and sustainability issues and to personal car ownership;
- ii. Demographics;
- iii. World economic development;
- iv. Further improvements in vehicle technology;
- v. Choice of fuel that is available;
- vi. The role of government.¹³

Having considered the role of governments in road transport in the developed nations with examples from Europe and USA, it is certain that the governments of Kenya and India are in the learning curve process so as to facilitate the best possible environment for a progressive and yet sustainable road development agenda in Kenya and India.

1.4 Foreign Direct Investment (FDI) in Road Transport Development

It is well understood that infrastructure bottlenecks in developing countries like Kenya and India are a hindrance to fast development which results to dire costs on their

¹² Ronald M. Dell et al, *Towards Sustainable Road Transport* (United Kingdom: Elsevier Inc., 2014), 312.

¹³ *Ibid*, 313.

Gross Domestic Product (GDP). It is a drag on development mostly for the reason that infrastructure development typically demands massive capital investment which comes with an attached high risk. In this case, Foreign Direct Investment (FDI) is one source of funding for infrastructure development, but it is in no way a universal remedy for infrastructure development. Nonetheless, if FDI is effectively and efficiently organized for all its intents and purposes and directed to infrastructure development, it is capable of sponsoring increased broad-based economic and social welfare and thereby rising economic growth rates.¹⁴

To this end, the basis to shaping constructive or disparaging FDI outcome depends on the policy ecosystem set up by Kenya and India as developing nations in relation to the governments of developed countries, support agencies, multilateral financial institutions, and other relevant parties such as the investors so as to attract significant pull and push forces of FDI in Road Transport Development. This can be achieved by a paradigm shift on a number of institutional changes sponsored by bold government reforms in its policy structure.

Several of the limitations and challenges that have been identified by David Donaldson *et al* on the part of the government as regards to FDI in transport and infrastructure in general in the regions of sub Saharan Africa are such as: deficiency in government commitment particularly at sectorial, regional or municipal levels; excessive operational overheads and ambiguity in dealing with governments; non-transparent negotiations as a result of policy and bureaucratic vacuum from the government side;

¹⁴ Theodore H. Moran, *Foreign Direct Investment and Development: Launching a Second Generation Policy Research* (Washington D.C.: Peterson Institute for International Economics, 2011), x.

uncertainty in guaranteeing convertibility and transferability of project profits into foreign exchange for repatriations by investors; indistinct regulatory structure for service provision on account of a poor history of guideline and enforcement culture; and apprehension over the competence of the legal framework as regards to relevant government agencies, policy for project proposal and tendering among many others.¹⁵

Suggested solutions on the part of the government in regards to its policy ecosystem with the objective of providing an enabling environment that attracts FDI in road transport and infrastructure development in general are as follows:

- i. Meeting the conditions of project financing i.e. the ability of policy and regulatory outlines that supports the lenders requirements to steer clear of holdups or project abandonment;
- ii. Concession measures by the governments that are comprehensive in nature with an unambiguous legal basis for sanction, grants of concessions, attached with thorough implementing rules and regulations;
- iii. Foreign exchange convertibility i.e. governments should guarantee that their foreign reserves are adequate to supply the conversion requirements and setting up of trustworthy balance-of-payments management systems that regulate unwarranted public sector borrowings;
- iv. Pricing of infrastructure services i.e. the governments should review the policy on tariffs and subsidies so as to attract a larger volume of FDI into infrastructure industry;

¹⁵ David J. Donaldson et al, *Foreign Direct Investment in Infrastructure: The Challenges of Southern and Eastern Africa* (Washington D.C.: The World Bank, 1997), 15-16.

- v. Ownership requirements i.e. the policy framework particularly as regards to ownership in joint ventures between investors and government departments should be supportive so as to avoid implementation difficulties;
- vi. Enforcement of contracts and dispute settlement i.e. the government to guarantee that the contracts are implemented under the purview of the law, and seamless mechanisms for dispute settlement to be put in place for the contracting partners to facilitate timely resolutions without affecting the project execution;
- vii. Lenders requirements i.e. governments to eliminate country risk factors so as to attract term debt for road development as well as provide machinery that will secure debt repayment;
- viii. Procedures for project selection, consultations and sanctioning ought to be transparent and done in a timely manner so as to meet the deadlines for service provision.¹⁶

In the case for India, particularly after the New Economic Policy of 1991, the move for liberalization of the Indian investment climate has seen hyped activities. The problems and obstacles of investing in India have significantly been reduced, however, when India is compared with other emerging economies, there is still more to be done to entirely liberalize the FDI regime for it to reach full capacity. The logic is such that there still exists deep-seated fundamental challenges indicating sluggish implementation or

¹⁶ David J. Donaldson et al, *Foreign Direct Investment in Infrastructure: The Challenges of Southern and Eastern Africa* (Washington D.C.: The World Bank, 1997), 23-27.

none at all of the policy amendments.¹⁷ However, in the case of Road Transport Development in India, the present policy as regards to FDI in road development denotes that the FDI equity limit permissible is 100% by way of the Automatic Route whereby no prior government approval is required for investment. This is encouraging on the part of the role of government since the investment climate is attractive to promote road development through FDI route.¹⁸

Further on, for India to attract FDI in Road Transport Development in the areas of construction, maintenance, and operation, the government has extended several of incentives to private construction companies. These include: Government financing of project viability surveys, land acquisitions, transfer of utilities, and land clearance; Government sanctioning of up to 100% foreign investment in a project; Government subsidies of up to 40% of the outlay; 100% tax holiday for 10 years out of 20 years following the onset of the project; duty-free importation of road construction equipment; and private firms are able to recover their investment in these road construction undertakings by charging tolls or by being paid a yearly annuity from the government;¹⁹ application of Model Concession Agreement (MCA) standardization; greater equitable allocation risks; strong dispute resolution mechanism; presence of a robust institutional

¹⁷ Ajaat Gunti, *Liberalization of Indian Economy: Issues Involving Scope of Foreign Direct Investment and Its Impact on the Indian Economy* (Hamburg: Institute for International Management, 2002), 81.

¹⁸ MoSRTTH, *Guidelines for Investment in Road Sector* (New Delhi: Government of India, 2009), 32.

¹⁹ Staff Research, *Competitive Conditions for Foreign Direct Investment in India* (USA: Office of Industries, US International Trade Commission, 2007), 3.7.

and legal set up to help investors; and revenue sharing in the form of negative grant and concession fees.²⁰

The FDI climate in Kenya in general, unlike that one of India, is yet to experience the vibrancy of investment activities that India enjoys currently. It has been observed that the intensity of FDI in Kenya has dwindled and has been sluggish in the recent past. There has also been noticed a disturbing development of foreign investor flight out of Kenya to other countries.²¹ It is therefore, a wakeup call for the Kenyan government to get back on the drawing board so as to guarantee that there is no further departure of foreign investors and more importantly to see to it that the FDI regime in Kenya is re-calibrated to attract FDI as an agent of economic growth. The poor performance of FDI regime in Kenya resulting to the foreign investor flight is on the account of its loss of FDI competitiveness. Factors contributing to this development include the risks related to: inadequate infrastructure, investor protection, crime and theft, contract enforcement,²² bureaucratic red tape, high cost of electricity, poor investment code and institutional factors.²³ These are areas that call for immediate attention from the government in regards to its policy environment. It is clear that the government has a role to play so as to attract increased FDI in general and in road transport development in particular.

²⁰ Dezan Shira et al, *Doing Business in India* (New York: Asia Briefing Ltd, 2012), 28.

²¹ Matthew Nyamwange, "Foreign Direct Investment in Kenya" (Master's Thesis), University of Nairobi, 2007), 2.

²² Ibid, 11.

²³ Daniel O. Abala, "Foreign Direct Investment and Economic Growth: An Empirical Analysis of Kenyan Data," *DBA African Management Review*, Vol. 4, No.1 (2014): 62-83.

With the above observations especially in respect to the FDI regime in Kenya, it can be concluded that FDI in Road Transport Development in Kenya is still virgin land in comparison to India. Therefore, the government of Kenya has a crucial role to play in regards to improving the investment climate in Kenya so as to attract FDI inflows in the areas of infrastructure development and the road sector in particular.

1.5 Budget Allocations for Road Transport Development: Problems and Challenges

In this section, the researcher attempted to shade light to the process of budget allocation of resources in the public sector which is in relation to this current study that features the Road Transport Development. This further highlighted the problems and challenges present in the process of allocation but more importantly a certainty that the government plays a direct role in regards to resource allocation and road transport sector.

To begin with, Rubin pointed out that the process of resource allocation through budgets is a multifaceted phenomenon that entails over time, the relation between political and technical interests, and deals with evaluations of public resource limitations and general expenditure administration. This scenario breeds up complexities especially when there are struggles between politicians who politicize government policy (prevalent in Developing Nations) and government bureaucrats who have the task of setting up budgets and administering them.²⁴ The end result of such complexities is that development agenda is slowed down considerably and in light to the current study, the progressive agenda of road development is hampered. It is therefore observed that resource allocation for road development is and can be problematic and a challenge in light of the above argument.

²⁴ Irene S. Rubin ed., *New Direction in Budget Theory* (USA: State University of New York Press, 1988), 1.

Financing the budgets allocation for Road Transport Development activities is core to the success and growth in the Roads sector. It has been established, especially in the Sub Saharan Africa, that there is prevalence of insufficient and unsteady flow of funds. This is because of stretched fiscal proceeds on the part of governments. It is further pointed out that the budget allocations for road maintenance seldom go beyond 30% of the obligation and it calls for superior revenue mobilization mechanisms for road development targets to be achieved.²⁵

As regards to the methodology of outlay funds for road development activities, there has been ambiguity on how and when should budget allocations be executed to reflect progressive results. This research exercise recognizes that this has been a problem and a challenge to budget allocations for road development. This is reflective from the suggestion of Heggie who points out that governments should implement allocation processes which are simple, transparent and that encourage consistency. The methodology could either comprise of a simple allocation formula, an indirect assessment of needs and a direct assessment of needs.²⁶

Another challenge that the Road Transport Development faces in Developing Nations is what is termed as, ‘Asset Management’. The Organization of Economic Co-operation and Development (OECD) provides that Asset Management for roads sector is, “A systemic process of maintaining, upgrading and operating assets, combining engineering principles with sound business practice and economic rationale, and providing tools to facilitate a more organized and flexible approach to making the

²⁵ Ian G. Heggie, “Management and Financing of Roads: An Agenda for Reform,” [article on-line]; Pp 3; <http://www.ssatp.org/sites/ssatp/files/publications/WorldBank-TechnicalPapers/TP275/TP275.pdf>; Internet; Accessed December 05, 2014.

²⁶ Ibid, 85.

decisions necessary to achieve the public's expectations."²⁷ Systems that are dedicated to Asset Management will therefore incorporate entirely the procedures, instruments, data and guiding principles essential to realize the objective of successfully managing assets.

The relevance of Asset Management Systems (AMS) to budget allocations for road sector especially in Developing Nations and in particular to Kenya and India, is such that AMS plays a role in road asset appraisals through valuing of road infrastructure, performance and monitoring so as to create clear need based assessments through which budget allocation policies can be made in the best possible effective manner. A clear example from the Kenyan experience is pointed out by Wasike when he states that, "...there is no maintenance policy for Kenya's road network; that development loans have not helped because they encourage construction of new roads and rehabilitation of existing infrastructure rather than better value, ongoing maintenance."²⁸ In view of this observation, AMS must have a place in the road sector since they will facilitate and raise the efficiency of developing international standard road infrastructure in Kenya and India to significantly support growth in these respective economies.

1.6 Land Acquisition

The current research recognized that land acquisition for infrastructure development and in particular road transport development is a major challenge for the governments and road developers. This is a common problem in underdeveloped and developing countries; India and Kenya are not an exception. Road development cannot take place when land as a natural resource is not available. The experience in India point

²⁷ OECD, *Asset Management for Roads Sector: Transport* (France: OECD Publication Services, 2001), 13.

²⁸ Wilson S.K. Wasike, *Road Infrastructure Policies in Kenya: Historical Trends and Current Challenges* (Nairobi: KIPPRA, 2001), 54.

out examples such as that State Road Development Corporations faced challenges from other allied government departments such as municipal corporations as well as the local population in the process of securing precedence from both public and private land owners so as to direct the land to road development projects.²⁹ The Kenyan experiences provides that land acquisition for development carries a huge socio-economic cost for rehabilitation and settlement of the displaced and this poses a challenge to the development agenda in general.³⁰

The process of land acquisition for road development projects results to delays that can stretch to a decade long period depending on the nature of the problem. Generally these acquisition problems revolve around the constitutional direction on land ownership rights in relation to the government policies on land acquisition, resettlement and rehabilitation as well as the government direction on compensation in the case of private land owners. Ultimately, more government reforms are needed to make easy the process of land acquisition for road development purposes.³¹ It is hereby recognized that the role of government in land acquisition issues is of great importance and therefore must be given due emphasis by working out modalities that promote smooth and faster land acquisition to promote road development projects in India and Kenya.

1.7 Statement of the Problem

India and Kenya are two undeveloped countries with the following backgrounds.

These are:

²⁹ Nicholas Hope et al eds., *Economic Reform in India: Challenges, Prospects and Lessons* (Cambridge: Cambridge University Press, 2013), 524.

³⁰ Cynthia C. Cook ed, *Involuntary Resettlement in Africa: Selected Papers from a Conference on Environment and Settlement Issues in Africa* (Washington D.C.: The World Bank, 1994), 51.

³¹ Nicholas, Hope et al eds., 524.

a) Historical

- i) India³² and Kenya³³ are countries that were founded on after the World War II i.e. after 1945. India was declared an independent nation in 1947 while Kenya was declared a republic in 1963. The age gap is 18 years.
- ii) Both India and Kenya had the same colonial master i.e. the British

b) Political

Both countries having had the same colonial master, India and Kenya therefore did inherit the political, administrative and social ideologies of the British and this therefore sets the two countries to be comparable.

c) Economic

Due to the nature of underdevelopment, both countries do need and have acquired technical and capital assistance from foreign developed countries. For example, the foreign financial institutions like Asia Development Bank (ADB), World Bank (WB) have played a role in the development of India in the areas of infrastructure development.³⁴ Similarly, Kenya does receive technical and financial assistance from the same development partners as India.

³² Hinduism Today, "India as a Colony 1850 to 1947" April/May/June 2010 [article online]; Available from http://www.hinduismtoday.com/education/Hinduism_History_1850-1947.pdf ; Internet; Accessed December 10, 2012.

³³ Library of Congress, "Country Profile Kenya" [article online]; available from <http://lcweb2.loc.gov/frd/cs/profiles/Kenya.pdf> ; Internet; Accessed December 10, 2012.

³⁴ Asia Development Bank, "Facilitating Infrastructure Development in India," [article online]; Available from http://finmin.nic.in/the_ministry/dept_eco_affairs/MI/IDP_India_publication.pdf ; Internet; Accessed December 10, 2012.

Having considered the above parameters of comparison, this analytical study purportedly sought to establish the role of government in regards to Road Transport Development by conducting a comparative study on the Budget Allocation in Road Transport Sector in India and Kenya from 2000 to 2010. The study further sought to address the negative externalities that are imposed on society by the Road Transport system. It also suggested possible solutions to these existing problems in an effort to ascertain as to why there is an incessant presence of slow economic growth and transport problems in the mentioned governments despite continuous allocations of resources in the same sector. The study also aimed at exploring ways that could help the both respective governments in attaining objectives and help planners and policy makers in meeting predefined plans in conformity with the expectations of the economic goals, policies and plans of the concerned governments.

1.8 Research Gap

Considering the preamble into this current study, an investigation into research work on the related literature indicated that substantial research has been done on various aspects of Transport sector but not on public finance allocation. Consequently, this was identified as a research gap and hence this study. Appending to this conclusion, the researcher recognized that resource allocation in public finance administration comprised of dynamics ambiguous in nature to the public and therefore it necessitated a deeper search in terms of analysis. On the basis of this knowledge, it therefore called for a study on the role of government in light of the process of Budget Allocation for Road Transport Sector and more especially in a comparative perspective between India and Kenya.

1.9 Objectives of the Study

The objectives identified by the researcher for the study included:

1. To study the Role of the Government in Transport Development System.
2. To study the need of road transport development in relation to the population and the area of the country and the gap in between the need and the actual reality.
3. To study the history of Transport Development System in India and Kenya till 2011.
4. To study the status of Road Transport of India and Kenya from Independence till date.
5. To study the budget allocations for Road Transport Development with special reference to India and Kenya.
6. To evaluate the various heads of the Road Transport Development budget in India and Kenya and appraise their performance.
7. To study the changes in percentage of budget allocations in Road Transport in regards to the total central Government budget.
8. To study the problems of Road Transport Development and suggest or prescribe solutions to resolve them.

1.10 Limitations of the Study

1. Because this comparative study is about the Analysis of Budget Allocations for Road Transport Development in India and Kenya from 2000 to 2010, the study is limited to secondary data and therefore limited to quantitative research. The data will be from Central Government budgets of India and budgets from Government of Kenya.

2. The study is also limited to a specific period of time which is 10 years i.e. 2000 to 2010. The researcher is emphasizing on this period because the study is for academic purposes and therefore cannot undertake a longer timeline.
3. Due to the system of governance in Kenya post Independence up to 2010, there are no State/County governments as is the case with the Indian, but only the Central government. Therefore, the research was limited to Central government budget allocations.
4. The area of Transport Sector Development involves investigating large volumes of data from multi-discipline sources. A thorough understanding of budget allocations for Transport Development requires the researcher to have entrée to historical documents. Within India, data is widely available but it is not the case in regards to Kenya.

1.11 Significance of Study

A study of this nature is of great significance as Transport Development is a critical issue in this two developing nations. It is a sensitive topic since the Transport Sector is the lifeline for economic development of the concerned governments. The benefits of this study are:

1. The study evaluated the externalities imposed on society by Road Transport and hence the role of government is significant in this regard.
2. The role of government through Transport policy leads to reducing social exclusion hence promote a more inclusive system of transport.
3. The need for effective co-ordination between Government and the public, financial institutions and government departments in creation of growth

impulse and spreading the effect in the process of economic development is strengthened.

4. Experts in budget allocations for Transport Development will find this study beneficial as it provides a comparative analysis of the two structural systems hence highlighting their benefits as well as unique features.
5. The study fosters the coordination and integration of various Transport Development programs to promote more rapid economic development.
6. The study furnishes relevant problem solving alternatives and solutions for problems related with budget allocations and Transport Development in general.

1.12 Hypotheses

The hypotheses formulated by the researcher for the study were:

1. The pressure for the need for development of road transport system in terms of quality and quantity leads the Government to increase the percentage of budget expenditure for Road Transport Development.
2. There is a similarity in the trends of budget allocations for Road Transport Development between India and Kenya during 2000 and 2010.

1.13 Methodology

In this study, the methodology that was employed involved research design, research area, data collection and analysis techniques. The comparative and analytical survey was confined to India and Kenya in East Africa with the major focus being the study on the Role of Government in budget allocations for Road Transport Development with emphasis given to the period between 2000 and 2010.

1.13.1 Research Area

The research area for this study was India and Kenya from East Africa. This study employed the purposive sampling method where by the sample of Government budgets of Road Transport Department/Ministry of India and Kenya are identified for the study.

1.13.2 Sources for Data Collection

This comparative yet analytical study used secondary data and the researcher visited the public libraries, University libraries, and economic research centers to obtain the data. Text books, annual reports from the government publications, the Government Civil Budgets (India and Kenya) formed a key source of data. Additionally, journals, magazines, and newspaper articles also provide pivotal information.

Research studies, reports, and publications from the Economic surveys of India and Kenya, Yearly plans of the Planning Commission, the Quarterly Bulletins of the RBI and Central Bank of Kenya, Transportation Quarterly, UNO Demographic Year Books, reports from Kenya National Bureau of Statistics (KNBS), the Central Statistical Organizations in India, and publications from the European Conference of Ministers of Transport (ECMT) and the Organization of Economic Co-operation and Development (OECD) and other establishments significantly contributed to this study.

1.13.3 Data Analysis and Interpretation

Since the study was central on a comparative exercise, the research depended on the content analysis in the study. The inferential statistical tools of analysis used included Regression analysis, Correlation analysis and Chi-Square Test analysis. The macro indicator, Gross Domestic Product (GDP) was also employed for analysis since the Transport sector significantly contributes to the GDP of the economy. Tables, graphs and

charts were utilized in this comparative exercise of Budget Allocations for Road Transport Development between India and Kenya to highlight the differences and similarities.

In studying the budget allocations for Road Transport Development for India and Kenya, the information obtained from the Secondary data sources was examined and percentages were computed. Quantitative aspects were incorporated in the form of statistical data and this was used to substantiate the theoretical information. The analysis of trends was presented in the form of tables, charts, and graphs. From the information acquired, the research objectives were answered by examining all the available data and other research findings.

1.13.4 Scope of the Study

The research study aimed at evaluating the budget allocation process for the India and Kenya and the likely benefits in promoting economic growth and development. The main aspects that were studied encompassed the civil budgets of the government Ministry of Transport Development. These entities were taken to represent the main areas of study, wherefrom a thorough comparative analysis was directed on these aspects and was assumed to reflect the required information to obtain necessary outcome.

1.14 Chapter Scheme

The study was divided into five chapters. The first chapter contains the introduction into the study and stressed on: the role of road transport to economic development; the role of Government in Road Transport Development in Europe and USA; Foreign Direct Investment (FDI) in Road Transport Development; Budget allocations for Road Transport-its problems and challenges; and highlighted on the role

of government in the issue of land acquisition for road development projects. The other areas in this chapter included the statement of the problem, objectives of the study, limitations to the study, the significance of the study, and hypotheses of the study as well as the methodology applied by the researcher.

The second chapter presented the review of literature. Areas of concern included the transport problem, impacts of transport development, transit economics, transport policy development, externalities of road transport, and resource allocation for road transport among many other related areas.

The third chapter focused on development of road transport through central Government budget allocation. The original position and current status of road transport in India and Kenya was an element of this chapter. The country profile of India and Kenya were also underscored. The other areas in this section included the externalities imposed on society by road transport in India and Kenya as well as the problems and the suggested solutions in the countries under study.

The fourth chapter presented the analysis of the data collected. The data was examined and inferential statistical analysis was done. The central government budgets of India and Kenya for Road Transport Development from 2000 to 2010 formed the main emphasis. This section also highlighted the findings of the study based on the objectives as well as hypotheses testing.

Lastly, the fifth chapter presented the summary of the whole study, showcasing the discussions and interpretations of the findings made out of the research, and a summary of the hypotheses testing. Further, the conclusions, policy recommendations and suggestions of the study were also highlighted in this section.

References

1. Abala, Daniel O. "Foreign Direct Investment and Economic Growth: An Empirical Analysis of Kenyan Data," *DBA African Management Review*, Vol. 4, No.1 (2014): 62-83.
2. Bhaduri, Sukla. *Transport and Regional Development: A Case Study of Road Transport of West Bengal*. New Delhi: Concept Publishing Company, 1992.
3. Cook, Cynthia C. ed. *Involuntary Resettlement in Africa: Selected Papers from a Conference on Environment and Settlement Issues in Africa*. Washington D.C.: The World Bank, 1994.
4. Dell, Ronald M. et al. *Towards Sustainable Road Transport*. United Kingdom: Elsevier Inc., 2014.
5. Donaldson, David J. et al. *Foreign Direct Investment in Infrastructure: The Challenges of Southern and Eastern Africa*. Washington D.C.: The World Bank, 1997.
6. ECMT. *Social Aspects of Road Transport*. France: OECD Publication Services, 1999.
7. _____. *Road Safety Performance: National Peer Review-Lithuania*. France: OECD Publication Service, 2004.
8. Gunti, Ajaat. *Liberalization of Indian Economy: Issues Involving Scope of Foreign Direct Investment and Its Impact on the Indian Economy*. Hamburg: Institute for International Management, 2002.
9. Hope, Nicholas. et al. eds. *Economic Reform in India: Challenges, Prospects and Lessons*. Cambridge: Cambridge University Press, 2013.
10. Mathur, B. L. *Towards Economic Development*. New Delhi: Discovery Publishing House, 2001.
11. Moran, Theodore H. *Foreign Direct Investment and Development: Launching a Second Generation Policy Research*. Washington D.C., Peterson Institute for International Economics, 2011.
12. MoSRT. *Guidelines for Investment in Road Sector*. New Delhi: Government of India, 2009.
13. Nilsson, Mans. et al. eds. *Paving the Road to Sustainable Transport: Governance and Innovation in Low-Carbon Vehicles*. New York: Routledge, 2012.

14. Nyamwange, Matthew. "Foreign Direct Investment in Kenya" (Master's Thesis), University of Nairobi, 2007.
15. OECD. *Asset Management for Roads Sector: Transport*. France: OECD Publication Services, 2001.
16. Queiroz, Ceaser and Surhid Gautam. *Road Infrastructure and Economic Development: Some Diagnostic Indicators*. Washington D.C.: World Bank, 1992.
17. Rodrigue, Jean-Paul. et al. *The Geography of Transport Systems 3rd ed.* New York: Routledge, 2013.
18. Rubin, Irene S. ed. *New Direction in Budget Theory*. USA: State University of New York Press, 1988.
19. Shira, Dezan. et al. *Doing Business in India*. New York: Asia Briefing Ltd., 2012.
20. Staff Research. *Competitive Conditions for Foreign Direct Investment in India*. USA: Office of Industries, US International Trade Commission, 2007.
21. Transport Research Board. *Building the Road Safety Profession in the Public Sector: Special Report 289*. USA: National Academy of Science, 2007.
22. Vaidya, B. C. ed. *Geography of Transport Development in India*. New Delhi: Concept Publishing Company, 2003.
23. Wasike, Wilson S. K. *Road Infrastructure Policies in Kenya: Historical Trends and Current Challenges*. Nairobi: KIPPRA, 2001.

Websites

1. Asia Development Bank, "Facilitating Infrastructure Development in India," [article online]; Available from http://finmin.nic.in/the_ministry/dept_eco_affairs/MI/IDP_India_publication.pdf; Internet; Accessed December 10, 2012.
2. Heggei, Ian G. "Management and Financing of Roads: An Agenda for Reform," [article on-line]; Pp 3; Available from <http://www.ssatp.org/sites/ssatp/files/publications/WorldBank-TechnicalPapers/TP275/TP275.pdf>; Internet; Accessed December 05, 2014.
3. Hinduism Today, "India as a Colony 1850 to 1947" April/May/June 2010 [article online]; Available from http://www.hinduismtoday.com/education/Hinduism_History_1850-1947.pdf; Internet; Accessed December 10, 2012.

4. Library of Congress, "Country Profile Kenya" [article online]; Available from <http://lcweb2.loc.gov/frd/cs/profiles/Kenya.pdf> ; Internet; Accessed December 10, 2012.

CHAPTER 2

REVIEW OF RELATED LITERATURE

In this section, we will consider the literature that is related to the current study. By reflecting on the studies that are related to the current research exercise, this will augment to the researcher's logic as well as add value to the research exercise in a bid to construct a healthy ideology as to the role of government in light to Transport Development. Therefore this section will mainly cover the following important areas of transport development: Transport problem, Transport Economics, the Impacts of Transport Development, Externalities of Road Transport, Role of Government in Transport Development, Resource Allocation for Road Transport Development and as well as Transport Policy Development.

2.1 Transport Problem

To begin with, Adib Kanafani comments that the need for transportation arises from the interaction among social and economic activities spread out in space. He further comments that this situation is influenced by the interrelation between the diversity of the activities and the complexity of their patterns and thus to necessitate the determinants of transportation needs¹.

Henri L. Beenhakker et al in their work '*Rural Transport Services: A Guide to their Planning and Implementation*' observe that the definitive goal of transport infrastructure is a balanced network of various components that service, yet they do not surpass the needs of the population in the most cost effective manner. They further point

¹ Adib Kanafani, *Transportation Demand Analysis* (New York: Mc Graw-Hill Book Company, 1983), 1.

out that the smallest branches of the network tree i.e. the low volume feeder roads that join the rural population are the weak link in many developing countries.²

Zipporah Bwibo in her study reveals that the magnitudes of travel demand as well as the nature of distribution in space are key factors for consideration when planning for transportation. The researcher of the current study agrees with her to hold that the location, capacity as well as the designs of the elements of transportation are determined based on the demand for travel.³

Alan Black in his work, '*Urban Mass Transportation Planning*' notes that for some time now, there have been talks about the "Urban Transportation Problem" or otherwise referred to as the, '*Urban Transportation Crisis*'. He continues to suggest that the urban transport problem is actually a multifaceted bundle of interconnected problems and challenges that can be generally grouped into: congestion, mobility and ancillary impacts⁴.

A study entitled, '*Urban Transport Systems Today: A Variety of Complexity*' observes that the experiences of many cities in the world in regards to the transport development problem denote that it is impossible to decipher the urban transport problem by increasingly constructing of urban roads though in doing so it would aid in meeting the exigency for vehicle growth in the short term to provide a quick-fix to the road transport pressure. To drive the point home, the study highlighted the observations of the

² Henri L. Beenhakker, S. Carapetis, L. Crowther and S. Hertel, *Rural Transport Services: A Guide to their Planning and Implementation* (London: Intermediate Technology Publications, 1987), 113.

³ Zipporah Bwibo, "Planning for Bicycle Public Transport in Rural Areas: A Case of Butala Division, Busia District" (Thesis for M.A Planning), University of Nairobi, 2001, 36.

⁴ Alan Black, *Urban Mass Transportation Planning* (New York: Mc Graw-Hill, Inc., 1995), 1-2.

experience of Kunming City in China which proved that by basically providing a complete public infrastructure does not solve transport problems. The observations from the study case point out that the ‘Public Transport Priority’ should be an integrated development strategy i.e. all the involved actors are to be active in disseminating the policies of public transport priorities. This process will secure the participation of the actors especially the public in gaining understanding and thus provide a platform to support the policies that will help solve the transport related problems.⁵

Emily and Roger cite a unique challenge posed by the Transport Problem. They suggest that the economic instruments time and again do fall short in accentuating man’s insufficient knowledge in regards to the inter-correlation between Transport and Economic Development. Further, they underscore the lack of capability to predict the long term impacts or spatial consequences which have assumed a superior place in decision making systems in the relevant and concerned institutions.⁶

Johannes Baur remarks that there is a series of problems that are prevalent in the transport market, these problems as noted are (i) the unequal growth in different modes of transport, (ii) the congestion on the main road and rail routes in towns and airports, and (iii) the harmful effects on environment and public health.⁷ As noted, it is clear that these problems are prevalent in developed nations as well as the developing nations of which the current study is focusing on i.e. India and Kenya as case studies.

⁵ G. Jonson and E. Tengstrom, eds., *Urban Transport Development: A Complex Issue* (Germany: Springer, 2005), 96-100.

⁶ Emile Quinet and Roger Vickerman, *Principles of Transport Economics* (Massachusetts: Edward Elgar Publishing, Inc., 2004), 343.

⁷ Caralamopo Focas, ed., *Transport Issues and Problems in Southeastern Europe* (England: Ashgate Publishing Ltd., 2004), 15-16.

A study by Lo and Szeto on '*Planning Transport Network Improvements over Time*' affirms that the transport network design is relevant to the relationship between supply and demand. These interactions further involves intricate subjects such as: (i) the objective of the transport network design, (ii) the travel and route choice behavior of travelers, (iii) the means of financing, and (iv) demand projections. The study further pointed out that transport network design is traditionally devised as a bi-level programming problem i.e. the upper level being the network planner's problem while the lower level is the network user's problem.⁸

When the question of measurement of the demand for passenger transport arises, Spurling supplies a solution by suggesting that there are various ways in which measurement of passenger transport could be determined. These could be determined either by employing passenger kilometers, vehicle kilometers and passenger journeys. He however cautions that the most fitting methodology will hinge on how the information will be applied. For example, for transport planners, the determination of the capacity of road system will engage the number of vehicles and the type of vehicles at a given time as opposed to the aggregate number of people travelling at the same time.⁹

O'Sullivan comments that in poorer countries the main challenge is lack of infrastructure and services. Due to this, transport costs are very high which ultimately undermines the expansion of commercial agriculture and promotes the eroding of market prices due to the long distances between the hither lands and the urban markets. He concludes to state that critical problem is how to ultimately take advantage of the scarce

⁸ Der-Horng Lee, ed., *Urban and Regional Transportation Modeling* (United Kingdom: Edward Elgar Publishing Limited, 2004), 157.

⁹ David J. Spurling, *Introduction to Transport Economics: Demand, Cost, Pricing and Adoption* (Florida: Universal Publishers, 2010), 32.

transport facilities in widening communication and commerce and how to pay for it. Further observations are such as that in developing and developed countries, the problem is striking a balance between the fabric of cultural landscape and the need for mobility.¹⁰

Bunting maintains that the most apparent problem with public transport is that there is a failure in marketing strategy. That is to imply that public transport is of inadequate financial, economic, social or environmental value i.e. it falls short in delivering to the public what it most values and undermines the efforts to preserve and expand its services.¹¹

Meyer asserts that the urban transport problem is a persistent phenomenon that has produced blot and complexity for urban dwellers in that it breeds all manner of distress and harm such as pollution, overcrowding, dirt, din and delays. Further still, he argues that the situation worsens since the urban transport developments appear to be self defeating in that they generate more problems as they solve.¹²

In her paper, *'Transport and Social Exclusion: The UK Perspective'* Karen Lucas, focused on the links between social exclusion and transport as understood in the United Kingdom with the effort of describing how policy aimed to address the issues identified and deliver a more inclusive system of transport. Karen concluded that, "The main policy and spending emphasis must be on improving accessibility for those who are excluded from the present system rather than further supporting the high mobility, car dependent

¹⁰ Patrick O'Sullivan, *Transport Policy: An Interdisciplinary Approach* (New Jersey: Barnes & Noble Books, 1980), 9.

¹¹ Mark Bunting, *Making Public Transport Work* (Quebec: McGill-Queen's University Press, 2004), 12.

¹² Stephen Stares & Liu Zhi, *China's Transport Development Strategy: Proceeding of a Symposium in Beijing* (Washington D.C.: The World Bank, 1996), 27.

transport culture of those who already reap the greatest rewards from it.”¹³ In light of this, it is therefore important to promote a more inclusive approach in transport development such that the magnitude of social exclusion is reduced in the efforts of tackling the transport demand problem.

2.2 Transport Economics

In considering the economic importance of transport, Colin G. Bamford suggests that the significance of transport activity can be shown by the total demand for passenger and goods transport, employment in transport operations and related activities, such as the current and capital expenditure by consumers, households and as well as the government.¹⁴ From this observation, it is understood that the needs of people and the needs of the business are responsible in creating the demand for transport.

Colin G. Bamford further suggests that there is a transportation cost that is attached to the demand created for transport needs. It is therefore of importance to point out this costs for they have a relevance to transport. These are: (i) Private costs which refer to the opportunity costs that are used up by the a single unit of firm or individual whereas; (ii) External costs comprise of the spillover effects created due to the unbalance of private costs and social costs; and (iii) Social costs which refer to the opportunity costs that the whole society incurs in regards to transport.¹⁵

¹³ Karen Lucas, “Transport and Social Exclusion: The UK Perspective,” [Article on-line]; Available from <http://www.villeenmouvement.com/telechargement/transportuk.pdf>; Internet; Accessed on October 31, 2012.

¹⁴ Colin G. Bamford, *Transport Economics*. 2nd ed. (Oxford: Heinemann Educational Publishers, 1998), 11.

¹⁵ *Ibid*, 19.

In regards to the relationship between Transport and Public Debt, Emile and Roger proposes that transport is both a major contributor to and recipient from the national public budgets. In considering the role transport plays in light to that contribution, it is observed that fuel taxes especially through road haulage, license fees along with other specific charges as well as the direct and indirect taxes that accrue from transport are the major contributors to the national public budgets.¹⁶

Jan Burnewicz states that social problems are present in all modes of transport and that these problems are influenced by various factors such as the sector's and the operator's financial situation, the government aid and social policy, the implementation process of government regulations, the unemployment rate in the country, the sector's structure, as well as the intensity of competition and working conditions.¹⁷ To this end, it therefore calls for a thorough address into the problems that are associated with the Transport sector.

A study conducted by Cauvery and Nayak on '*Social Responsibility verses Commercial Objectives*' in light to the Nationalized Bus Transport Systems, the researchers remark that road transport is a valid infrastructure and a dominant mode of transport that plays an important role in aiding the development process and sustenance of the economy. They further go on to observe that road transport is both the foundation

¹⁶ Emile Quinet and Roger Vickerman, *Principles of Transport Economics* (Massachusetts: Edward Elgar Publishing, Inc., 2004), 13.

¹⁷ ECMT, *Social Aspects of Road Transport* (France: OECD Publishing Services, 1999), 31.

and consequence of economic development that offers a number of returns such as accessibility, flexibility, reliability and competitive resource cost.¹⁸

Considering the interdependence of transport, Spurling points out that different mode of transport are often interdependent. He further argues that the interdependence can even be within the same mode of transport. Therefore due to this process, the interdependence of transport creates a competition for the same facilities on the road network where already the traffic is increasing and this will ultimately add to the time taken by travelers.¹⁹

In a correlation study by the European Council of Ministers of Transport (ECMT) on transport and growth, it is held that transport is regarded as a variable in ascertaining of economic prosperity. The function of transport in the growth model could be through the following: (i) as an investment and productivity catalyst which treats infrastructure as a direct short into the economy as an supplemental factor in the production function. Consequently in this manner, transport will have an outcome of increasing the level of economic activity and also promote the activity of private production; (ii) as a contributor to market assimilation which implies that decreased transport costs augment export prospects, leading to improved output. This however, sets up the risk of import competition, which leads to reorganization and the pressure to raise the levels of competence in industry thus reducing production costs; (iii) as an endogenous contribution to total factor productivity such that the developments of transport will have

¹⁸ P. Jegandishi and G. John Gunaseelan, eds., *Indian Transport System: An Appraisal of Nationalized Bus Service* (New Delhi: Mittal Publications, 1994), 25.

¹⁹ David J. Spurling, *Introduction to Transport Economics: Demand, Cost, Pricing and Adoption* (Florida: Universal Publishers, 2010), 13.

a bearing on the rate of innovation and technology reassignment and hence the expansion of total factor productivity.²⁰

It is of significance to consider the factors that influence transport demand. According to Organization of Economic Corporation and Development (OECD), the aspects that are crucial to the growth of freight transport especially in the EU are the integration of the European Market, the liberalization of the transport market more especially in road transport sector, whereas the financial outlay of the freight has remained comparatively minimal. These conditions have made it possible for the expansion of more intricate trading networks, and by further exploiting the benefit of the elimination of cross-border barriers and various labor costs in the EU block.²¹

Macroeconomic cross-country studies by the World Bank point out that investing in transport fosters growth by raising the social return to private investment which is devoid of crowding out other productive investment. A few named benefits of transport investments are such as lowered production costs, increased access to markets and credit, improved labor markets efficiency, expansion of domestic and international trade as well as increased movement of freight and people.²²

In his research article, '*A Review of Issues in Transit Economics*', Gwilliam K., observes that, “some issues-such as the relationship between transit and development – are universal, while others – such as the role of small vehicles and the informal sector – impact only developing countries.” He further goes on to conclude that, “Transit is

²⁰ ECMT, *Transport and Economic Development: Round Table 119* (Paris: OECD Publishing Services, 2002), 152-157.

²¹ OECD, *Decoupling the Environmental Impacts of Transport from Economic Growth* (Paris: OECD Publishing Services, 2006), 24.

²²The World Bank, *Sustainable Transport: Priorities for Policy Reform* (Washington D.C.: World Bank Publications, 1996), 1.

critical to the achievement of a wide range of social, economic and environmental objectives and therefore, needs appropriate institutions to ensure its integration with the strategic management of the rest of urban development policy.”²³

2.3 Impact of Transport Development

Researchers Cowie and Ison observe that the environment, transport and economic growth are intricately linked by natural resources, waste products and amenity services. The researchers argue that the transport sector utilize natural resources particularly oil which is the leading supplier for transportation; that waste products including transport emissions are produced such that the natural environment is regarded as a dumping ground for waste products that occur at a zero economic cost; that amenity services correlates to natural environment which affords the households with environmental rewards such as recreational space and national parks. To this end, there is a correlation between the economic activities, related transport needs by households and institutions in terms of transport emissions.²⁴

In a World Health Organization (WHO) publication, it is reported that road traffic injuries are a major but neglected global public health problem. The report continues to suggest that it requires concentrated efforts for effective and sustainable prevention. However, the rationale for the argument is such that people engage themselves on a daily

²³ K. Gwilliam, “A Review of Issues in Transit Economics,” [article online]; Internet, Available from; [http://ideas.repec.org/a/eee/retrec/V23Y2008ilp\\$-22.html](http://ideas.repec.org/a/eee/retrec/V23Y2008ilp$-22.html); Internet; Accessed November 05, 2012.

²⁴ Jonathan Cowie et al, *The Economics of Transport: A Theoretical and Applied Perspective* (Abingdon: Routledge, 2010), 199-200.

basis with the systems of road transport which has been observed to be the most complex and the most dangerous.²⁵

In the same report by WHO, it is noted that estimating the cost to society of road crashes is an important aspect because firstly, it plays a role in raising awareness of the seriousness of road crashes which is considered as a social problem, secondly, it facilitates in the comparative studies of road traffic crashes and other causes of death and injury, and thirdly, that the scientific assessments of the cost will enable priorities between different interventions to be made, using cost-benefit methods.²⁶

In a study about '*Transport and Land Development*', Vergil and Frank hold that transportation and land development have been closely bound from generation to generation. The researchers also suggest that there are factors that play a role in shaping the dynamics of land development to eventually create a multifaceted nature of the problem. These factors include: various Government policies at national, state and local levels; changes in family incomes; transportation technology and related cost structure; transport system changes and the level of service provided by the urban transport system.²⁷

According to a study by the OECD on the '*Impact of Transport Infrastructure Investment on Regional Development*', it is noted that there is major potential for enhanced efficiency, output and economic integration of different regional economies which are connected by the same transport infrastructure. The study highlighted the

²⁵ Magic Pedel, Richard Scurfield et al., eds., *World Report on Road Traffic Injury Prevention* (Geneva: World Health Organization, 2004), 3.

²⁶ Ibid, 47-48.

²⁷ Vergil G. Stover and Frank J. Loepke, *Transportation and Land Development* (New Jersey: Prentice Hall, 1988), 1-3.

contributions and benefits from the ease of trade tariffs and barriers in single regional market. It is further noted that the effect of reduced overheads on opportunities for both imports into and exports from the single regional market will foster competition, consequently boosting efficiency in manufacturing and in production. More directly, the contraction in transport costs can result to flow-on and to progress in efficiency by means of reaping from the economies of scale. Therefore, it can be concluded that the fundamentals of such market efficiencies evolve from improved transport infrastructure.²⁸

Far from that, it is of importance to point out that the improved transport infrastructure and the role played by the process of transport infrastructure investment contribute critically in addressing the problem of social exclusion. Therefore in the provision of improved transport infrastructure such as better public transport as well as better pedestrian and cycling facilities will promote social inclusion. However, it is important to note that since social exclusion is a complex phenomenon, transport itself will not tackle the problem but will play a sufficient role in addressing the same.²⁹

In a study conducted by G.S. Badigar and K.R. Badigar on *'Impact of Transport Development on Industrialization in Goa'*, India for a period of 30 years from 1961 to 1991, the study showed that the transport development system played a key function as an artery for the movement of men and goods between the region for the revitalization of economic health of Goa from a overwhelmed state of economy, especially at the end of 1961. The study analyzed the growth trend of transport, its efficiency, and structural indices of transport network and the correlation between transport and industry in regards

²⁸ OECD, *Impact of Transport Infrastructure Investment on Regional Development* (Paris: OECD Publishing Services, 2002), 53.

²⁹ Ibid, 56.

to network efficiency indices. The study also observed that there was increased need for transport particularly after liberalization of the Indian economy in 1991 and that the rapid industrialization in Goa was primarily attributed to an excellent natural harbor, an all weather port and a well developed transport system among other factors.³⁰

Todd Litman in his policy paper, *'Evaluating Transportation Economic Development Impacts'*, comments in the Executive Summary that, "Transportation policy and planning decisions tend to support economic development to the degree they increase efficiency by reducing unit cost (cents per tone-mile or dollars per passenger-trip) and favoring higher value travel (emergency, freight, service, business travel and high occupancy vehicles) over lower value travel. Policies that reflect efficient market principles (suitable consumer options, cost-based pricing, efficient prioritization, and neutral public policies) tend to support economic development".³¹

Sinha and Labi observe that there are generally two categories of impacts that transportation infrastructure exert on economic development. These are: (i) impact allied to the whole part of the economy such as economic output, gross regional product, value added, personal income and employment; (ii) impact associated with the precise facets of the economy such as productivity, capital investment, property appreciation and fiscal impacts that consist of tax revenues and public expenditure.³²

³⁰ Balkrishna C. Vaidaya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Pvt. Ltd., 2003), 251-263.

³¹ Todd Litman, *Evaluating Transportation Economic Development Impacts* (USA: Victoria Transport Policy Institute, 2010), 2.

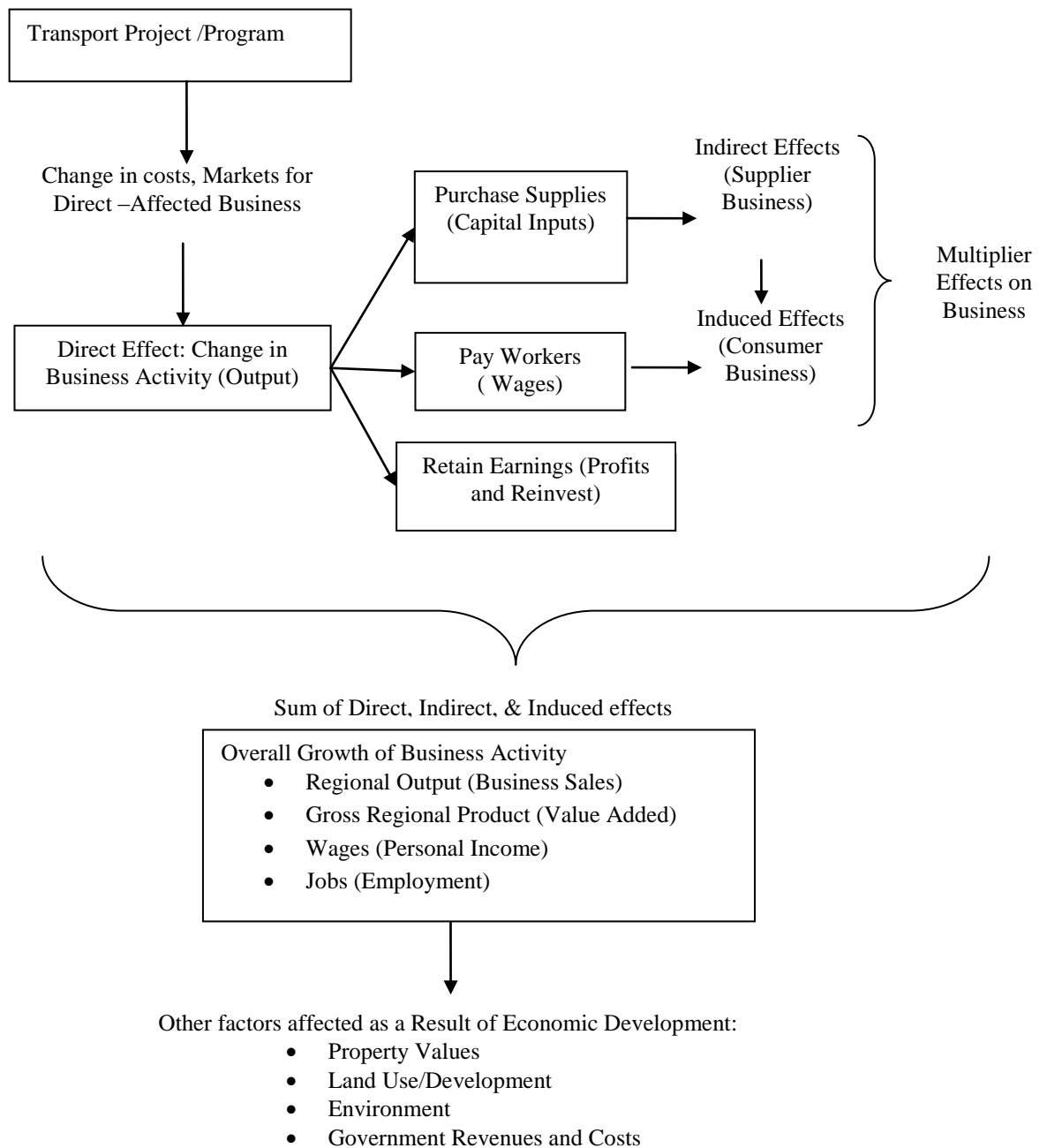
³² Kumares C. Sinha and Samuel Labi, *Transportation Decision Making: Principles of Project Evaluation and Programming* (New Jersey: John Wiley & Sons, 2007), 229.

Sinah and Labi further point out that there are mechanisms in which the transportation investments own an effect on the economic development. These mechanisms are: (i) direct mechanism that consists of the reduced transport costs accessible to consumers of better transportation facilities, better accessibility to markets, consequently bringing in the gains of reduced business overheads and enhanced productivity; (ii) indirect mechanism involve a substantial adjustment in activity because of the direct effects that will in turn necessitate an impact on secondary units such as the area industries that distribute goods and equipment to businesses that are affected directly; (iii) induced mechanism suggest that raised personal wages in a region may encourage enlarged spending which will further stimulate benefits to business that supply utilities, groceries, apparel, communication and other consumer services; (iv) dynamic mechanism consist of long term adjustments in economic development and associated structures such as business locations patterns, workforce, labor costs, prices, and resulting land use changes. These changes in turn will stimulate income and wealth in the concerned region.³³

Glen Weisbrod agrees with Sinha and Labi that transportation investment projects exert an effect on to the whole economy i.e. the macros and micros of the economy. He further adds that what Sinha and Labi point out to be mechanism of effects, he addresses them to be measurement issues i.e. impact measures as illustrated in Fig.2.1 below.

³³ Kumares C. Sinha and Samuel Labi, *Transportation Decision Making: Principles of Project Evaluation and Programming* (New Jersey: John Wiley & Sons, 2007), 231.

Fig. 2.1: Types of Economic Development Impacts³⁴



³⁴ Glen Weisbrod, *Current Practices for Assessing Economic Development Impacts Transportation Investments: A Synthesis of Highway Practice* (Washington D.C.: Transportation Research Board, 2000), 10.

Button and Reggiani conducted an investigation by means of ISI Web of Science to locate 55 studies of a 10 year period from 1999 to 2009 that presented empirical evidences with reference to the correlation linking economic growth and transport infrastructure investment. These studies comprised an array of geographic backgrounds, such as developed to developing countries at nationwide, regional, and local levels extending over various time cycles. It is observed that 43 of the 55 studies stated that investment in transport development held a positive effect on several measures of economic growth, whereas the other 12 studies held that there were no impact or negative effects. For the purpose of this current study, it is of significance to highlight the findings of the 12 studies that stated a negative impact of transportation investment in economic growth. The findings are as follows:

- i. Public investment is inherently wasteful; all investment should be private
- ii. Public investment could be more productive if government was more efficient (e.g. ineffective policies, byzantine funding structures, bloated costs, corruption)
- iii. Other needs (education, healthcare, social service) are more important
- iv. There are negative spillovers on adjacent regions (zero-sum effect). Transportation investment (especially highways) has negative impacts on the environment (energy consumption, sprawl, open space, and habitat encroachment).³⁵

In a study linking transport investment to poverty reduction, it proposes that transport investment will bear the maximum effect on the poor people when other

³⁵ Kenneth Button and Aura Reggiani, *Transportation and Economic Development Challenges* (United Kingdom: Edward Elgar Publishing Limited, 2011), 52-61.

development structures are also in place. The study further stresses on the necessity of the government to deal with both infrastructure and services in transport planning, institute civic accountability for poverty outcome and foster public contribution in developmental planning and engagement to provide for transport needs.³⁶

David Banister argues that any significant transport investment particularly in a city will have a general impact on the degree of business activity in the following manners: to begin with, there will be relocation decisions by business entities as an outcome of transport investment consequential to the attraction of additional industrial and commercial business activity into the area. He however also notes that relocations are not a comprehensive social benefit since they are merely transfers attached with incremental investment for repositioning which results to the growth of productivity in labor and capital. Secondly, there will be a decrease in production costs realized by reduced transport costs particularly related to road construction. In addition to that, there is an implied impact of diminished transactions costs that are allied to administration, organization, procurement and advertising; and lastly, there is an expansion of customer accessibility though it is noted to be only a spatial redistribution of the purchasing power within the city.³⁷

Prabha Ranade affirms that the impact of transport infrastructure on regional economic development has substantially been established not only significantly but also of a key positive influence. Infrastructure development affords a drive for population expansion and urbanization of the region. Transport corridors invite industrial

³⁶ Cynthia C. Cook, ed., *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction* (Philippines: Asia Development Bank, 2005), 10.

³⁷ David Banister, ed., *Transport and Urban Development* (London: E&FN Spon, 2005), 170.

development and determine the land use. The foremost effect of recent trends of transport on the environment is evident in the expansion of tourism. The positive input of infrastructure to economic growth and development takes place by way of intensified investments, rise in employment, enhanced output, and increased income in a series of “cumulative causation”.³⁸

In a paper by Tetsu Kawakami et al entitled, “*Assessing Impact of Intelligent Transportation System (ITS) on Japan’s Economy using a Computable General Equilibrium Model (CGEM)*” pointed out in general that the anticipated gains of ITS on the economy included: decreased congestion, substantial cut in air pollution and other ecological problems, promotion public safety, enhanced entrée to travel and transit information, and expenditure savings to transporters, transit operators, toll systems, and government entities in terms of time savings. Besides that, ITS augments the volume of transport network, this may possibly prompt an expansion in automobile use and as a result, there will be further pollution from the emissions and additional byproducts related with it.³⁹

In pursuit of the question of transport technology and its impact, Angela Hull agrees with Tetsu Kawakami et al on its impact on transport but further points out that future advancement owing to the penetration of Information and Communication Technology (ICT), it is anticipated that transport systems are to upgrade the quality of service which can be accessible to car drivers by way of automatic vehicle guidance

³⁸ Prabha S. Ranade, *Infrastructure Development and Its Environmental Impact: Study of Konkan Railway* (New Delhi: Concept Publishing Company, 2009), 11.

³⁹ Tetsu Kawakami et la, “Economic Impacts of Intelligent Transportation System: Innovations and Case Studies” *Research in Transportation Economics*, Vol. 8 (2004), 525-547.

mechanisms, intelligent speed control and dynamic route-real time information. However, Angela Hull cautions that the process of assimilation of the ‘new’ transport technology in regards to the opportunities of speed and mobility it offers is still a concept in the distant future for the reasons that a huge majority of the public are excluded by circumstances from the anticipated benefits of ICT.⁴⁰

Sunder and Ghate in their study on, ‘*Transport and Energy: The Indian Perspective*,’ observe that a growing population, economic expansion, and structural changes in the Indian economy have necessitated to a swell in transport demand over the last thirty years. It is further pointed out that the rising need for road transport associated with speedy urbanization and motorization has given to the strong dependence of the transport sector on fossils energy and has caused significant misgivings about energy security and the environment status. The development of the transport sector in India remains skewed in preference to road transport and this persistent expansion has raised questions in regards to air and noise pollution, congestion, road safety, etc. Sundar and Ghate therefore conclude that since the transport sector is a chief contributor of CO₂ to the environment, more deserving consideration and funding ought to be accorded to the sector. It is therefore of key to incorporate transport in the climate change discussions and involve climate change affairs in transport planning to mitigate ingenious and innovative measures to finance sustainable transport projects.⁴¹

⁴⁰ Angela Hull, *Transport Matters: Integrated Approaches to Planning City-Regions* (Abingdon: Routledge, 2011), 25.

⁴¹ Werner Rottengatter et al, eds., *Transport Moving to Climate Intelligence: New Chances for Controlling Climate Impacts of Transport after the Economic Crisis* (New York: Springer, 2011), 158.

Christine Kessides states that various investigations in developing nations have indicated that rural (farm to market) have a major impact in advancing market settings and bringing down operational costs. It is further noted in these investigations that more or less half of the marketing overheads of agricultural goods is ascribed to transport as is the case in Nigeria where 30% to 40% of operation costs are allied to transport. Studies of the effects of transport networks on agricultural marketing maintain that the gains of investments in enhanced transport systems are greatly determined by the policy administration governing crop pricing, market control, and environment of competition in transport. It is therefore concluded that market transparency in addition to extensive entree to market information by way of transport and communication avenues are fundamental in designing and establishing a competitive market structure.⁴²

2.4 Externalities of Road Transport

In this section, more light will be thrown to the concept of externalities and its relationship with Road Transport. To begin with, Ravinder Batta points out that those externalities from Road Transport operations are of two categories. These are: positive and negative. He further elucidates that the positive externalities occur as a result of public superior quality of the transport infrastructure. This is to state that the positive externalities consist of the external economies that are around the single economic units. This in essence is a basic result of the transportation of goods and services due to construction of road infrastructure. On the other hand, negative externalities entail the

⁴² Christine Kessides, *The Contributions of Infrastructure to Economic Development: A Review of Experience and Policy Implications* (Washington D.C: World Bank Publications, 1993), 14.

effects of road transports such as congestion, road accidents, and pollution among other things.⁴³

Dieter Schmidtchen et al categorically point out in their research, '*Transport, Welfare and Externalities*', that there are three alternatives that can be employed by the Policy Makers on how to optimally bring down the variance over the utilization of the resource in light to those who use the environment to supply transport services and those that seek out to put into effect the environment for the purposes of housing, leisure activities, aesthetic or other industrious courses. These options include: (i) transport services to cut down the environmental harm obligated on others, pay taxes or pay damages to victims, (ii) other users of the environment to decrease the harm suffered or pay transport services to lessen it, (iii) the government to devote financial outlay in infrastructure to prevent the incidence of harm.⁴⁴

In a research work focusing on the '*Review of Externalities in the Transport Sector*', Andre De Palma et al point out an exhaustive list of externalities caused by all modes of transport such as congestion, traffic safety, air pollution, noise and climate change.⁴⁵

⁴³ Ravinder N. Batta, *Economics of Road Transport* (Delhi: Kalpaz Publications, 2008), 81.

⁴⁴ Dieter Schmidtchen et al, *Transport, Welfare and Externalities: Replacing the Polluter Pay Principle with the Cheapest Cost Avoidance Principle* (United Kingdom: Edward Elgar Publishing Ltd., 2009), 4.

⁴⁵ Andre De Palma et al, eds., *A Handbook of Transport Economics* (United Kingdom: Edward Elgar Publishing Ltd., 2011), 326.

Table 2.1: Most Commonly Considered External Costs of Transport

	Source	Public Abatement	Feedback	Nature of the MEC(Marginal External Cost)	Policy Instruments Used
Congestion	Too many users of the same facilities increase in-vehicle travel cost and schedule delay costs	Capacity (road, airport, rail platforms etc)	Negative: more congestion decreases travel demand	Mainly time and schedule delay costs	Congestion pricing, gasoline taxes regulation (truck delivery times)...
Traffic Accidents	More intensive or more mixed use influences the average probability and severity of accidents	Adaptation of road equipment, emergency services, etc.	Negative: Larger risk of accidents, decreases travel demand	Mainly health, loss of life, material damage	Traffic regulations (max speed and so forth) Pricing (experiencing rates of insurance premiums)
Air Pollution	Exhaust of combustion engines (car, bus, trucks, airplane, power stations)			Mainly health, loss of life	Standards on car emissions and quality of fuels (sulfur contents of gasoline and diesel)
Noise	Vehicles, trains, airplanes	Noise walls, more silent road surfaces, tire design		Discomfort, health	Standards on cars, banning of use of certain equipment at night, tradable permits for night flights
Climate Change	Fossil fuels use by vehicles, diesel fuel-powered trains, airplanes			Long-term disruption of climate (sea level, cooling costs, water supply)	Standards on fuel consumption (minimum efficiency) CO ₂ taxes, Tradable permits

Source: Andre De Palma et al, ed., 2011

A report by the ECMT notes that enforcing taxes on transport externalities such as pollution and congestion enhances social welfare, by changing the actions of manufactures and consumers to raise efficiency and decrease external overheads. It is further noted that taxes on transport externalities do augment revenues for the government even though this is not their key function. For the consideration of this study, taxes on externalities can be classified under: (i) efficiency and welfare boosting taxes – charges on external costs; (ii) efficiency and welfare neutral taxes e.g. taxation of economic rents on the production of natural resources; (iii) efficiency and welfare reducing taxes- referring to supplementary forms of taxation.⁴⁶

In another study by the ECMT, it is clearly indicated that transport externalities play a key role in bringing to play the grounds for market failure. This is so because the transport infrastructure in place is a cause of positive and negative externalities. This will therefore invite a measure of regulation to some degree since positive externalities have a propensity to be produced in inadequate quantities whereas negative externalities are likely to be produced in great magnitudes.⁴⁷

While addressing the problem of transport externalities, it is observed by the OECD that the availability of infrastructure services does not replicate the externalities such a provision creates. Further, not only is the financial outlay of externalities not reflected in the price of infrastructure service, but fewer polluting infrastructure are not given first choice above more polluting infrastructure. The example sighted to support the observations point to the public policy of United States where it by and large is skewed in

⁴⁶ ECMT, *Reforming Transport Taxes* (Paris: OECD Publishing Services, 2003), 20.

⁴⁷ ECMT, *Transport Services: The Limits of (De)regulation* (Paris: OECD Publishing Services, 2006), 69.

favor of road transport more than rail transport whereas in Europe, while the formal policy is to advocate for rail transport, the *mélange* organization of railways inhibits rail operators to compete at par with trucks, in practice.⁴⁸

In a research paper by Ulrich Blum titled, '*Positive Externalities and Public Provision of Transport Infrastructure: An Evolutionary Perspective*', questioned whether transport systems consisting of infrastructure, service, and their use generated external gains. The paper further argued that while direct, technological, external gains from transportation are hard to obtain, significant positive externalities can surface duly from the transportation systems. It is of importance to note that Ulrich Blum concluded that the impacts from positive technological external can trickle over from supply to demand or from one market to another as long as the infrastructure is provided effectively and efficiently i.e. as determined by the degree of congestion that affects setup, exclusion and rivalry costs in addition to the benefits gained owing to the economies of scale, consequent capacities and the system of economies in the primary market.⁴⁹

When considering a case study paper by Christopher Mumpipila on, '*Internalizing the Externalities of Public Transport in Botswana*', it comes to light that the paper focused on analyzing the externalities produced by public transport in relation to the economics of road pricing. The paper empirically pointed out that the following factors promoted private motor vehicle ownership which played key role in the production of congestion as a public transport externality specific to the study. These

⁴⁸ OECD, *Infrastructure to 2030 (Vol. 2): Mapping Policy for Electricity, Water and Transport* (Paris: OECD Publishing Services, 2007), 141.

⁴⁹ Ulrich Blum, "Positive Externalities and Public Provision of Transportation Infrastructure: An Evolutionary Perspective" *Journal of Transportation and Statistics*, (1998):87-88.

factors included the accessibility of credit to private sector to acquire private vehicles and the slow rate of road space expansion as compared to the rate of growth of motor vehicles. It will be of significance to note that the paper emphasized that public transport supplied by the market system is a sub-optimal remedy for the reason that the external gains of transport are not internalized.⁵⁰

Georgina Santos et al state in their work that road transport compel externalities on society. These externalities consist of environmental as well as road damage, accidents, overcrowding and oil dependence. It is further observed that the cost of these externalities is not included in the existing market prices in the road transport sector. Their research work further points out that: (i) Command-and-Control (CAC) and (ii) Incentive Based (IB) are polices that can be employed to lower the negative externalities. For the purpose of the current study, CAC policies are basically a guideline or command which calls for control or enforcement by the relevant supervisory body or government agency for that matter. Another feature of CAC is that these procedures lead to expected outcomes and are comparatively simple to execute, implement and understand. On the other hand, IB polices offer economic incentives to the concerned agents and proceeds to directly modify private utility or private gain from a given behavioral reaction and therefore IBs are key mechanisms to induce behavioral change.⁵¹

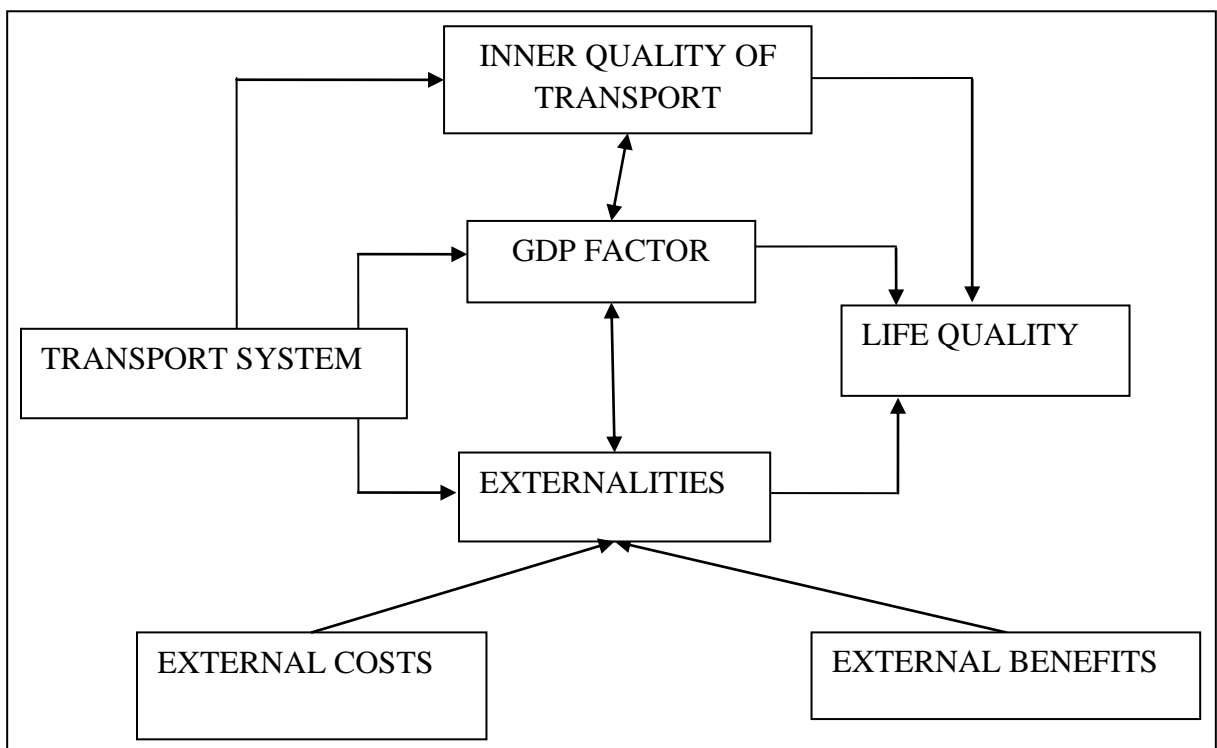
Zdenek Riha and Marek Honcu divulge that transport systems and the resulting externalities are a determining factor in influencing the quality of life. It is also pointed out that the inner quality of transport system consists of aspects such as convenience,

⁵⁰ Christopher Mumpipila, "Internalizing the Externalities of Public Transport in Botswana", *Botswana Journal of Economics*, Vol 5. No. 7, (2008): 48-50.

⁵¹ Georgina Santos et al, "Externalities and Economic Policies in Road Transport (part 1)", *Research in Transportation Economics*, 28 (1) (2010): 7.

accuracy, comfort, information accessibility among many others which are essentially the consumed utilities by the passenger. However, the degree of this inner quality of transport system is determined by the GDP indicator which in turn affects the living standards and ultimately the status of transport means and infrastructure. This relationship between transport systems and quality of life is illustrated in the diagram below.⁵²

Fig. 2.2: Relation Between Transport System and Life Quality⁵³



Source: Riha and Honcu, 2012.

Charles R. Hulten argues that the extent of the spillover externalities consequent from improved transportation infrastructure is dependent on the pre-existing transport networks. This is clearly seen in his work, *‘Transportation, Infrastructure, Productivity,*

⁵² Zdenek Riha and Marek Honcu, “Transport, Energy, Externalities and their Relation to Economic Output,” *International Journal of Energy*, Issue 3, Vol. 6, (2012):90.

⁵³ *Ibid*, 90.

and Externalities' whereby one of his objectives was to, "assess the extent of spillover externalities on manufacturing industries ...". It is further noted in his is paper that a comparative study was done on the infrastructure variables between the US and India and this pointed out that the effect of infrastructure investment and its impact in terms of externalities is determined by the degree of development of the transport networks. The impact of externalities in the US will be different since the context is of a built up, infrastructure rich environment whereas in India the case is not the same and hence the difference.⁵⁴

2.5 Role of Government in Transport Development

In regards to the role of the government and in light of transport development, Samantha and Mohanty point out that the government acknowledges the weight of the private sector along with foreign investment is important in augmenting the public sector endeavors in the delivering of the infrastructure requirement for economic development. It is further observed that reforms and mechanisms have been employed to create an enabling system by liberalization of the infrastructure sector, policies and measures so that private participation is accommodated and encouraged. Therefore, it is noted that the role of the government has transformed from owner and custodian to that of facilitator.⁵⁵

O'Sullivan states that the epitome of the government in regulating and standardizing the supply of transport infrastructure is to provide for the geographical coherence of the nation in the most resourceful manner possible. He further states that geographical coherence entails the fundamental operation of its economy, political and

⁵⁴ Charles R. Hulten, *Transportation, Infrastructure, Productivity and Externalities* (USA: National Bureau of Economic Research, 2005), 15.

⁵⁵ P. K. Samantha and A. K. Mohanty, *Port Infrastructure and Economic Development* (Delhi: Kalpaz Publication, 2005), 81.

social life while efficiency is a question of sufficing the needs of movement at the least social cost. He continues to observe that the social cost of transport is the financial outlay of network capacity, including the cost of construction and sustaining the ways and terminals of diverse transport systems and also keeping in mind any harmful effects which their occurrence inflicts on their environs.⁵⁶

When considering the works of Stephen Stares and Zhi Lui, '*China's Urban Transport Development Strategy*', it is realized that according to the Chinese government, the purviews and mandate of the different levels of government in light to transport development, are independent though integrated to facilitate a smooth process of decision making. Stares and Lui categorically point out by sighting the example of the Chinese transport system that, the central government is primarily accountable for designing development strategies, long term and mid-term plans, laws and regulations etc, while the transport operations solely lie with the municipal government. However, they note that the central government is consulted in the process of decision making in regards to the identification and sanctioning of large and medium-sized projects which could also involve foreign investment.⁵⁷

This same kind of thinking is also noticed in the UK whereby, when considering the government principles in light to the development policy for providing better services to the citizens, the government affirms that it is devoted to end the archaic mentality of decision making that is forced from the higher government administration and presupposes that one size fits all. This will incidentally ignore the precise requirements

⁵⁶ Patrick O'Sullivan, *Transport Policy: An Interdisciplinary Approach* (New Jersey: Barnes & Noble Books, 1980), 84.

⁵⁷ Stephen Stares and Zhi Liu, eds., *China's Urban Transport Development Strategy* (Washington D.C: The World Bank, 1996), 158.

and behavior patterns specific to the local needs. To this end, new policies are introduced whereby they will promote the liberation of local authorities from the clutches of central government's dictate to encourage them establish their own solutions, customized to the particular needs and priorities.⁵⁸

It is of significance to point out that according to the Kerala Road Development Policy 2009-21, it is observed that for efficient and valuable road development, decision making and appropriate measures involve a string of phases such as planning development and maintenance works, financial support and resource mobilization, project execution, land acquirement, administration and organization of assets, institutional requirements, information distribution and transparency.⁵⁹ All the above named aspects if employed efficiently and effectively by the concerned government agencies will play a significant role in the process of road infrastructure development.

Mark Bunting significantly observes that the major duty lies with the government whereby the policy structures of the government have to be streamlined to permit public transport to operate as expected. He further suggests that governments could institute unique agencies with whom rests the mandate to coordinate the implementation of reforms to bring thereby a public transport strategy that delivers. In addition to that, it is pointed out that the government could facilitate by advocating for a new better vision for public transport particularly from governments of the first world countries in a bid to demonstrate leadership such that the other governments from the third world and

⁵⁸ Department of Transport, UK Government, *Strategic Framework for Road Safety* (London: UK Government, May 2011), 14.

⁵⁹ Public Works Department, Government of Kerala, *Kerala Road Development Policy 2009-21* (Thiruvananthapuram: Government of Kerala, 2009), 7.

developing nations can be influenced into a mentality that supports and focuses on providing public transport that delivers.⁶⁰

Charles Kunaka et al emphasizes that international and national road transport agreements between nations in a trade block is one way of facilitating trade and transport development. It is however observed that in as much as these legal instruments are positive in nature in regards to the development of transport, care should be taken in ensuring that effective implementation of these bilateral agreements is done for the desired results are to be achieved. Further still, these instruments call for constant careful analysis and evaluation at the national level so as to promote the technical standards in transport infrastructure and equipments as well as the organizational and operational systems in place.⁶¹

It is of importance to high light the observations of the OECD in light to the role of governments and transport development. The OECD indicates that governments are accountable for the planning, financial outlays, pricing, and assessments of the transport and telematics infrastructure, which supports the provision of logistics services. The government is also concerned about the impact on environment, health and security which are consequents of transport infrastructure developments. Therefore it is imperative to point out that governments have a role in monitoring the safety measures of

⁶⁰ Mark Bunting, *Making Public Transport Work* (Canada: McGill-Queen's University Press, 2004), 136-137.

⁶¹ Charles Kunaka et al, *Quantitative Analysis of Road Transport Agreements – QuARTA* (Washington D.C.: The World Bank, 2013), 67.

new transport systems and the provision of mechanisms for the legislation and implementation process where applicable.⁶²

To further consider the role of government in transport development, we shall take into account the role played in particular by the Department of Environment, Transport and Regions (DETR) of the UK Government. It is observed that under the direction of the UK government, government bureaus and other government organizations such as the Highway Agency play a defining role in adding value to sustainable development of the transport system by maintaining, operating and improving the transport networks in an approach that aids the government's environmental agenda as well as fostering to incorporate the transport and land-use planning strategies. Still under the Highway Agency mandate is to develop procedures designed to expand as well as make the most use of the existing networks, to enhance the standard of maintenance and provision of an upgraded transport system, and to facilitate network linkages amid the other transport channels.⁶³

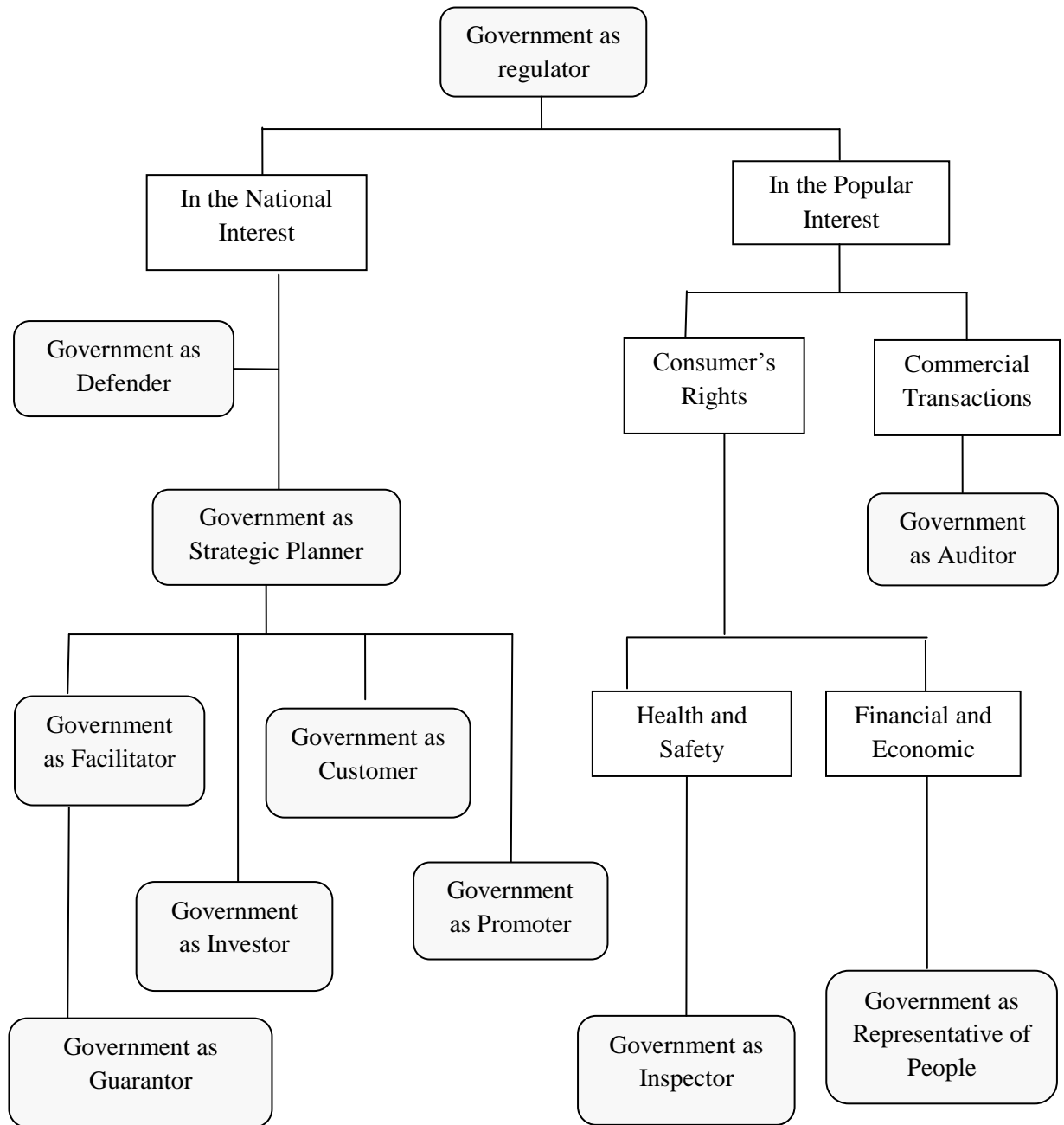
Andrian Smith in his work titled, *'Privatized Infrastructure: The Role of Government'* analyses the role of the government in light of infrastructure development that is undertaken by the government. In the analysis, however, there is a caution that in practice the functions form a hierarchy and sometimes overlap though are considered separately. As illustrated in Fig.2.3 below, these government functions are largely grouped into two sections i.e. government as a regulator in the various facets such as representative of the people, inspector, strategic planner etc and as well as government as

⁶² OECD, "Road Transport Research Outlook 2000," *Road Transport Research* (1997): 46.

⁶³ OECD, *Intermodal Freight Transport: Institutional Aspects*, (Paris: OECD Publishing Services, 2001), 55.

a facilitator playing the roles of guarantor, investor, government as customer and promoter.⁶⁴

Fig. 2.3: Aspects of the Role of Government⁶⁵



⁶⁴ Andrian J. Smith, *Privatized Infrastructure: The Role of Government* (London: Thomas Telford Publishing, 1999), 78.

⁶⁵ *Ibid*, 77.

Baruch feigenbaum prepared a Policy Brief on, *'Risks and Rewards of Public-Private Partnerships for Highways'* and concluded that, "Public-Private Partnerships (PPPs) are an increasingly popular transportation procurement option that provides for an alternate method of designing, building, financing, operating and maintain infrastructure projects. PPPs have five major advantages in that they: deliver needed transportation infrastructure sooner; are able to raise large new sources of capital; shift risk from taxpayers to investors; provide a business-like approach, and enable innovation. PPPs may, but do not necessarily, include in states with strong enabling legislation."⁶⁶

In his report, *'Overview of Public Transport in Sub-Saharan Africa'*, Ousmane Thiam, concluded that, "the different forms of State intervention are diverse: some States commit infrastructure provision (as in the case of Lagos), others subsidize operations while some buy vehicles to be used by the operator. In any case, the State must undertake its social responsibility in providing effective transport for the welfare of populations."⁶⁷

2.6 Resource Allocation for Road Transport Development

The case for private funding in the process of resource allocation for transport development is argued out by Rietveld and Stough for reasons that, one, there is the question of increased concern about the competence of the public sector in the management of large scale projects and secondly, the availability of significant volumes

⁶⁶ Feigenbaum Baruch, "Risks and Rewards of Public-Private Partnerships for Highways," [article on-line]; Available from http://reason.org/files/public_private_partnerships_for_highways.pdf; Internet; Accessed October 31, 2012.

⁶⁷ Thiam Ousmane, "Overview of Public Transport in Sub-Saharan Africa," (Trans-Africa Consortium, 2008); [article on-line]; Available from http://www.uitp.org/sites/default/files/cck-focus-papers-files/Transafrica_UITP_UATP_PublicTransport_in_SubSaharan_Africa_2008.pdf; Internet; Accessed October 31, 2012.

of finance capital seeking projects. The argument for the former reason is evident in that the public sector typically experiences inefficiencies that are evidently observed by the habitual cost overruns and delays. Therefore, it is argued that the private sector would in that place be efficient in managing construction projects by guaranteeing that the private sector holds an appropriate risk stake in the projects. As for latter concern, the public sector projects usually are delayed for approval since the sector is usually constrained whilst in the private sector, clearance and approvals can be effected rapidly and this is expected to bring down the total outlay of the projects.⁶⁸

The Table 2.2 below points out the schematic outline of private finance options according to the United Kingdom experience. It is of importance to note that the schemes highlighted here include: Full Private Provision, Private Finance Initiative (PFI) which is a long term contractual partnership whereby the private sector holds the risks of a venture in return for payments dependent on agreed standards of performance, and Public Private Partnerships (PPP) which is a general agreement between the public and the private sectors for anticipated shared gain in the provision of service, and Service Delivery Agency Scheme.

⁶⁸ Piet Reitveld and Richard Stough, ed., *Barriers to Sustainable Transport: Institutions, Regulation and Sustainability* (Abingdon: Spon Press, 2005), 25-26.

Table 2:2 Schematic Outline of Private Finance Options⁶⁹

Type of Scheme	Example of Scheme	Advantages to Private Sector	Disadvantages to Private Sector	Advantages to Public Sector	Disadvantages to Public Sector
Full Private Provision	Channel Tunnel	Full Control of project; Limited regulation	Full risk exposure; Possible need to transfer project at end of agreed concession period	Transfer of all risk; retain some rights to asset at the end of concession period	Residual risk of failure; Lack of control over prices etc unless regulatory structure
PFI-Scheme	DBFO Road Schemes; Urban Rapid Transit (tram) System	Greater control over project management; Some risk retained by public sector	Value of project depends on correct forecasting of costs and revenue streams; Need to return asset to public sector at agreed end of franchise	Transfer of (some) risk; Lower overall cost of project; Typically receive asset at end of agreed payback period	Retention of some risk; Need to fix payment for services to be delivered over long life of project
PPP – Scheme	Channel Tunnel Rail Link; London Underground Modernization	Agreed framework for payment received	Little or no ownership of rights	Retention of ownership and control; All rights to asset revert at end of agreed payback period	Cost of payments; Retention of risk elements
Service Delivery Agency Scheme	New Rail Franchise	Agreed framework for payment received	No ownership rights	Full retention of ownership; Possible benefits of private sector management efficiencies	Little sharing of risk; Retention of responsibility of service delivery failure

It is of importance to outline the recommendations put forward by the OECD in regards to their research program, ‘*Asset Management for Road Sector*’ whereby it is clearly pointed out that for the concerned institutions to guarantee expansion in road sector, the development and implementation process must be incorporated within an Asset Management System which essentially is a unification of relevant procedures,

⁶⁹ Piet Reitveld and Richard Stough, eds., *Barriers to Sustainable Transport: Institutions, Regulation and Sustainability* (Abingdon: Spon Press, 2005), 27.

apparatus, information and policies that when employed will attain the purpose of efficiently and effectively managing assets. Among the various benefits of the Asset Management System is an enhanced budget evaluation and decision making process which offers a high degree advantage, better strategic planning within the budget limitations, improved determination of funding levels requisite for asset maintenance, and better allotment of overheads to give best value for assets.⁷⁰

Ahmed and Donovan assert that decision making in regards to infrastructure investment is of importance because it has an impact in the micro and macro economics of the country. They further identify the typical questions that policy makers are faced with in light to transport infrastructure development and the resource allocation process. These are:

- i. What level of resources must be allocated to infrastructure or Social Overhead Capital (SOC) vis-à-vis Directly Productive Activities (DPA)?
- ii. What is the least cost of technique of constructing an infrastructure facility?
- iii. What is the most efficient sequence for locating and creating various elements of infrastructures?
- iv. How should be the maintenance problem be handled once infrastructure is created?
- v. What political and institutional developments are critical for construction and maintenance of infrastructure, particularly rural infrastructure?⁷¹

⁷⁰ OECD, *Asset Management for the Road Sector* (Paris: OECD Publishing Services, 2001), 35.

⁷¹ Raisuddin Ahmed and Cynthia Donovan, *Issues of Infrastructure Development: A Synthesis of the Literature* (Washington D.C.: International Food Policy Research Institute, 1992), 26.

In analyzing the above questions highlighted by Ahmed and Donovan, it is therefore important to recognize it is critical to get the sequencing of investment right since there is always the question of resource constraints that developing nations face.

Eva Molnar in her research paper conducted an analysis on the ‘*Trends in Transport Investment Funding: Past, Present and Future*’, to observe that the transport investment funding over time has changed and become more complex. It is stated that the trend has moved away from wide scale public funding to significantly involve the users and private investors. There is a growing acknowledgment that the question of transport investment funding will have to balance between the three pillars i.e. public, private and users. The role of the government in light to transport investment funding must be more defined and accommodative to other sectors.⁷² Following below are arguments for and against Road Fund (RF).

Table 2.3: Arguments For and Against Road Funds⁷³

Strengths	Weaknesses
<ul style="list-style-type: none"> ➤ Utility function through road fee/road user charges. User’s ownership and oversight – transparency and accountability. Multi-annual predictability – multi-year investment planning. ➤ Can borrow direction against future revenues. ➤ Cannot be easily influenced by political pressure and thus can stick to economic analysis based on planning and investment. ➤ Prudent financial management, procurement and road expertise. 	<ul style="list-style-type: none"> ➤ Can be captured by ‘local powers’. ➤ Limits the govt’s fiscal redistribution function and can limit expenditure management. ➤ May ‘over borrow’ – if it loses its credit worthiness, eventually the burden falls back on the govt, which will have to bail it out. ➤ Difficult to design its re-allocation function to make them flexible, but not abusive to regional and local govts if all does go to the RF. ➤ Road management and fund management can have contradictory agendas.

⁷² ECMT, *Fifty Years of Transport Policy: Success, Failures & New Challenges* (Paris: OECD Publication Services, 2003), 75.

⁷³ Ibid, 83.

Opportunities	Threats
<ul style="list-style-type: none"> ➤ Can grow into a national utility that can be commercially managed. ➤ Offers more opportunities for public-private partnership and eventually for private sector. ➤ With well designed RF accelerated road development can be implemented with lower costs than with central budgeting due to the risk factor attached to multi-year predictability. 	<ul style="list-style-type: none"> ➤ Not appropriately established RF can be a target of political and public dissatisfaction. ➤ The off budget status may narrow/limit the interest of govt to provide for roads as part of public good. ➤ Lack of proper oversight can lead to mismanagement of the RF and trigger loss of confidence in road sector specialists. ➤ Poor RF management can have a backlash and bring back the sector to central planning solutions. ➤ National roads have too much emphasis at the cost of regional, rural, and urban roads.

Source: ECMT, 2003

Financial institutions have a role to play in the resource allocation process for transport infrastructure development. This is revealed by the role that the World Bank plays as a lending agency to countries that have a need in transport infrastructure investment. As observed, lending by the World Bank facilitates reforms in the transport sector to meet investment needs that cannot be met by the private sector. Further still, the World Bank has the opportunity to spot significant institutional and technical interests and thereby design stratagem for enhancing policy and institutional reform. For these reasons, the World Bank should therefore be strongly be involved in the financing of the transport infrastructure of the borrowing countries not only for the finance role but also for policy requirements.⁷⁴

Sheena George in her research work, *'The Urban Transport Problem'* observed that, "Budget allocation from the Central constitutes a major source of funding urban transport projects. Contribution by State Government and local bodies are

⁷⁴ The World Bank, "Sustainable Transport: Priorities for Policy Reform," *Development in Practice* (1996):108.

“fragmentary””. The needs for funds are so enormous that all possible options for resource mobilization require to be tapped. The major problem is that “project financing’ is not considered part of the planning process.⁷⁵

Mrs. Sanhita S. Athiawale did a study on “Resource Allocation for Defense in India (An Analysis of the Threat Perceptions, Decision Making Process and Economics of Defense in the 1980s). In her investigation, she employed regression analysis and found out that, “annual defense budget do not sometimes reflect a realistic picture of military operations which take place within the country and across the border. Therefore, Defense Estimates need to be more transparent, more standardized, more realistic and methodological.”⁷⁶ It is hereby clearly pointed out that budget outlays and estimates by the government, be it for defense or for transport infrastructure development ought to be at the least, more streamlined in a manner that fosters transparency, high standardization processes and are methodological in the implementation facets of the development process.

Professor Jackie Walters in her work, “*Overview of Public Transport Policy Developments in South Africa,*” points out that, “Public transport in developing countries is also generally characterized by a lack of adequate financial resources to fund operational subsidies – not that it is not an issue in any other country, but it seems to be exacerbated in the developing world. The demands of affordable housing, education, and health services are just so great that it limits the amounts that the Fisucs can be set aside

⁷⁵ Sheena George, “The Urban Transport Problem: A Select Review of Literature” (M.Phil Dissertation, University of Pune, 1994), 79.

⁷⁶ Sanhit S. Athiawala, “Resource Allocation for Defense in India: An Analysis of Threat Perceptions, Decision Making and Economics of Defense in the 1980s”,(Ph. D Dissertation), University of Pune, 1996), 2.

for public transport development and support. This gives rise to issues such as a lack of timely capital investments to replace rolling stock, lack of integrated transport planning, absence of a firm commitment to public transport, etc.⁷⁷

Yeoh, Seen and Roy propose that cost-effective infrastructure spending along with best practices for project management in public expenditure with regards to road transport development is fundamental to reducing the infrastructural gap amid high and low income countries by 40%. It is further suggested by these authors that appropriate institutional constitutions that advocate for infrastructural improvement as well as development friendly regulatory structure will enhance efficient infrastructural spending.⁷⁸

Bonni Van Blarcom et al observe that for policy makers to perfect the process of financial planning in public expenditure, the allocation method ought to reflect the predefined policy goals whereas the economic principle steers the outlay plan following a fundamental investment program. Public expenditure allocation is to be done in a manageable fashion with a bias for higher priority projects while the budgeting exercise must be transparent and expected. Further on, financial support from the donors is to be incorporated with the State-run public outlay administration structure to steer clear of dual budgetary systems. The preparation of State departmental budgets should comprise of integrated machinery that advocate for accountability in addition to monitoring and evaluation processes. Basically, the entire budget design is to be channeled by a

⁷⁷ Jackie Walters, "Overview of Public Transport Policy Development in South Africa," [article online]; Internet; Available from; <http://ses.library.usyd.edu.au/bitstream/2123/6040/1/thredbo10-plenary-Walters.pdf>; Internet; Accessed November 05, 2012.

⁷⁸ Sachita Basu Das, ed., *Enhancing Asean's Connectivity* (Singapore: Institute of Southeast Asian Studies, 2013), 30.

multiyear, medium-term strategy that takes into account the institutional, political, technical and economic factors that affect the fiscal fitness of the country general.⁷⁹

At this point, it is important to consider the bad practices in budget preparation as Schiavo-Campo elucidates. He argues that with the lack of hard expenditure control at the initial stages of the budgeting process, which gives the advantage of a timely decision making process, will eventually by practice result to either of the following inefficient and wasteful systematic budgeting. These dysfunctional budgeting procedures include incremental budgeting that only focuses on existing circumstances, continuing policies and ongoing programs hence insight and depth in the policy ecosystem is not taken into account; Undefined budgeting preparation process that is not tied to sectoral policy targets, purposeful saving practices which leads to hasty, shallow and heavily flawed budget proposals; extreme bargaining and conflict evasion machinery which encourages incompetence in resource allocation due to an existing compromised decision making and budget preparation process that is profoundly influenced by political power and conflict evasion methods within the bureaucracy; dual budgeting practices that evidently hamper the integrated appraisal or analysis of current/recurrent and investment/developmental budget expenditures which is indispensable in an up to standard budget process.⁸⁰

It will not be fitting to conclude discussions in this section without a brief mention on *Performance-based Budgeting*. Going by authors Robinson and Last, *Performance-based Budgeting* comprises of mechanisms that advocate for the “efficiency

⁷⁹ Bonni van Blarcom et al, *The Reform of Public Expenditures for Agriculture* (Washington D.C.; The World Bank, 1993), xv.

⁸⁰ Anwar Shah, ed., *Public Sector Governance and Accountability Series: Budgeting and Budgetary Institutions* (Washington D.C: The World Bank, 2007), 244-247.

and effectiveness of public expenditure” by converging public investment funds to the outcome supplied hence the prudent employment of performance information in a logical and precise fashion. This ensures an active integration between performance indicators and the program evaluation processes, and the use of this information in the decision making process for the budget preparation stages. Expected benefits point to enhanced comprehensive fiscal discipline, public finance outlay prioritization, as well as an efficient and effective budget execution at line ministry levels.⁸¹

2.7 Transport Policy Development

In a study conducted by the Organization for Economic Co-operation and Development (OECD) on *Developing International Expertise through Research Co-operation*, it is observed that traffic problems are on the rise and that this is a trend that is continually taking a high priority. It also makes mention of the measures and technologies being harnessed to address the traffic related problems that are in constant evaluation and improvement. In addition to that, the paper pointed out that Governments must therefore collaborate in finding solutions to alleviate the effects associated with transport problems. Lastly, the study emphasized on the value of Governments in creating round-table mediums whereby the transport related problems can be shared to find conventional and effective remedies.⁸² Considering the current study, it is of value that the Indian and Kenyan Government co-operate on conducting research activities that hinge on transport related problems.

⁸¹ Marc Robinson and Duncan Last, *A Basic Model of Performance-based Budgeting* (Washington DC.: IMF, 2009), 1-3.

⁸² OECD, “Developing International Expertise Through Research Co-operation”, *Road Transport Research Outlook 2000* (1997): 52-54.

The ECMT on ‘*Activity-Based Modeling*’ observes that solving the transport problem is no longer a question of just adding infrastructure. ECMT further holds that the way out of the transport problem could as well lie beyond the transport system. For instance, a broad spectrum cut back for the need of travel e.g. by reducing the distance between living and working places, greater flexibility, telecommunicating among others. The ECMT therefore suggests that it is of importance therefore to highlight the modeling processes of the interaction between mobility and patterns of activity.⁸³

It is of significance to consider what Rietveld and Stough suggest in that, in as much as there are technical and operational hindrances to sustainable transport systems, the primary barriers against sustainable transport system are institutional. They further point out that the institutions play a vital role in transport systems as in regards to the transport modes and applied technologies which move countries towards a superior environmental and economic sustainability as well as better commercial performance. It is pointed out in their study entitled, “*Barriers to Sustainable Transport: Institutions, Regulations and Sustainability*”, that institutions play a significant role in defining the course action of how countries do conduct business and this determines the nature of transport systems and how they are used. The areas affected and thus the role of institutions is projected as a barrier includes: liberalization, infrastructure financing, privatization, deregulation, the role of markets, the role of the Government, technology standards and technological change, inter-national affairs and globalization.⁸⁴

⁸³ ECMT, 15th International Symposium on Theory and Practice in Transport Economics, “Key Issues for Transport Beyond 2000” (Thessaloniki: ECMT, 2000), 192.

⁸⁴ Piet Rietveld and Richard Stough, ed., *Barriers to Sustainable Transport: Institutions, Regulation and Sustainability* (Abingdon: Spon Press, 2005), 3-4.

In a subsequent paper by Georgina Santos et al titled, '*Policy Instruments for Sustainable Road Transport*', they considered physical policies, soft policies and knowledge policies. Their main findings was that, "physical policies and increase in the use of public transport, combined with a decrease in the use of private cars, can reduce traffic congestion and, more importantly, carbon dioxide (CO₂) emissions, as public transport generally causes lower CO₂ emissions per passenger kilometer than private cars. Public transport fares are subsidized in most places, which can be justified by economies of scale and by the fact that public transport can reduce total road transport externalities." In their conclusion, the researchers observed that they give high regard to the issue of policy combination and integration. They stated that, "There is evidence that the combination and integration of policies can lead to positive side-effects and synergies. Policy integration is crucial in order to rise to the challenges we face in moving towards a sustainable mobility model."⁸⁵

A research by Borger and Proost entitled, '*Reforming Transport Pricing in the European Union: A Modeling Approach*', reveal that the transport system generates several side effects or externalities that consumers of the transport infrastructure either entirely disregard or inadequately take into account in making their commuting needs. The researchers suggest that the ideal economic solution to such a predicament would be the consumers of all transport modes and services ought to be charged for the marginal social costs including the external cost that is imposed on the society. However, such an

⁸⁵ Georgina Santos, Hannah Behrendt et al, "Policy Instruments for Sustainable Road Transport," *Research In Transportation Economics*, May 2010, Vol. 28, Issue 1, pg 46-91. [Article on-line]; Available from [http://orca.cf.ac.uk/10687/1/Santos%20Behrendt%20and%20Teytelboym%20Rcd%20M%20arch%202015%20\(5\).pdf](http://orca.cf.ac.uk/10687/1/Santos%20Behrendt%20and%20Teytelboym%20Rcd%20M%20arch%202015%20(5).pdf) ; Internet; Accessed October 31, 2012.

economic solution must take into consideration a full knowledge of the social marginal costs as well as be able to embrace the diverse interactions between different transport markets.⁸⁶

Peter Headicar in his work, *'Transport Policy and Planning in Great Britain'*, addresses several factors that are pertinent in realm of Transport Policy and Planning. These factors include: (i) the role of the state – inherently considers the every facet of public policy in light of transport and therefore, the nature of the State and its underlying ideology is of importance; (ii) institutional arrangements – this considers the separation of roles between public and private sectors in the business of supplying transport infrastructure and services and allotment of duties in the public sector; (iii) objectives and targets – this involves the goals set for public institutions operational in the transport sector and the use of pointers to evaluate their performance; (iv) infrastructure development and its funding – considers the resources accessible for meeting these ends in terms of upgrading the transport infrastructure and the opportunities and limitations implicated their funding; (v) regulatory measures – the processes existing in the system of legally imposing regulations on vehicles, traffic and development process or on transport industries; (vi) behavioral measures – this comprises of comparatively new set of apparatus which seeks out to acquire the change in travel patterns amid individuals and organizations autonomously to the developments to transport system devoid of conventional regulatory or fiscal measures.⁸⁷

⁸⁶ Bruno De Borger and Steef Proost, eds., *Reforming Transport Pricing in the European Union: A Modeling Approach* (United Kingdom: Edward Elgar Publishing Limited, 2001), 9.

⁸⁷ Peter Headicar, *Transport Policy and Planning in Great Britain* (Abingdon: Routledge, 2009), 142.

The EMCT asserts that the interrelation between the increase of economic development and the need for movement of people and goods are basic in the process of evaluating transport preferences and devising practical policies. It is further argued that these two factors are of importance in regards to the following fundamental policy issues: (i) on what magnitude is transport anticipated to expand; (ii) in resolving differing calls for the cutback in transport, the transfer of transport, efficiency and effectiveness of transport, decoupling of transport development from economic growth, what recommendation may be assumed?; and (iii) what assumptions can be obtained with regard to the designing of policy on structure circumstances, infrastructure and funding?⁸⁸

A study considering the solutions to transport problems suggests that there are essentially four kinds of antidotes apart from the macroeconomic and distributional goals of transport policy. These remedies include: constitutional, regulatory, operational and structural solutions. The study further elucidates that the constitutional solution entails employing the laws and customs of the nation which revolves around restructuring of the lines of responsibility and management over services and resource allocation. Nationalization is a good example of a constitutional remedy; the regulatory solutions encompass of the day-to-day entry and control of pricing by an institution with government authority. This entity will have control on the conflict areas of transport and will further monitor the status and the functioning of the system in place; the operational solutions suggests that control can be employed to stimulate a more satisfactory design of the institution's regulatory rules and real-time operations so that time desired performance can be attained such as in road network's traffic flows; structural control of

⁸⁸ ECMT, *Transport and Economic Development: Round Table 119* (Paris: OECD Publishing Services, 2002), 9.

the transport systems engages the successful investment decision making in the long term so as to strike balance between service provision and infrastructure building. This further involves the application of the guiding principles in initiating new traffic systems as well as the improvement of the existing systems.⁸⁹

Shigeru and Surya in their study on '*Transport Development in Asian Megacities: A New Perspective*' assert that innovative policy insights have been designed in recent times from the decades of theoretical developments in the domain of economic geography. The two researchers highlight the propositions of theoretical development against empirical data primarily on the perception of agglomeration economics which generate various policy-relevant observations in regards to the expansion and management of megacities. However, they further observe that large size megacities presents prospects to the metropolis for reaping scale and agglomeration economics consequently intensifying the efficiency and output of urban activities. However, they state that the predicament with megacities remains to be about spatial structure and provision of infrastructure-and for our current case study here, transport infrastructure. In conclusion, they observe that the policy makers and planners in the developing countries may still face challenges in the management of megacities given that there is an inadequacy in institutions and resource capacity in view of the fact that there is a high requirement in satisfying the preconditions for spatial structure and sufficient infrastructure provision.⁹⁰

⁸⁹ Patrick O'Sullivan, *Transport Policy: An Interdisciplinary Approach* (New Jersey: Barnes & Noble Books, 1980), 108-115.

⁹⁰ Shigeru Morichi and Surya R. Acharya, eds., *Transport Development in Asian Megacities: A New Perspective* (Berlin: Springer-Verlag, 2013), 2.

It is of importance to point out that many urban transport policies face the predicament of choosing between long-term and short-term objectives. Considering the observations of Shigeru and Surya, long-term policies generally call for a significantly large upfront investment designed for strategic infrastructures. Other long-term objectives necessitate radical institutional restructuring or the launch of a new tax administration which is will be possibly be opposed by the politicians whose planning prospects hardly ever go further than the election cycle. In contrast, short-term strategy procedures come with negligible incremental package involving modest degree of resources to deliver speedy outcome, unfortunately to be liable for disguising the root cause problem and potentially aggravating the problem in the long run.⁹¹

For the purpose that the appraisal process is to be effectual when considering transport infrastructure investment, the OECD suggests four different stages of decision making that will enhance the processes of appraisal. These stages are: (i) the international or super national level, (ii) the national level, (iii) the regional level, (iv) the local or municipal level. The OECD continues to assert that the mandate to decide on infrastructure outlay should mirror the standards of the subordinate government to guarantee that these infrastructure investment undertakings reflects or match each other for the purposes of effectiveness. However, the OECD notes that there is a habitual deficiency of coordination across the different concerned levels of administration because of the political decision making mechanism.⁹²

⁹¹ Shigeru Morichi and Surya R. Acharya, eds., *Transport Development in Asian Megacities: A New Perspective* (Berlin: Springer-Verlag, 2013), 52.

⁹² OECD, *Impact of Transport Infrastructure Investment on Regional Development* (Paris: OECD Publishing Services, 2002), 22.

References

1. Ahmed, Raisuddin and Cynthia Donovan. *Issues of Infrastructure Development: A Synthesis of the Literature*. Washington D.C.: International Food Policy Research Institute, 1992.
2. Athiawala, Sanhit S. "Resource Allocation for Defense in India: An Analysis of Threat Perceptions, Decision Making and Economics of Defense in the 1980s", (Ph. D Dissertation), University of Pune, 1996.
3. Bamford, Colin G. *Transport Economics*. 2nd ed. Oxford: Heinemann Educational Publishers, 1998.
4. Banister, David. ed. *Transport and Urban Development*. London: E & FN Spon, 2005.
5. Batta, Ravinder N. *Economics of Road Transport*. Delhi: Kalpaz Publications, 2008.
6. Beenhakker, Henri L., S. Carapetis, L. Crowther and S. Hertel. *Rural Transport Services: A Guide to their Planning and Implementation*. London: Intermediate Technology Publications, 1987.
7. Black, Alan. *Urban Mass Transportation Planning*. New York: Mc Graw-Hill, Inc., 1995.
8. Blum, Ulrich. "Positive Externalities and Public Provision of Transportation Infrastructure: An Evolutionary Perspective" *Journal of Transportation and Statistics*, (1998):87-88.
9. Borger, Bruno De and Steef Proost. eds. *Reforming Transport Pricing in the European Union: A Modeling Approach*. United Kingdom: Edward Elgar Publishing Limited, 2001.
10. Bunting, Mark. *Making Public Transport Work*. Quebec: McGill-Queen's University Press, 2004.
11. Button, Kenneth and Aura Reggianni. *Transportation and Economic Development Challenges*. United Kingdom: Edward Elgar Publishing Limited, 2011.
12. Bwibo, Zipporah. "Planning for Bicycle Public Transport in Rural Areas: A Case of Butala Division, Busia District." (Thesis for M.A. Planning), University of Nairobi, 2001.
13. Cook, Cynthia C. ed., *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction*. Philippines: Asia Development Bank, 2005.

14. Cowie, Jonathan et al. *The Economics of Transport: A Theoretical and Applied Perspective*. Abingdon: Routledge, 2010.
15. Das, Sachita Basu. ed. *Enhancing Asean's Connectivity*. Singapore: Institute of Southeast Asian Studies, 2013.
16. Department of Transport, UK Government. *Strategic Framework for Road Safety*. London: UK Government, 2011.
17. ECMT. *Fifty Years of Transport Policy: Success, Failures & New Challenges*. Paris: OECD Publication Services, 2003.
18. _____. *Reforming Transport Taxes*. Paris: OECD Publishing Services, 2003.
19. _____. *Social Aspects of Road Transport*. France: OECD Publications Services, 1999.
20. _____. *Transport and Economic Development: Round Table 119*. Paris: OECD Publishing Services, 2002.
21. _____. *Transport Services: The Limits of (De)Regulation*. Paris: OECD Publishing Services, 2006.
22. _____. 15th International Symposium on Theory and Practice in Transport Economics, "Key Issues for Transport Beyond 2000". Thessaloniki: ECMT, 2000.
23. Focas, Caralamopo. ed. *Transport Issues and Problems in Southeastern Europe*. England: Ashgate Publishing Ltd., 2004.
24. George, Sheena. "The Urban Transport Problem: A Select Review of Literature" (M.Phil Dissertation), University of Pune, 1994.
25. Headicar, Peter. *Transport Policy and Planning in Great Britain*. Abingdon: Routledge, 2009.
26. Hull, Angela. *Transport Matters: Integrated Approaches to Planning City-Regions*. Abingdon: Routledge, 2011.
27. Hulten, Charles R. *Transportation, Infrastructure, Productivity and Externalities*. USA: National Bureau of Economic Research, 2005.
28. Jegandishi, P. and G. John Gunaseelan. eds. *Indian Transport System: An Appraisal of Nationalized Bus Service*. New Delhi: Mittal Publications, 1994.

29. Jonson, G. and E. Tengstrom. eds. *Urban Transport Development: A Complex Issue*. Germany: Springer, 2005.
30. Kanafani, Adib. *Transportation Demand Analysis*. New York: McGraw-Hill Book Company, 1983.
31. Kawakami, Tetsu. et la. "Economic Impacts of Intelligent Transportation System: Innovations and Case Studies" *Research in Transportation Economics*, Vol 8. (2004), 525-547.
32. Kessides, Christine. *The Contributions of Infrastructure to Economic Development: A Review of Experience and Policy Implications*. Washington D.C: World Bank Publications, 1993.
33. Kunaka, Charles. et al. *Quantitative Analysis of Road Transport Agreements – QuARTA*. Washington D.C.: The World Bank, 2013.
34. Lee, Der-Horng. ed. *Urban and Regional Transportation Modeling*. United Kingdom: Edward Elgar Publishing Limited, 2004.
35. Litman, Todd. *Evaluating Transportation Economic Development Impacts*. USA: Victoria Transport Policy Institute, 2010.
36. Morichi, Shigeru and Surya R. Acharya. eds. *Transport Development in Asian Megacities: A New Perspective*. Berlin: Springer-Verlag, 2013.
37. Mumpipila, Christopher. "Internalizing the Externalities of Public Transport in Botswana." *Botswana Journal of Economics*, Vol 5. No. 7, (2008): 48-50.
38. OECD. *Asset Management for the Road Sector*. Paris: OECD Publication Services, 2001.
39. _____. *Decoupling the Environmental Impacts of Transport from Economic Growth*. Paris: OECD Publishing Services, 2006.
40. _____. *Impact of Transport Infrastructure Investment on Regional Development*. Paris: OECD Publishing Services, 2002.
41. _____. *Infrastructure to 2030 (Vol. 2): Mapping Policy for Electricity, Water and Transport*. Paris: OECD Publishing, 2007.
42. _____. *Intermodal Freight Transport: Institutional Aspects*. France: OECD Publication Services, 2001.
43. _____. "Road Transport Research Outlook 2000." *Road Transport Research* (1997): 46.

44. _____. "Developing International Expertise Through Research Co-operation." *Road Transport Research Outlook 2000* (1997): 52-54.
45. O'Sullivan, Patrick. *Transport Policy: An Interdisciplinary Approach*. New Jersey: Barnes & Noble Books, 1980.
46. Palma, Andre De. et al. eds. *A Handbook of Transport Economics*. United Kingdom: Edward Elgar Publishing Limited, 2011.
47. Pedel, Magic, Richard Scurfield et al. eds. *World Report on Road Traffic Injury Prevention*. Geneva: World Health Organization, 2004.
48. Public Works Department, Government of Kerala. *Kerala Road Development Policy 2009-21*. Thiruvananthapuram: Government of Kerala, 2009.
49. Quinet, Emile and Roger Vickerman. *Principles of Transport Economics*. Massachusetts: Edward Elgar Publishing, Inc., 2004.
50. Ranade, Prabha S. *Infrastructure Development and Its Environmental Impact: Study of Konkan Railway*. New Delhi: Concept Publishing Company, 2009.
51. Reitveld, Piet and Richard Stough. eds. *Barriers to Sustainable Transport: Institutions, Regulation and Sustainability*. Abingdon: Spon Press, 2005.
52. Riha, Zdenek and Marek Honcu. "Transport, Energy, Externalities and their Relation to Economic Output." *International Journal of Energy*, Issue 3, Vol. 6 (2012): 89-95.
53. Robinson, Marc and Duncan Last. *A Basic Model of Performance-based Budgeting*. Washington D.C.: IMF, 2009.
54. Rottengatter, Werner. et al. eds. *Transport Moving to Climate Intelligence: New Chances for Controlling Climate Impacts of Transport after the Economic Crisis*. New York: Springer, 2011.
55. Samantha, P. K. and A. K. Mohanty. *Port Infrastructure and Economic Development*. Delhi: Kalpaz Publication, 2005.
56. Santos, Georgina. et al. "Externalities and Economic Policies in Road Transport (part 1)." *Research in Transportation Economics* 28 (2010):2-45.
57. Schmidtchen, Dieter. et al. *Transport, Welfare and Externalities: Replacing the Polluter Pay Principle with the Cheapest Cost Avoidance Principle*. United Kingdom: Edward Elgar Publishing Limited, 2009.

58. Shah, Anwar. ed. *Public Sector Governance and Accountability Series: Budgeting and Budgetary Institutions*. Washington D.C: The World Bank, 2007.
59. Smith, Andrian J. *Privatized Infrastructure: The Role of Government*. London: Thomas Telford Publishing, 1999.
60. Sinha, Kumares C. and Samuel Labi. *Transportation Decision Making: Principles of Project Evaluation and Programming*. New Jersey: John Wiley & Sons, 2007.
61. Spurling, David J. *Introduction to Transport Economics: Demand, Cost, Pricing and Adoption*. Florida: Universal Publishers, 2010.
62. Stares, Stephen & Liu Zhi. *China's Transport Development Strategy: Proceeding of A Symposium in Beijing*. Washington D.C.,: The World Bank, 1996.
63. Stover, Vergil G and Frank J. Loepke. *Transportation and Land Development*. New Jersey: Prentice Hall, 1988.
64. The World Bank. "Sustainable Transport: Priorities for Policy Reform." *Development in Practice*. Washington D.C.: World Bank Publications, 1996:108.
65. Vaidaya, Balkrishna C. ed. *Geography of Transport Development in India*. New Delhi: Concept Publishing Pvt. Ltd., 2003.
66. Weisbrod, Glen. *Current Practices for Assessing Economic Development Impacts Transportation Investments: A Synthesis of Highway Practice*. Washington D.C.: Transportation Research Board, 2000.

Websites

1. Baruch, Feigenbaum. "Risks and Rewards of Public-Private Partnerships for Highways," [article on-line]; available from http://reason.org/files/public_private_partnerships_for_highways.pdf; Internet; Accessed October 31, 2012.
2. Gwilliam, K. "A Review of Issues in Transit Economics," [article online]; Internet, Available from; [http://ideas.repec.org/a/eee/retrec/V23Y2008ilp\\$-22.html](http://ideas.repec.org/a/eee/retrec/V23Y2008ilp$-22.html); Internet; Accessed November 05, 2012.
3. Lucas Karen. "Transport and Social Exclusion: The UK Perspective," [article on-line]; Available from <http://www.ville-en-mouvement.com/telechargement/transportuk.pdf>; [article on-line]; Internet; Accessed on October 31, 2012.

4. Ousmane, Thiam. "Overview of Public Transport in Sub-Saharan Africa," (Trans-Africa Consortium, 2008); [article on-line]; Available from http://www.uitp.org/sites/default/files/cck-focus-papers-files/Transafrika_UITP_UATP_PublicTransport_in_SubSaharan_Africa_2008.pdf ; Internet; Accessed October 31, 2012.
5. Santos, Georgina, Hannah Behrendt et al. "Policy Instruments for Sustainable Road Transport," *Research In Transportation Economics*, May 2010, Vol. 28, Issue 1, pg 46-91. [Article on-line]; Available from; <http://www.sciencedirect.com/science/article/B8JHM...65fe6ea5cfea62b9b543> ; Internet; Accessed October 31, 2012.
6. Walters, Jackie. "Overview of Public Transport Policy Development in South Africa," [article online]; Internet; Available from; <http://ses.library.usyd.edu.au/bitstream/2123/6040/1/thredbo10-plenary-Walters.pdf>; Internet; Accessed November 05, 2012.

CHAPTER 3

COUNTRY PROFILE: INDIA

3.1.1 History

Indian history can easily be divided into Pre-History and Ancient History. The Pre-History era stretches from 3000 BC to somewhere between the 14th and 15th Century. It comprises of the times from Indus civilizations to the founding of the Mughal Empire. The Table 3.1 below shows in summary the prehistory of India.

Table 3.1: Pre-Historical Events of India¹

Date	Historical Event
3000 B.C.E	“Start” of Indus or Harappan Civilization
1500 B.C.E	First of Invading Waves of Aryans (Indo-European Speakers)
500 B.C.E	Buddha; Historical Recordings; Philosophical Challenges to Brahminism
326 B.C.E	Alexander at Beas, tributary of the Sutlej hence, Indus
321 B.C.E	Chandragupta Maurya founds Maurya dynasty
260 B.C.E [#]	Asoka defeats the Kalingas; Promulgates “dhamma”
320 C.E. [@]	Chandragupta I founds Gupta Dynasty
400 C.E.	Gupta (and India) Golden Age; Chandragupta II (C.E 380-415)
606 C.E	Harsa’s Accession (“Camelot”)
711 C.E	Muhammad bin Qasim in Sind
1000 C.E	Mahmud of Ghazni Commences Series of Invasions/Raids
1185 C.E	Muhammad Ghuri Conquers Lahire
1206 C.E	Commencement of Delhi Sultanate (medieval India)
1526 C.E	Commencement of Mughal Empire

Source: Blackwell, 2004; # B.C.E - Before Common Era; @C.E. – Common Era

3.1.1.1 Ancient History

For close to two centuries following the 15th century, the Mughal Empire dynamically ruled northern India and a substantial part of the Deccan. This was evident by the virtue of establishing a common administrative system, the use of one common

¹ Fritz Blackwell, *India: A Global Studies Handbook* (California: ABC-CLIO, 2004), 13.

official language i.e. Persian and the implementation of a single coinage for commerce and trade. However, with the crossing of the mid 18th century, the weaknesses of the empire were exposed and this marked the decline and downfall of its majestic rule.²

The disintegration of the Mughal imperialism led to the rise of regional powers that formed autonomous States. These were: the State of Bengal formed in 1717, the State of Oudh formed in 1722 while the State of Hyderabad was founded in 1724. It is of importance to note that whereas these 3 States emerged officially after the fall of the Mughal Empire, there were other minor insurgent uprisings from the Marathas, Sikhs, Jats and Afghans that followed the fall. It is key to note the uprising of the Marathas for this marked the rise of Maratha State system and its polity in the early 1700. The other notable emergent States in South India about the same time of the fall of Mughal Empire include Mysore, Cochin Travancore and Calicut.³

A turbulent and chaotic political scenario was resultant of the disintegration of the Mughal Imperialism as well as the insurgent uprising of the regional powers. These conditions presented the best opportunities to the European's ambitions for religious, commercial and political gains. The Portuguese, Dutch, English and the French therefore played a critical role in the construction of modern historical India. The Anglo-French conflict in South India in the Carnatic war from 1744-1763 is a prime example of the aggressiveness of the Europeans for supremacy in the India.⁴ Another example of European aggressiveness and political ambition for supremacy in India is noted in the State of Bengal when in the late 17th century the East India Company was permitted to

² P.N. Chopra et al, *A Comprehensive History of Modern India* (New Delhi: Sterling Publishers Pvt. Ltd., 2003), 10.

³ Ibid, 14-20.

⁴ P.N. Chopra et al, 20.

rent more land in Calcutta thus increasing its influence in that merchant port city.⁵ This was in essence the crucial building blocks of the mighty British Empire in India.

3.1.1.2 Modern/Current State of Country

The unrestrained commercial activities of the East India Company in respect to the presidencies of Bengal, Bombay, Madras compelled the British government to enact a series of laws starting in 1773 that saw the limitation and control of the commercial activities of East India Company. The East India Company was finally abolished in 1857 thus begun the formal direct rule of the British Crown in India⁶ and this had its impact on the social fabric of the Indians.

Post-1857 period, the economic and revenue structure of the British Raj was kept unchanged if not taking direction for the worst. With time, the British outlook with regards to Indians changed from comparative openness to prejudice and xenophobia. This is evident by the fact that the British families resided in cantonments which were absent from the Indian settlements. Further on, the practiced culture of private clubs by the British denoted exclusivity and arrogance which further polarized the Indian communities. The draconian rule by the British, the fear of imposition of Christianity and a very heavy tax regime on the locals among other reasons led to the 1857 revolt. This was the awakening call for the Indians and thus ushered in a period of growth in respect to politics, expression of public opinion and the possibility of the emergence of an Indian

⁵ P.N. Chopra et al, *A Comprehensive History of Modern India* (New Delhi: Sterling Publishers Pvt. Ltd., 2003), 27.

⁶ K. K. Reddy, *History: General Studies* (New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2006), C.33.

leadership structure at regional and national level. These are the conditions that led to the establishment of the Indian National Congress (1885) and the Muslim League.⁷

By 1900, although Congress presented itself as the representatives of the people of India, it had failed to attract the Muslim community and this led to separatist trend that was growing vigorously. Gandhi and other Congress leaders had a vision for an Independent India that was socially progressive, morally regenerative as well as a free India. The Indian polity by 1922 experienced a surge of growth by the emergence of an assortment of political parties and groups. In the elections of 1937, the Congress emerged as the clear winner while the Muslim league had performed poorly. This unfortunately strengthened the animosity between the two parties and 10 years later it eventually led to the partition of India and Pakistan during the Independence.⁸

3.1.1.3 Independent India

Since the independence in 1947, India has experienced numerous changes to suggest growth in leaps and bounds both internally and in enhancing its global footprint. To begin with, India adopted its comprehensive constitution in 1950 that declares fundamental rights and freedoms and universal adult franchise. The constitution also mandates: (i) a bicameral parliament i.e. Rajya Sabha (Upper House) and Lok Sabha (Lower House) that is directly elected; (ii) an independent judiciary; (iii) a federal system with legislative powers separated between the national and state legislatures.⁹

⁷ K. K. Reddy, *History: General Studies* (New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2006), C.34.

⁸ *Ibid*, C.36.

⁹ S. Ganguly, L. Diamond and M. F. Platter, eds., *The State of India's Democracy* (USA: The John Hopkins University Press, 2007), 3-4.

The social fabric of India runs through language, religion, caste, tribe, rural and urban populace. Hindus are the predominantly the majority and easily constitute 80% of the total population. They are further divided by language and caste i.e. Brahmins (Priests), Kshatriyas (Warriors), Vaishyas (Merchants), Shudras (Farmers) and the Dalits (formerly the untouchables). However, they are not a majority in Arunachal Pradesh, Jammu and Kashmir, Lakshadweep, Meghalaya, Mizoram, Nagaland, and Punjab.¹⁰

Before India's independence, the nation was organized to small kingdoms and princely states. However, after independence, it was organized into States as follows.

Table 3.2: Year and Formation of the States of India¹¹

Year	States Formation
1947	Indian Independence
1956	14 States formed along linguistic boundaries.
1960	Gujarat and Maharashtra formed.
1963	Nagaland formed.
1966	Haryana formed.
1969	Madras gets renamed Tamil Nadu.
1971	Himachal Pradesh formed.
1972	Tripura, Meghalaya, Manipur formed.
1973	Mysore renamed Karnataka.
1975	Sikkim becomes a State
1987	Goa, Mizoram and Arunachal Pradesh formed.
2006	Uttaranchal, Chattisgarh, Jharkhand formed.

Source: J.C.Johari, 2007.

3.1.1.4 Indian Political System and Governance Since Independence

The Indian political system and governance since Independence is critical to the growth and development of the nation. With the launch of the comprehensive constitution in 1950, the style of political governance that was founded on the platform of democracy

¹⁰ S. Ganguly, L. Diamond and M. F. Platter, eds., *The State of India's Democracy* (USA: The John Hopkins University Press, 2007), 4.

¹¹ J. C. Johari, *The Constitution of India: A Politico-Legal Study. 4th ed.*, (New Delhi: Sterling Publishers Pvt. Ltd., 2007), 20.

had to be in consistence. Alaknanda Shringare observes that in the Indian context, the political system and governance of India can be partitioned into three periods i.e. “the governance during the Nehruvian period, governance in post-Nehru period and thirdly, governance since 1989.”¹² It is further indicated that India experienced a one party assertive political system post independence which lasted through her first 3 general elections of 1952, 1957 and 1962. The Indian National Congress was the mainstream party due to its numerical potency and superior bargaining capability in parliament.

The post-Nehru period is marked by a weakening Congress party due to the death of Nehru, a crushed India in the India-China war and a poorly performing economy accounted by high inflation. Governance after Nehru was subjugated by his daughter, Indira Gandhi who embraced a populist policy that brought turbulence and tension in the Indian political system. Due to this, non-Congress governments came to power especially at the State level and later at the Centre.¹³ Sadly, Indira Gandhi was assassinated in 1984 and her son Rajiv Gandhi assumed leadership of the party and nation but was defeated in elections 1989 and later assassinated in 1991.

Governance after 1989 elections took up a new face in which both at State and Centre, governance was through coalition government. Reasons for this are such that there were many strong regional and national parties and thus no one single political party could muster an outright majority in parliament hence since then i.e. 1989 – 2014, there has been coalition governments especially at the Centre. It is only in the recent elections of 2014 where the BJP party had an emphatic outright win at the Lok Sabha

¹² Alaknanda Shringare, *Party Politics and Democratic Governance in India* (New Delhi: Concept Publishing Company, 2009), 66.

¹³ *Ibid*, 68.

elections to a point where there was no other party to claim as leader of opposition by virtue of securing the required seats. The table below gives a historical summary of the India's polity and governance.

Table 3.3: Political Parties and PMs of India Since Independence

S No.	Party	Prime Minister(PM)	Period
1	Indian National Congress (INC)	Jawaharlal Nehru	1947-1964
2		Lal Bahadur Shastri	1964-1966
3		Indira Gandhi	1966-1977
4	Janata Party	Morarji Desai	1977-1979
5		Charan Singh	1979-1980
6	Indian National Congress	Indira Gandhi	1980-1984
7		Rajiv Gandhi	1984-1989
8	Coalition led by Janata Dal	Vishwanath Pratab	1989-1990
9	Indian National Congress	Chandra Shekar	1990-1991
10		P.V. Narasimha Rao	1991-1996
11	Bharatiya Janata Party (BJP)	Atal B Vajpayee	1996-1996
12	United Front supported by INC	H.D. Dave Gwoda	1996-1997
13		Inder Kumar Gujral	1997-1998
14	BJP led Coalition	Atal B Vajpayee	1998-1999
15	National Democratic Alliance (NDA)	Atal B Vajpayee	1999-2004
16	United Progressive Alliance (UPA) I	Manmohan Singh	2004-2009
17	UPA II	Manmohan Singh	2009-2014
18	National Democratic Alliance (NDA)	Narendra Modi	2014-

Source: Researcher's Compilation

Gulzarilal Nanda was caretaker Prime Minister twice in the 1960s, between Nehru and Shastri, and Shastri and Indira.

3.1.1.5 Economic Overview Since Independence

Post independence, India embraced a program of planned economic development by formulating the Five Year Plans and Planning Commission as the custodian institution working in tandem with the government and Reserve Bank of India. India has seen growth and development in terms of economy as well as people. Currently, India has

outperformed many countries in Asia though it is second to a fast surging China which is ahead in per capita income and other indicators comparatively to India.¹⁴

Table 3.4: India's Average Growth Rate and Development Strategy since Independence¹⁵

Plan	Period	Av. Growth Rate (%)	Development Planning Strategy ¹⁶
First Plan	1951-1956	3.7	Agricultural Development
Second Plan	1956-1961	4.2	Import Substitution led Growth, Heavy and Basic Industries
Third Plan	1961-1966	2.8	Economic Efficiency
Fourth Plan	1969-1974	3.4	Technological Reforms in Agriculture, Growth with Stability
Fifth Plan	1974-1979	5.0	Poverty Elimination
Sixth Plan	1980-1985	5.5	Food and Fuel Strategy
Seventh Plan	1985-1990	5.8	Human Resource Development
Eighth Plan	1992-1997	6.8	Privatization, Liberalization and Globalization
Ninth Plan	1997-2002	5.5	Growth with Social Justice and Equity
Tenth Plan	2002-2007	7.8	Growth with Social Justice and Equity
Eleventh ^{\$} Plan	2007-2012	8	Faster, Broad-based and Inclusive Growth
Twelfth ^{\$} Plan	2012-2017	5.8 (1 st Yr)	Faster, More Inclusive and Sustainable Growth

Source: Uma Kapila, 2008.

GNP at Factor Cost, 1993-94 prices; \$ 12th Five Year Plan 2012-17, p.42.

¹⁴ Uma Kapila, ed., *India's Economic Development Since 1947. 3rd ed.* (New Delhi: Academic Foundation, 2008), 29.

¹⁵ Ibid, 32.

¹⁶ Deepa Shree, *Indian Economy: Performance and Policies* (New Delhi: Tata McGraw-Hill Publishing Company, 2008), 4.14.

It is of importance to also point out that India's economy can be classified into three categories namely: primary sector, secondary sector and tertiary sector. The primary sector consists of Agriculture, Forestry and Logging, Fishing, Mining and Quarrying; the secondary sector is comprised of Manufacturing, Electricity, Gas and Water Supply and Construction while the tertiary sector include the Services such as Trade, Hotels, Transport and Communication, Financial services, etc.¹⁷

Considering a few areas of the economy, it is noticed that there has been significant growth and development post 2000. For example, FDI in 2000 stood at US\$ 3,588 million while in 2010 it was at US\$ 24,640 million. In regards to innovations, patent creation and performance, India was granted 131 patents in the USA while in 2010 there was an increase to 1137 patents. Elsewhere, the service industry exports grew from 27.4% in 2000 to 35.7% in 2009.¹⁸

3.1.2 Location

Modern Indian as it is was reduced to its present-day dimensions by the British rulers in 1947 during the partition of India and Pakistan. Consequently, India was situated in the Northern hemisphere between 8⁰ and 37⁰ N latitude and 68⁰ and 97⁰ E longitude. It is provided that the tropic of Cancer cuts across the middle of the country and thus the influence of tropical climate in the North and both tropical and equatorial climates in the South.¹⁹

¹⁷ Deepa Shree, *Indian Economy: Performance and Policies* (New Delhi: Tata McGraw-Hill Publishing Company, 2008), 6.5.

¹⁸ Shyma V. Ramani, ed., *Innovation in India: Combining Economic Growth and Inclusive Development* (UK: Cambridge University Press, 2014), 25-28.

¹⁹ Alexander P. Varghese, *India: History, Religion, Vision and Contribution to the World* (New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008), 8.

India is bordered by the Burma and Bangladesh to the East, the Bay of Bengal on the South East, Indian Ocean on the South, Arabian Sea on the South West, and Pakistan to the West. The following countries China, Nepal and Bhutan are situated to the North East of India while India's Andaman and Nicobar Islands have maritime borders with Thailand and Indonesia.

By the year 2012, India's total surface area was 3,287,260 sq.km. When compared to other countries in the world such as Russia, China and the USA, India is by far a small country. The metadata for world development indicators provides that India stands fourth to the Russian Federation which has a total surface area of 17,098,240sq.km followed by the United States of America with a total surface area of 9,831,510sq.km while India's neighbor China commands a total surface area of 9,526,911sq.km.²⁰ See the political map of India in Appendix 1(a).

3.1.3 Population

The population of India is the second in the world after China and followed by the USA. According to the Census 2011, India's population stood at 1,210.2 million people with a decadal percentage growth of 17.64%. This translates to at least a little more than one out of every six persons in the world comes from India. The same census provides that the total male population stands at 623.7 million while that of the females stands at 586.5 million.²¹

²⁰ The World Bank, "World Development Indicators" Internet; Available from; <http://databank.worldbank.org/data/reports.aspx?source=2&country=USA&series=&period>; Internet; Accessed October 20, 2014.

²¹ Government of India, "Census of India 2011: Provisional Population Totals" Internet; Available from; http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf, pg 38; Internet; Accessed October 20, 2014.

Table 3.5: Population Growth of India, 1901 to 2011²²

Census Years	Population	Decadal Growth (%)	Average Annual Exponential Growth Rate (%)	Progressive Growth Rate Over 1901 (%)
1901	238,396,327	-	-	-
1911	252,093,390	5.75	0.56	5.75
1921	251,321,213	0.31	-0.03	5.42
1931	278,977,238	11.00	1.04	17.02
1941	318,660,580	14.22	1.33	33.67
1951	361,088,090	13.31	1.25	51.47
1961	439,234,771	21.64	1.96	84.25
1971	548,159,652	24.80	2.20	129.94
1981	683,329,097	24.66	2.22	186.64
1991	846,421,039	23.87	2.16	255.05
2001	1,028,737,436	21.54	1.97	331.52
2011	1,210,193,422	17.64	1.64	407.64

Source: Census of India, 2011.

It is provided in the Indian Census 2011 that the population distribution by age group follows these patterns i.e. 0-4 years are 9.7%, 5-9 years are 9.2%, 10-14 years account for 10.5%, while the 15-59 years stand at 62.5% and those above 60 years account for 8.0%.²³ Another interesting aspect as regards the growth and evolution of the Indian population over time and space is its classification as provided by Husain. The phases of classification include:

- i. The period of stagnant population, 1901-1921.
- ii. The period of steady growth, 1921-1951.
- iii. The period of rapid growth, 1951-1981.

²² Government of India, “Census of India 2011: Provisional Population Totals” Internet; Available from; http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf, pg 41; Internet; Accessed October 20, 2014.

²³ Government of India, “Census” Internet; Available from; http://www.censusindia.gov.in/vital_statistics/SRS_Report/9Chap%20%20-%202011.pdf, pg 13. Internet; Accessed October 20, 2014.

- iv. The period of high growth with a declining trend, 1981-2011. (The earlier classification by author Husain only includes the period ending 2001. However, the researcher has taken liberty to include the years 2001 to 2011 as the population trends in this period project the same features i.e. high growth with declining trends).²⁴

India is predominantly a Hindu nation with 80% of the population is Hindu. Muslim population follows at 13%, with Sikhs and Christian consist of about 2% of the population while the Jains and Buddhists are under 1% of the population. The constitution of India decrees the country as Secular and therefore other religions such as Judaism, tribal religions are practiced.²⁵

3.1.4 Agro-Climatic Zones

The Agro-Climatic zones of India have a significant impact in the day to day livelihood of India. This is because there is a direct relationship between the climatic zones and the agricultural regions of India in determining the crop patterns and productivity.²⁶ The largest agro-climatic zone in India is the Western Plan which covers 338,612km² receiving an annual average precipitation of 612mm of rainfall. On the other hand, the smallest agro-climatic zone in terms of area is the Karanata Plateau which is 47,968km² receiving an annual average rainfall of 1,018mm. The other notable agro-climatic zones in India include: Northern Plan and Central Highland (327,968km²),

²⁴ Majid Husain, *Geography of India* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2009), 13.43.

²⁵ Peeyush Bajpal, L. Bandhari and A. Sinha, *Social and Economic Profile of India* (New Delhi: Indicus Analytics, 2005), 20.

²⁶ K. R. Krishna, *Agroecosystems of South India: Nutrient Dynamics, Ecology and Productivity* (Florida: Brown Walker Press, 2010), 53.

Deccan Plateau (314,404km²), Eastern Plateau and Eastern Ghats (280,968km²), Western Ghats and Coastal Plains (122,960km²), Western Himalayas (190,016km²), Assam and Bengal Plain (123,020km²), Islands of Adaman Nicobar and Laksha Dweep groups (8,281km²) among others.²⁷

3.1.5 Topography

India's topography is distinctly defined into three areas i.e. (i) the Deccan plateau region in the south, (ii) Himalaya mountain region in the north and (iii) the Indo-Gangetic Plain of Punjab and Bengal.²⁸ The Deccan plateau is also known as the Peninsular India and it is the region that lies between the Arabian Sea and Bay of Bengal. The Deccan lies between 1,000 to 2,500 feet above sea level with its slopes running to the east. It is comprised of the Western Ghats, Eastern Ghats and the Inland regions.²⁹

The Himalayas is a mountain range of 2,500km long stretching from Pakistan administered Kashmir to Tibet in China. The Indian region of the Himalayas is comprised of the Outer, Lesser and Greater Himalayas. The Outer Himalayas is also called as Shiwalik Range that doesn't exceed 6,500 feet; the Lesser Himalayas also known as the Lower/Middle Himalayas range to 15,100 feet; while the Greater Himalayas is the northern most and ranges to 16,000 feet which is home to Indian peaks at the Nepal border, Sikkim, and Uttaranchal.³⁰

²⁷ S. K. Jain, P. K. Agarwal and V. P. Singh, *Hydrology and Water Resources of India* (Netherlands: Springer, 2007), 46.

²⁸ Prithvish Nag and Smita Sengupta, *Geography of India* (New Delhi: Concept Publishing Company, 2002), 32.

²⁹ Kenneth Pletcher, ed., *The Geography of India: Sacred and Historic Places* (New York: Britannica Educational Publishing, 2011), 27-29.

³⁰ *Ibid*, 25.

The Indo-Gangetic Plain lies between the Himalayas and the Deccan stretching from the Pakistan Provinces of Sindu and Punjab in the west to Brahmaputra River Valley in Assam State. The Indo-Gangetic Plain is home to the Ganges River Basin as well as The Indian Desert in the south of the plain.³¹

3.1.6 Soils

With India being a very vast country, this provides great variations in terms of climatic conditions as well as the terrain. This has consequently affected the distribution of soils in India according to their texture, structure, color, pH value and porosity. The classification of the Indian soils is categorized into the following soils namely alluvial soils largely found Western valleys of Narmada, Tapi, Eastern and Western Coastal plains; regur i.e. black-earth soils situated in Gujarat, Maharashtra, Western MP, Karnataka, Tamil Nadu North West AP; red soils largely located Western tracks, Karnataka, Chattisgarh, Orrisa; lateritic soils located Jharkhand, W. Bengal, Assam, etc; mountain soils of Darjeeling, Uttarkhand, Assam, etc; red and black soils of East Aravallis, Bhundelkhand, etc; grey and brown soils of Rajasthan and Gujarat; submontane soils in JK and Assam; and snowfields up in the Himalayas, Ladakh, Zaskar.³²

3.1.7 Rainfall and Climate

The rainfall patterns in India are governed by the Monsoons winds. Keeping in mind that India is home to a variety of climatic conditions, the rainfall patterns will

³¹ Kenneth Pletcher, ed., *The Geography of India: Sacred and Historic Places* (New York: Britannica Educational Publishing, 2011), 26-27.

³² Majid Husain, *Geography of India* (New Delhi: Tata McGraw-Hill, 2008), 6.4-6.5

therefore vary from region to region. For example, on average the State of Assam can record 1,080cm of rain/year whereas in the Rajasthan desert, rainfall is as low as 10cm a year. The western coast of India such as Western Ghats and North Eastern India in regions like Meghalaya generally receive more rains as compared to regions such as Gujarat, Haryana, Punjab, and the Deccan Plateau which are dryer while the rest of the country will receive moderate precipitation. It is of importance to note that over 80% of the rainfall in India is received between July to September giving an all India average of about 125cm.³³

With respect to the vastness of the Indian Subcontinent, the climatic seasons are due to India's great latitudinal dimensions. These climatic seasons of India are divided into four major seasons which fundamentally make India's climate to be a sub-tropical monsoon climate. The seasons and their respective time periods are as follows: Winter seasons i.e. mid December to mid March; Hot weather seasons i.e. mid March to May; Rainy/Monsoon season i.e. June to September; and Season of retreating Monsoon i.e. October to mid December.³⁴

3.1.8 Rivers & Lakes

The rivers of India are not uniformly spread over its vast country resulting to the North Eastern regions being more watered as compared to the rest of the country. The various river basins of India include: the Indus (up to the border), Ganga, Brahmaputra and Meghna, Subernarekah, Brahmani-Baitarani, Mahanadi, Godavari, Krishna, Pennar, Cauvery, Tapi, Narmada, Mahi and Sabarmati. The other noted river basins of India

³³ Edgar Thorpe and Showick Thorpe, *General Studies Manual* (New Delhi: Dorling Kindersley, 2009), 5.195-5.916.

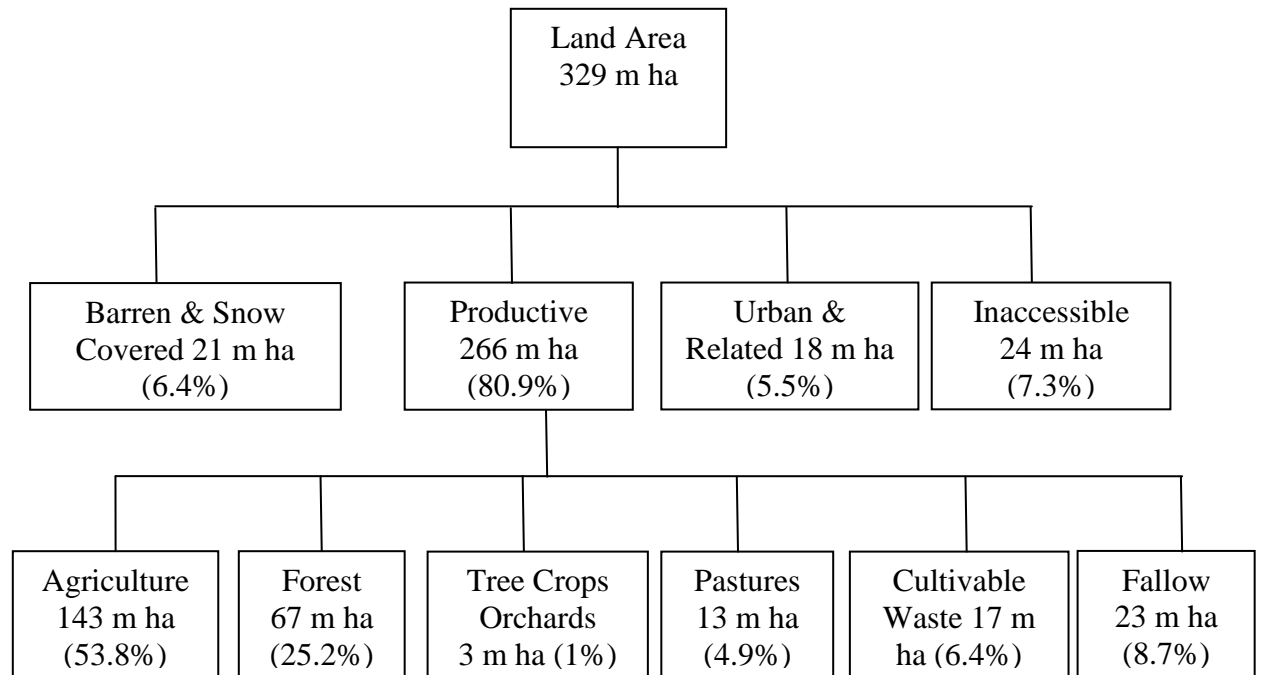
³⁴ Majid Husain, *Geography of India* (New Delhi: Tata McGraw-Hill, 2008), 4.15-4.16.

feature the west flowing rivers of Kutch, Saurashtra including Luni, west flowing rivers between Tapi and Kanyakumari, east flowing rivers between Mahanadi and Pennar and east flowing rivers between Pennar and Kanyakumari.³⁵

3.1.9 Land Utilization

The utilization of land in India is for purposes such as agriculture, mining, construction and development. However, it must be emphasized that with already high growth rates of population for both human and animal, land utilization in India must embrace a judicious fashion so as to guarantee sustainable development. Land utilization patterns in India are as follows:

Fig. 3.1: Land Utilization Classification in India³⁶



³⁵ Upali A. Amarasinghe et al, ed., *Strategic Analysis of National River Linking Project (NRLP) of India Series 1: India's Water Future-Scenarios and Issues* (New Delhi: International Water Management Institute, 2009), 7.

³⁶ S. K. Jain, P. K. Agarwal and V. P. Singh, *Hydrology and Water Resources of India* (Netherlands: Springer, 2007), 33.

3.1.10 Irrigation

The Indian agricultural sector relies on irrigation as its backbone. According to the Economic Survey of India 2013-14, it is clearly pointed out that the area covered by irrigation is 63 million ha or 45% of the net cropped area.³⁷ However, supplementary information supported by the national sample surveys indicate that India's irrigation economy could be fairly larger than as officially reported in the government circulars.³⁸ The most common methods of irrigation employed in India are such as surface irrigation, sprinkler irrigation and drip irrigation. These are used to augment the rain-fed agriculture.³⁹

It must be noted here that the vast irrigation network in India has been built up and expanded out of colossal government investments and continued financial support in terms of subsidy. As of December 2013, a total sum of ₹ 64, 288Cr was disbursed by the Union Government to State Governments through the Accelerated Irrigation Benefit Program (AIBP).⁴⁰

3.1.11 Animal Husbandry and Dairy

Various records of 'Rgveda' note that in India, animal husbandry was a developed economic activity as early as the pre-verdic times.⁴¹ Many traditional families and communities depended on animal husbandry as an economic activity rearing animals such

³⁷ Ministry of Finance, *Economic Survey of India 2013-14* (New Delhi: Government of India, 2014), 145.

³⁸ Rajiv Kumar, Abhijit Sen Gupta, eds., *India and the Global Economy* (New Delhi: Academic Foundation, 2008), 178.

³⁹ P. C. Bansil, *Water Management in India* (New Delhi: Concept Publishing Company, 2004), 12.

⁴⁰ Ministry of Finance, 145.

⁴¹ Lallanji Gopal and V.C. Srivastava, *History of Agriculture in India, Upto C. 1200AD* (New Delhi: Concept Publishing Company, 2008), 275.

as cows, buffaloes, sheep, goats, elephants, dogs, mules, camels, swine and many more. The importance of Animal Husbandry and Dairy in the Indian economy cannot be understated as this is significant to the India's food basket, nutrition security, and household income among many other allied benefits such as the production of meat, wool, fish, milk, eggs, and livestock.⁴² According to the Economic Survey 2012-2013, the Livestock sector made a contribution of over 4.1% towards the total GDP in 2012-13.⁴³

3.1.12 Forest and Wasteland Development

India's characteristic high growth population has tremendous impact on the reserves of her natural resources. Year after year of population high growth puts more pressure for an increased demand for basic needs such as food grains, fuel, fodder, goods as well as services. Consequently, this has resulted to an alarming increased rate of environmental degradation as well as there has been seen a rise in wastelands areas. To this end, it has been pointed out categorically by Yadav that India has lost up to about 50% of its forest cover, productive forest resources and grazing lands haven been reduced by half leading to an insufficient production of food, fuel wood and fodder that is key to the sustenance of both human and cattle population.⁴⁴

The concept of social forestry in India is a program that is intended for the transversely scattered villages of India through the platforms of community forestry and

⁴² Department of Animal Husbandry, Dairying & Fisheries, *Annual Report 2012-13* (New Delhi: Ministry of Agriculture, 2013), 3.

⁴³ Ministry of Finance, *Economic Survey 2013-14* (New Delhi; Government of India, 2014), 137.

⁴⁴ Hridai R. Yadav, *Agro-Afforestation Management on Wastelands* (New Delhi: Concept Publishing Company Pvt. Ltd., 2011), 2.

agro-forestry with the aim of providing fuel wood, fodder, and timber.⁴⁵ The program is implemented by the Indian Forestry Department with the interest of promoting to the people to plant trees on hillsides, roadsides, and wastelands.⁴⁶

3.1.13 Industry Development

Modern industrial development in India had its genesis in the mid 19th century when the first cotton mill was set up in Bombay in 1854. The Jute industry begun in the following year in Kolkata while the Indian railways was instituted in 1854. Other industries such as chemical, sugar, cement, glass, paper were set up progressively in the period leading to Independence. It is to be noted however, that industrial production through this phase was specialized and insufficient. With the dawn of Independence, the planning era took center stage to shape up India's industrial policy.⁴⁷

The evolution process of the Indian industrial development since her independence is broadly marked by two styles of approach that were practiced i.e. the period before the New Economic Policy of 1991 followed a Nehruvian dispensation that was characterized by tight controls. After 1991, the policy structure for industrial development embraced an ease up approach that typified liberalization, deregulation and market oriented features.⁴⁸ In summary, the industrial development process has taken four directions i.e. (i) Broad expansion of industrial base; (ii) Development of public sector;

⁴⁵ L. K. Jha and P. K. Sen-Sarma, ed., *Forest Entomology* (New Delhi: A.P.H Publishing Corporation, 2008), 321.

⁴⁶ Nicholas K. Menzies, *Our Forest, Your Ecosystem, Their Timber: Communities, Conservation, and the State in Community-Based Forest Management* (New York: Columbia University Press, 2007), 9.

⁴⁷ S.A Qazi and N. S. Qazi, *Natural Resource Conservation* (New Delhi: A.P.H. Publishing Corporation, 2007), 205.

⁴⁸ S. R. Hashim et al, eds., *Indian Industrial Development and Globalization: Essays in Honor of Prof S. K. Goyal* (New Delhi: Academic Foundation & ISID, 2009), 63.

(iii) Controlled imports and less reliance on them; and (iv) Globalization of industries and progressive privatization.⁴⁹ A defined role for industrial development has been played by the private corporate sector. This has been possible owing to two factors i.e. augmented capital inflows and improved infrastructure investment through the public-private partnership (PPP) formulae leading to growth in industrial production.⁵⁰

For the Indian industrial policy to be more aggressive and dynamic, it calls for the Planning Commission, the government and other allied institutions such as the Reserve Bank of India (RBI) to function in tandem to coordinate economic activities as well as supply appropriate measures for challenges created internally as well as externally. This will in turn foster the development of an industrial policy that is updated, forward-looking to increase productivity and improve employment in a global economic environment.

3.1.14 HISTORY OF TRANSPORT DEVELOPMENT SYSTEM OF INDIA

For the purpose and context of the present study, the history of transport development system of India will be considered in detail starting from the colonial era to post colonial and modern India.

Considering pre-historic and ancient India, it is evident that commerce and trade was characteristic in these societies. Therefore, there was an established form of transport network connectivity which was medieval in nature for the movement of people, animals, goods and services. It is on this background that the Indian transport system was

⁴⁹ T.R. Jain et al, *Microeconomics and Indian Economy* (New Delhi: V.K. Publications, 2009-10), 188.

⁵⁰ Uma Kapila, ed., *India's Economic Development Since 1947. 3rd ed.* (New Delhi: Academic Foundation, 2008), 136.

developed to an organized transport network right from the Harapan Civilization down through to the Mughal times and later to the colonial ruled India.

Under the British rule, India's transport network was further developed for the movement of natural resources from the interior to the sea ports for exports mainly to Europe. Consequently, transport network facilities were developed in areas such as Calcutta in Eastern India this being the main and earliest administrative city; Bombay and Ahmedabad in Western India; Delhi, Agra, Jaipur, Lucknow and Amritsar in Northern India. Other transport network developments in Southern India included cities such as Madras, Hyderabad, Bangalore, Madurai and Tiruchalapalli. The Indian transport system consists of railways, roads, waterways and airways which are fairly developed as compared to the neighboring countries and among the third world countries. It is provided that India's railroad is the largest in Asia while the paved road network is estimated to be the second after the USA world over.⁵¹

3.1.14.1 Development of Railway Transport

It is of importance to state that the British India gave more importance to the construction of the railways and not roads as the main mode of transport network connectivity.⁵² Reasons for this skewness are based on the objectives that were identified for railway development in 1850. These were: (i) achievement of superior degree of efficiency for military and civil administration, (ii) collection of raw materials to promote

⁵¹ P. Nag and S. Sengupta, *Geography of India* (New Delhi: Concept Publishing Company, 1992), 206.

⁵² M. Razi and A. Aggarwal, *Transport Geography of India: Commodity Flows and Regional Structure of Indian Economy* (New Delhi: Concept Publishing Company, 1999), 58.

the British Industry and (iii) homogeneous distribution of food and finished products to enhance consumption of English goods.⁵³

Between 1844-69, the railway routes had developed to 6,847km and by 1930, the total route kilometer had increased to 67,146km. However, due to the Partition of India, this resulted to the division of the railway assets and therefore, total route kilometer was cut down to 53,596km.⁵⁴ According to statistics of 2010, the total railway route is approximately 63,000km with a total number of 7,100 railways stations all over India making it the largest in Asia and the fourth largest in the world.⁵⁵

The Indian railway system is divided into 16 zones has shown in the table below.

Table 3.6: Railway Zones of India⁵⁶

S.No	Railway Zones	Headquarters
1	Central	Mumbai VT
2	Western	Mumbai Churchgate
3	Eastern	Kolkata
4	East Coast Railway	Bhubaneshwar
5	Northern (10,995km)	New Delhi
6	East Central	Hajipur
7	North Eastern	Gorakhpur
8	North Central	Allahabad
9	North East Frontier (3,860km)	Maligaon Guhawati
10	North Western	Jaipur
11	Southern	Chennai
12	South Western	Bangalore (Hubli)
13	South Central	Secunderabad
14	West Central	Jabalpur
15	South Eastern	Kolkata
16	South East Central	Bilaspur

Source: Bhardwaj, 2010.

⁵³ B. C. Vaidya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 3.

⁵⁴ *Ibid*, 4-5.

⁵⁵ A. P. Bhardwaj, *Study Packet for CLAT and LLB Entrance Examinations* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010), B.144.

⁵⁶ *Ibid*, B.144.

The current 12th Plan outlines for the railway development indicate that capacity in the railways lags behind; there is also a necessity to move away from road transport to rail with the need for enhancing energy efficiency, and cutting down the carbon print that comes along with development process. Further on, it has been pointed out that expansion in railway development should include technological modernization, greater awareness to safety and processes to ascertain financial viability.⁵⁷

3.1.14.2 Development of Road Transport

As pointed out earlier, road network development in India was significantly neglected by the British rulers especially in the pre-independence era. However, it must be noted that road development then was predominantly for administrative and strategic purposes therefore the roads were developed and maintained by the Military Boards as early as 1855. The main objective of road construction and development especially during the 2nd World War by the British rulers was to supply feeder roads for the railways in the frontiers with the objective of transporting the military and materials. It is further noted that the British government in 1930 embarked on a road expenditure curtailment policy and thus were satisfied with patch repairs only. Consequently it is concluded that road network development in the pre-independence era was unbalanced.⁵⁸

In 1943, the Nagpur Plan was envisioned by Chief Engineers from various Indian States to develop a blue print of national road development for the next 20 years. It is on the recommendations of the Nagpur Plan that the Indian road network was divided into

⁵⁷ Planning Commission (GoI) 2013, *Twelfth Five Year Plan 2012-2017: Faster, More Inclusive and Sustainable Growth* (New Delhi: Sage Publications Pvt. Ltd., 2013), 17.

⁵⁸ B. C. Vaidya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 21.

four classes i.e. National Highways, State Highways, Major District Roads and Other District Roads. This was for the sole objective of the Central government to coordinate a balanced road development agenda. After Independence, the Planning Commission and the government worked in tandem to achieve a better road development network countrywide. Consequently, the Bombay Plan was designed to coordinate road development agenda for the years 1961 to 1981. With the expiry of the 20 year period, The Lucknow Plan (1981-2000) also known as The Road Development Program was marked out and implemented as the flag carrier for road development in India.⁵⁹

The period after 2000 has experienced intensified road development projects at both National and State level. The major examples of these include: the Golden Quadrilateral Project under the National Highway Development Plan connecting four metro cities Delhi, Mumbai, Chennai and Kolkata; the North South East West Corridor which is the construction of the largest expressway i.e. 7300km of four six lane expressway connecting Srinagar, Kanyakumari, Porbandar and Silchar. Further on, the road development blue print in the 11th Five Year Plan provides that a Master Plan which is all-inclusive in nature was proposed for the development of 15,600km of Accessed Controlled Expressways.⁶⁰

3.1.14.3 Development of Water Transport

Compared to other forms of transport in India, the water transport is the less developed form of transport even though comparatively it is the mode of transport that is

⁵⁹ B. C. Vaidya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 22-23.

⁶⁰ Planning Commission (GoI) 2008, *Eleventh Five Year Plan 2007-2012: Inclusive Growth Vol.1* (New Delhi: Oxford University Press, 2008), 12.

efficient, cheap and environment friendly. Reasons for this are such that railway and road transport was given more emphasis both by the government pre and post independent India. The inland water ways of India consists of river systems, canals, backwaters, creeks, and tidal inlets that easily stretch to a length of 14,500km. Mechanized navigation accounts for 5200km in major rivers and 485km in canals while non-mechanized navigation stands at about 7800km.⁶¹ Some of the challenges facing the India Waterways include: non-maintenance of channels, low cargo offerings, lack of infrastructure facilities and need for large investments.⁶²

Significant reforms in the Indian Waterways that promoted development were initiated in 1986 when the Inland Waterways Authority of India was formed with the mandate of developing navigation on national waterways.⁶³ Consequently, the national waterways were divided into four as shown in the table below.

Table 3.7: Classification of Inland Waterways of Indian⁶⁴

Waterway	Route	Length
NW 1	Allahabad to Haldia (the Ganga)	1,629km
NW 2	Sadia to Dhubari (the Bhramatura)	819km
NW 3	Kollam to Kottapuram	186km
NW 4	Kakinada to Marakkanam (Godawari-Krishna River)	1,100km

Source: Bhardwaj, 2010.

⁶¹ M.C. Chaturvedi, *India's Waters: Environment, Economy and Development* (Florida: CRC Press, 2012), 139-140.

⁶² Ibid, 140.

⁶³ Ibid, 140.

⁶⁴ A.P. Bhardwaj, *Study Packet for CLAT and LLB Entrance Examinations* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010), B.146.

As regards to the ports in India, the Inland Waterways Authority classified the ports into three categories i.e. 12 major ports, 178 minor and intermediate ports. The table that follows shows the various major ports of India.

Table 3.8: Major Ports of India⁶⁵

S.No	Port	State
1	Kolkata (including Haldia)	West Bengal
2	Paradip	Orisa
3	Vishakhapatnam	Andhra Pradesh
4	Chennai	Tamil Nadu
5	Ennore	Tamil Nadu
6	Tuticorin	Tamil Nadu
7	Cochin	Kerala
8	New Mangalore	Karnataka
9	Mormagao	Goa
10	Jawaharlal Nehru	Maharashtra
11	Mumbai	Maharashtra
12	Kandla	Gujarat

Source: Bhardwaj, 2010.

3.1.14.4 Development of Air Transport

The genesis of air transport development in India was in the year 1920 when the Government constructed some aerodromes and by 1927 the Civil Aviation Department was set up. By 1953, there were about nine private airlines operations with the prime example of Tata Airlines which started in 1935.⁶⁶ The government passed the Air Transport Corporation Act in 1953 to nationalize all private airlines for the reasons that the financial operation of the airlines was not viable. Consequently, Indian Airlines

⁶⁵ A.P. Bhardwaj, *Study Packet for CLAT and LLB Entrance Examinations* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010), B.146.

⁶⁶ *Ibid*, B. 145.

Corporation was established to operate the domestic routes while Air India International was to ply the international routes.⁶⁷

Another major development in the Indian Aviation Industry is the repealing of the Air Corporations Act in 1994 that ushered in the end of government monopoly in the aviation industry. Due to this, a number of private players have ventured into the Aviation Industry. Examples include: Jet Airways, Sahara, Indigo, Kingfisher, etc. It is of importance to note that Pawan Hans Ltd provides helicopter services to areas such hill stations, remote area and the oil rich sectors. As regards to the number of civilian airports in India, India has more than 334 civilian airports with 238 of them are paved runways while 108 have unpaved runways. The table below shows the 12 major international airports of India.

Table 3.9: Major International Airports in India⁶⁸

S.No	Airport	City
1	Begempet Airport	Hyderabad
2	Calicut I. Airport	Calicut
3	Chatrapati Shivaji I. Airport	Mumbai
4	Chennai I. Airport	Chennai
5	HAL Airport	Bangalore
6	Goa Airport	Vasco da Gama
7	Lakpriya Gopinath Bordolic I. Airport	Guwahati
8	Indira Gandhi I. Airport	Delhi
9	Netaji Subash Chandra Bose I. Airport	Kolkata
10	Raja Sansi I. Airport	Amritsar
11	Sardar Vallabhbai Patel I. Airport	Ahmedabad
12	Thiruvananthapuram I. Airport	Thiruvananthapuram

Source: Bhardwaj, 2010.

⁶⁷ J.G. Valan Arasu, *Globalization and Infrastructural Development in India* (New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008), 241.

⁶⁸ A.P. Bhardwaj, *Study Packet for CLAT and LLB Entrance Examinations* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010), B. 146.

3.1.15 ORIGINAL AND CURRENT STATUS OF ROAD TRANSPORT

It is of importance to understand that in the analysis of the original and current status of road transport in India, the periods before and after independence are of significance. The rationale for this is such that road development in India had been kicked started by the British government before independent India. Arasu's work points out that on the background of rapid development activities done before independence, the period between 1950 and 1990, the road development sector of India experienced exponential growth to account for 70% in the total length of national highways while the other classified roads indicated an increase of total road length of 544%. However, it is to be noted that over 50% of the roads in the country are still unpaved.⁶⁹

According to the 12th Five Year Plan, it is indicated that the central government has facilitated the strengthening of the National Highway programs and the improvement of the rural roads connectivity. However, these development efforts unfortunately fall short in term of providing capacity when compared to the demand for transport services on the ground and therefore are inadequate in several accounts. High traffic density, high speeds and poor riding quality have been identified as challenges that undermine the efforts of the Central government in the road development and connectivity agenda.⁷⁰

The table that follows shows the road network development of India from the period prior to independence to the year 2000.

⁶⁹ J.G. Valan Arasu, *Globalization and Infrastructural Development in India* (New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008), 156.

⁷⁰ Planning Commission (GoI) 2013, *Twelfth Five Year Plan 2012-2017: Economic Sectors Vol.II* (New Delhi: Sage Publications India (Pvt) Ltd., 2013), 215.

Table 3.10: Historical Road Network Development in India⁷¹

Development Plan	Roads	Government Policy/Program
Nagpur Plan of 1943	<ul style="list-style-type: none"> ➤ National Highways ➤ State Highways ➤ Major District Roads ➤ Other District Roads 	<ul style="list-style-type: none"> ➤ Overall and comprehensive road network planning at National level ➤ Short and long term measures for road restorations ➤ Balanced and coordinated road development
Bombay Plan (1961-1981)	<ul style="list-style-type: none"> ➤ Major road connections to be developed, semi-developed, backward areas, agricultural areas and centers, industrial centers, social and administrative centers. 	<ul style="list-style-type: none"> ➤ Road density of 32km per 100 sq km ➤ Village connectivity of road distance of 6.5km to 13km with metal roads ➤ 2.4km to 20km for other roads ➤ Road density double to 80km/250 sq km
Lucknow Plan/Road Development Program (1981-2000)	<ul style="list-style-type: none"> ➤ National Highways ➤ Expressways ➤ Village Roads 	<ul style="list-style-type: none"> ➤ Connectivity and accessibility to villages with population over 5000 ➤ Increase of National Highways ➤ Construction of Expressways in high density corridors ➤ Aspects of environment, maintenance and road safety

Source: Vaidya, 2003.

In 1988, the National Highways Authority of India (NHAI) was established by an act of Parliament i.e. National Highway Authority of India Act, 1988 and was given the mandate to implement new highway reforms through the National Highways Development Project (NHDP).⁷² The NHAI is a separate entity in road development activities but it is accountable to the Ministry of Road Transport and Highway. The table that follows indicates the various projects for road development that were rolled out under the NHAI through the NHDP in the years post 2000.

⁷¹ B.C. Vaidya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 21-23.

⁷² Nicholas C. Hope et al, eds., *Economic Reforms in India: Challenges, Prospects and Lessons* (Cambridge: Cambridge University Press, 2013), 513.

Table 3.11: Various Phases of NHDP⁷³

NHDP	Roads	Description	Length
Phase I (2000)	Golden Quadrilateral (GQ); NS-EW; Port Connectivity; Other NHs	Connecting 4 major metro cities i.e. Delhi-Mumbai-Chennai-Kolkata-Delhi.	5,846km 981km 380km 315km
Phase II (2003)	NS and EW Corridors (NS-EW), Other NHs	Connecting Srinagar & Kanyakumari and Silchar to Porbander with a spur from Salem to Cochin	6,161km 486km
Phase III	4/6 Lanning of National Highways	High density traffic corridors State capital connectivity Connectivity with centers of tourism and economic importance	12,109km
Phase IV	National Highways	Upgrading NH to 2 lane with paved shoulders	20,000km
Phase V	6 Lanning of NHs		6,500km
Phase VI (2006)	Access Controlled Expressways	Development of fully Access Controlled Expressways	1,000km
Phase VII	36 stretches in different States	Construction of Ring Roads, Bypasses, Grade Separators, Flyovers, Elevated Roads, Tunnels, Road Over-bridges, Underpasses, Service Roads	700km

Source: MoRTH, 2012.

Concomitantly, it is of significance to point out that the NHAI has other road development activities for specially challenged areas such as the North East Region and the Left Wing Extreme areas. The programs by NHAI underway in these two regions include: (i) Special Accelerated Road Development Program for North East Region (SARDP-NE) which is aimed at improving the road connectivity between the State capital and the District Headquarters of the North East region. The program proposes the improvement of National Highway of 4,798km and 5,343km of State roads; (ii) Improvement of Road Connectivity in Left Wing Extreme (LWE) affected areas. The

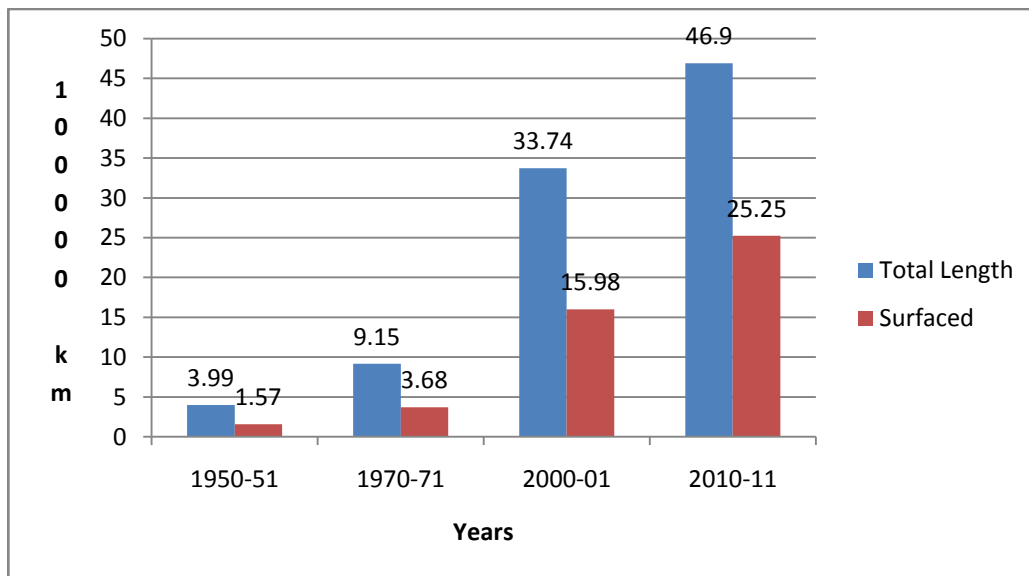
⁷³ MoRTH (GoI), *Annual Report 2011-12* (New Delhi: GoI, 2012), 3-4.

LWE affected areas are set for scheme development of NH and State roads covering 34 districts in 8 States. In this scheme, 1,126km of NH and 4,351km of State roads will be developed.⁷⁴

3.1.15.1 Total Road Length

The total road network in India has expanded since independence. As of 2011, the road length grew from 399,000 km in 1951 to 4,690,000 km. It is provided that the surfaced road length expanded in absolute and relative terms i.e. in 1951 the total surfaced road length was 157,000 km while in 2011 it had up surged to 2,525,000 km. Road network of India holds a density of 1.43km per square kilometer which consists of NHs, Expressways, SHs, Major District Roads, Other District Roads and Village Roads.⁷⁵

Chart 3.1: India's Total Road Length, 1950-1951 to 2010-2011⁷⁶



Source: Lok Sabha Secretariat, 2013.

⁷⁴ MoRTH (GoI), *Annual Report 2011-12* (New Delhi: GoI, 2012), 4.

⁷⁵ Lok Sabha Secretariat (GoI), *National Highway Development Project: An Overview* (New Delhi: LARRDIS, August 2013), 1.

⁷⁶ *Ibid*, 1.

The distribution pattern of the road length network in India is as follows: the NHs and Expressways constitute of 79,116km, the State Highways (SHs) comprise of 155,716km while the Other Roads make up 4,455,010km. Further on, considering the NHs in terms of width, it is as follows: Single lane/Intermediate lane comprises of 19,330km (24%), the Double lane covers 40,658km (52%) while the Four lane/Six lane and Eight lane hold 19,128km (24%).⁷⁷ To this end, the density of Indian road network is currently at 0.66km of highway/sq.km of land as compared to that of USA (0.65), China (0.16) and Brazil (0.20).⁷⁸

3.1.15.2 Road Density in India

The World Bank provides that, “Road Density is the ratio of the length of the country’s total road network to country’s land area. The road network includes all roads in the country i.e. motorways, highways, main or national roads, secondary or regional roads and other urban and rural roads.”⁷⁹ The growth of road density of India is an indication that there has been an increase of NHs, Expressways and village roads due to new road network constructions. This is a further reflects the rise in connectivity and accessibility on the Indian roads which further facilitates the movement of goods and services. In turn the Indian economy stands to benefit due to the increased road network infrastructure. The Table 3.12 presents India’s road density as per the definition given by World Bank.

⁷⁷ Lok Sabha Secretariat (GoI), *National Highway Development Project: An Overview* (New Delhi: LARRDIS, August 2013), 3.

⁷⁸ Dezan Shira et al, *Doing Business in India* (New York: Asia Briefing Ltd, 2012), 28.

⁷⁹ World DataBank, “Road Density”, [report online]; Internet, Available from: <http://www.factfish.com/statistic-comparison/in-ke/road%20density> ; Internet; Accessed on March 05, 2015.

Table 3.12: Road Density of India⁸⁰

Year	India's Road Density (km/100sq.km)
2000	101
2001	103
2002	104
2003	107
2004	110
2005	116
2006	118
2007	122
2008	125
2009	136
2010	139
2011	143

Source: factfish.com

The above table presents India's road density. As it can be observed, India's road density has been growing gradually from 101 km/100sq.km in 2000 to 143km/100sq.km to reflect a growth of 41.54%. This is because of the robust road development program of government through the NHAI.

3.1.15.3 Classification of India's Road Network

The classification of the Indian roads was done in 1943 under the then Nagpur Plan with the objective of creating an overall and comprehensive road network. The format followed includes:

- i. National Highways (NHs) – Traverse all States forming a principle network for overall commercial and strategic transportation.⁸¹

⁸⁰ FactFish, "India's Road Density", [report online]; Internet, Available from: <http://www.factfish.com/statistic-country/india/road%20density> ; Internet; Accessed on March 05, 2015.

⁸¹ B.C. Vaidya, ed., *Geography of Transport Development in India* (New Delhi: Concept Publishing Company, 2003), 21-22.

- ii. State Highways (SHs) – Serve as the main roads in the States.
- iii. District Roads – Take the traffic from the main roads to the interior of the districts.
- iv. Village Roads – Provide links between villages and other roads.
- v. Border Roads – Connects the inaccessible border areas.⁸²

It is of significance to note that the Border Roads are constructed by the Border Road Organization (BRO) which is under the Central government. BRO is a civil engineering establishment with the mandate of civil construction and engineering cover to the Armed Forces of India. It was started in 1960 with the responsibility of linking the hither to deserted areas of the North and North East and also the fortification of tumultuous borders. However, BRO today has expanded its mandate to construction of airfields, building works, model hospitals and bridges.⁸³

3.1.15.4 Major National Highways of India

The Central government has the mandate of developing and maintaining the National Highways while the State governments look after the construction and development as well as maintaining and rehabilitation of State Highways and District rural roads for village connectivity and accessibility. The National Highways are considered as fundamental and thus span the whole country connecting State capitals, ports, industrial and tourist centers. Some of the major National Highways of India are listed in the table that follows. The NH 7 is listed as the longest highway of India.

⁸² M.D. Sharma, *Paramilitary Forces of India* (Delhi: Kalpaz Publications, 2008), 309.

⁸³ *Ibid*, 309.

Table 3.13: Some of the Major National Highways of India⁸⁴

National Highway (NH)	Route
NH 1	New Delhi, Ambala, Jalandar, Amristar
NH 2	Delhi, Mathra, Agra, Kanpur, Allahabad, Varanasi, Kolkata
NH 3	Agra, Gwalior, Nasik, Mumbai
NH 4	Thane and Chennai via Pune and Belgaum
NH 5	Kolkata, Chennai
NH 6	Kolkata, Dhule
NH 7	Varanasi, Kanyakumari
NH 8	Delhi, Mumbai via Jaipur, Baroda and Ahmedabad
NH 9	Mumbai, Vijaywada
NH 10	Delhi, Fazika
NH 11	Agra, Bikaner
NH 12	Jabalpur, Jaipur
NH 24	Delhi, Lucknow
NH 27	Allahabad, Varanasi
NH 28	Barauni, Lucknow
NH 29	Gorakhpur, Varanasi
NH 56	Lucknow, Varanasi

Source: Bhardwaj, 2010.

A key reason as to why the growth of the NHs since independence has had a very vigorous expansion is due to the well balanced and coordinated approach that is embraced by the Central government through the Planning Commission of India that has been working in tandem with the Ministry of Roads and Highway Transport of India. This is evident in the table below which shows the progressive expansion of the NHs through the Plan periods.

⁸⁴ A.P. Bhardwaj, *Study Packet for CLAT and LLB Entrance Examinations* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010), B. 145.

Table 3.14: NHs Expansion During the Five Year Plans⁸⁵

Plan-Wise Addition to NH Network		
Period	Length added (km)	Total Length (km)
As on 01-04-1947		21,378
Pre 1st Plan (1947-51)	815	22,193
1st Plan (1951-56)		22,193
2nd Plan (1956-61)	1,514	23,707
3rd Plan (1961-66)	179	23,886
Interregnum Period (Rolling Plan) 1966-69	52	23,938
4th Plan (1969-74)	4,819	28,757
5th Plan (1974-79)	220	28,977
Interregnum Period (Rolling Plan) 1979-80	46	29,023
6th Plan (1980-85)	2,957	31,980
7th Plan (1985-90)	1,632	33,612
Interregnum Period (Rolling Plan) 1990-92	77	33,689
8th Plan (1992-97)	609	34,298
9th Plan (1997-2002)	23,814	58,112
10th Plan (2002-07)	9008*	66,590
11th Plan (2007-12)	10,228	76,818

Source: Lok Sabha Secretariat (GoI), 2013.

* 530km length of NHs of Madhya Pradesh has been de-notified

⁸⁵ Lok Sabha Secretariat (GoI), *National Highway Development Project: An Overview* (New Delhi: LARRDIS, August 2013), 8.

3.1.15.5 Reforms in the Road Sector

The focal point of these reforms through Parliament Acts in relevance to the present study is to give a reflection of the historical perspective of the reforms that were embraced by the government so as to meet the need of the day in promoting a progressive agenda for road development. The table that follows provides the various Acts passed by the Indian Parliament since independence that have played a critical role in determining the course for road development activities in India.

Table 3.15: Various Acts of Parliament for Road Development⁸⁶

Road Transport Sector	
Passenger Transport	Road Transport Corporation Act, 1950 Motor Vehicles Act, 1988 Central Motor Vehicles Rules, 1989 State Motor Vehicles Act
Goods Transport	Central Sales Tax, 1956 Carriage by Road Act, 2007 Carriage by Road Rules, 2011 Various State Sales Act/State Vat Octroi and Entry Tax
Highways	National Highways Act, 1956 National Highways Rules, 1957 National Highway Authority of India, 1988 National Highways (Land and Traffic) Act, 2002 Highways Administration Rules, 2003 National Highway Fee (Determination of Rates and Collections) Rules, 2008

Under the current 12th Year Plan, the Planning Commission has identified several schemes that will augment the current plans of the NHAI through the NHDP. These schemes can be considered as facets of reforms that promote road development. They are:

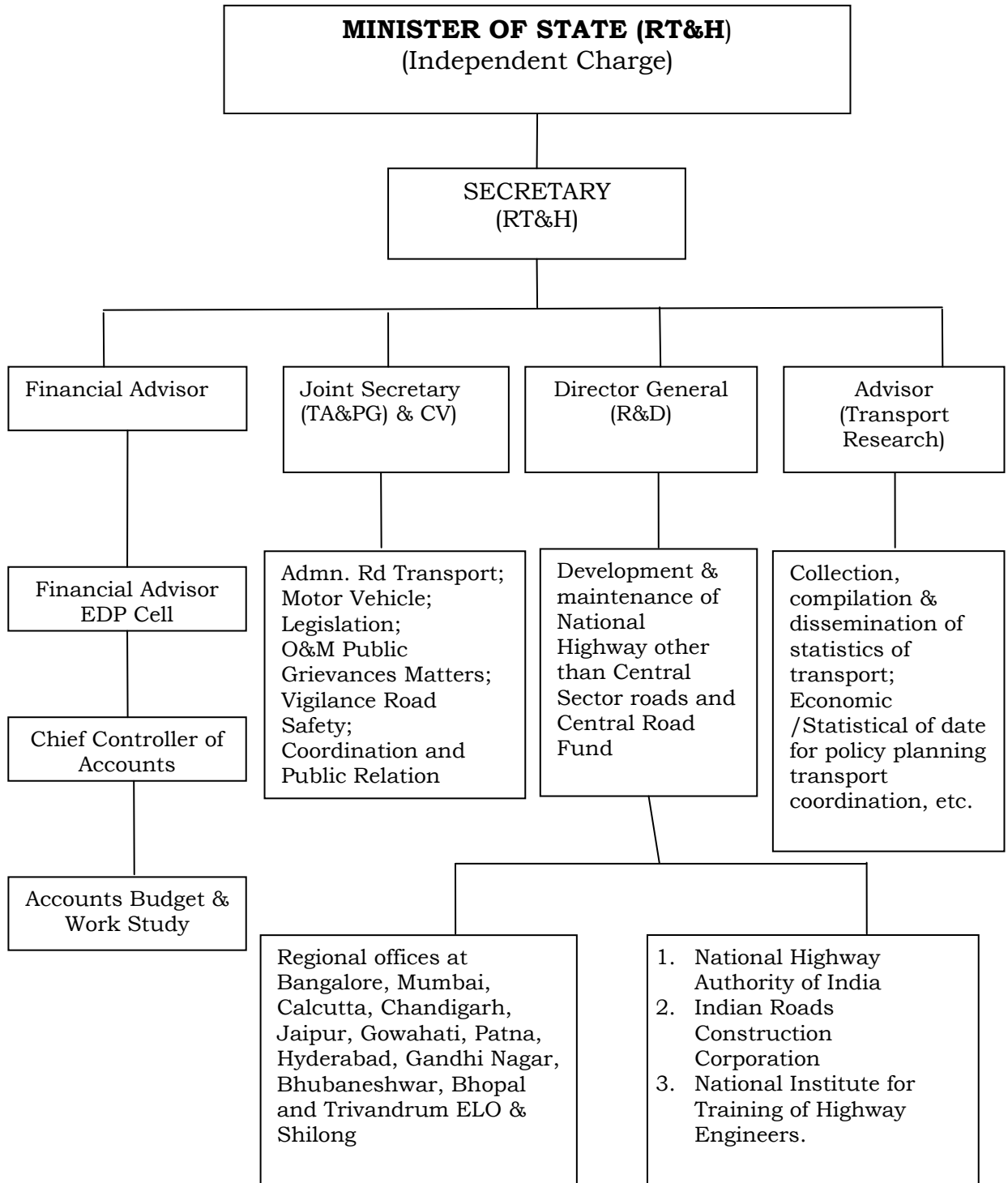
⁸⁶ Udai S. Mehta, *Research Study of the Road Transport Sector in India* (New Delhi: Ministry of Corporate Affairs, GoI, 2012), 18.

- i. Special package for development of roads in Scheduled Areas under the Tribal Sub-Plan – 1,000km.
- ii. Development of road corridors in Delhi-Mumbai industrial corridor project.
- iii. Special package for development of State roads in the State of J&K from strategic considerations, length of 1,000km.
- iv. Special package for development of road connectivity for about 50 minor ports, length of 1,000km.
- v. Special package for development of road connectivity for about 24 airports, length of 360km.⁸⁷

The following fig 3.2 shows the organizational chart in the Road sector administration of the Indian government. As can be observed, all functionality of the organization chart is all channeled so that to guarantee smooth administration. It is to be noted however that NHAI, Indian Road Construction Corporation (IRCC) and National Institute for Training of Highway Engineers (NITHE) work in coordination with their regional offices spread all over the country to promote the development and maintenance of National Highways, Central Sector Roads, as well as those under the purview of the Central Road Fund. It is also of interest to note that in the process of road administration, there is the wing for Transport Research with a mandate for pooling, compilation and distribution of transport statistics integrating them with transport policy and guidelines for road transport development.

⁸⁷ Planning Commission (GoI) 2013, *Twelfth Five Year Plan 2012-2017: Economic Sectors Vol.II* (New Delhi: Sage Publications India (Pvt.) Ltd., 2013), 222.

Fig 3.2: Organizational Chart for MoRT&H of India⁸⁸



⁸⁸ Planning Commission (GoI) 2013, 23.

3.1.16 ROAD DEVELOPMENT FUND ALLOCATION

The process of road development and maintenance in India has traditionally been the prerogative of the government through the budget allocations. It was the government that allocated the funds, controlled and supervised the process of road development for NHs, SHs and other roads. This is particularly evident from the period before independence to the late 1990s particularly after the Economic Reforms of 1991. The road development projects starting with the British government such as the Nagpur Plan of 1943, Bombay Plan of 1961, Lucknow Plan of 1981 all were principally funded through the budget allocations. It must be noted that the road development projects did attract very limited private sector participation.

Due to several reasons such as rapid, explosive growth in the demand for transport services round the country and in particular, the paucity of the budget allocations from the government, resulted to inadequacy of finance to fund the highly captive-intensive road development projects. Sighted examples in this regard point to the stagnation of the budgetary allocations for road development activities to about 3% of the total Plan expenditure especially in the 7th and 8th Five Year Plans.⁸⁹ Consequently, economic reforms of 1991 led the government to resort to other means, perhaps more innovative avenues to guarantee a continued growth in road development.⁹⁰

Currently, the financing of the road development activities under the NHDP indicate that alternative means have been explored with the objective of reducing the mismatch that exists between availability of resources and funds requirement. The 12th

⁸⁹ Ajeet K. Chaudhary, et al, “*A Report on Road Sector in India*” (Ahmedabad: India Institute of Management, 2001), 402.

⁹⁰ B.A. Prakash, ed., *The Indian Economy Since 1991: Economic Reforms and Performance* (India: Pearson Education, 2009), 402.

Five Year Plan lists the various financial mechanisms adapted by the Government to fund the NHDP. These include:

- i. Gross Budgetary Support (GBS) and Additional Budgetary Support (ABS).
- ii. Dedicated accruals under the Central Road Fund (CRF). Present rate of cess is Rs. 2.00 per litre on both petrol and diesel. A part of this is allocated to NHAI to fund the NHDP.
- iii. External assistance through World Bank, ADB, JIBC, etc.
- iv. Ploughing back of the toll revenue including toll collection, negative grant, premium and revenue share deposited by NHAI into Consolidated Fund of India and equivalent amount to be released by NHAI for ploughing back in its projects.
- v. Private Sector Investment under Public Private Partnership (PPP) frameworks i.e. BOT-(Toll), BOT (Annuity), Special Purpose Vehicle (SPV)-with equity participation by NHAI.
- vi. Market Borrowings by NHAI as authorized by Government of India to bridge the gap between the available resources and funds requirement.⁹¹

3.1.17 ACHIEVEMENTS ROAD DEVELOPMENT IN INDIA

This section briefly highlights the road development achievements in India during the study period of the current research. Considering the time period, the planning calendar mostly covers the 10th Five Year Plan (2002-2007) and the 11th Five Year Plan (2007-2012). It is therefore important to highlight the road development achievements during this period so as to provide a qualitative perspective.

⁹¹ Planning Commission (GoI) 2013, *Twelfth Five Year Plan 2012-2017: Economic Sectors Vol.II* (New Delhi: Sage Publications India (Pvt) Ltd., 2013), 216.

The tables that follow provide information on the physical achievements of road development activities in India under the NHDP programs as well as the Non NHDP programs.

Table 3.16: Progress of NHDP as of August, 2011⁹²

Phases	Total Length (km)	Length Completed (km)	Length Under Implementation (km)	To be Awarded (km)
I GQ,EW-NS corridors, Port Connectivity & Others	7522	7442	80	
II 4/6-Laning NS-ES Corridor, Others	6647	5302	901	444
III Up gradation, 4/6-Laning Phase III (Phase III A + III B)	12109	2555	6173	3390
IV 2-Lanning with Paved Shoulders	20000	-	846	19154
V 6-Lanning of GQ and High Density Corridor	6500	653	1984	3863
VI Expressways	1000	-	NIL	1000
VII Ring Roads, Bypasses and Flyovers and Other Structures	700km of Ring Roads/ Bypasses + Flyovers	-	41	659

Source: MoRTH, 2011.

From Table 3.16 above it can be observed that the progress achieved in Phases I and II are the ones near completion and this significantly contributes to the enhancing the road network of Indian roads.

⁹² MoRTH (GoI), *Report of Working Group on Central Road Sector* (New Delhi: MoRTH, 2011), 2.

The table that follows provides information on the physical achievements of road network development activities that are Non-NHDP classified under the Ministry of Roads Transport and Highway during the 11th Five Year Plan.

Table 3.17: Physical Progress of Non-NHDP NHs during 11th Five Year Plan⁹³

S No.	Category	Total Completion of Works from 2007-08 to 2010-11		2011-2012	
		Target	Achieved	Target	Achieved (up to Aug 11)
1.	Missing Link (km)	59.4	55.3	-	-
2.	Widening 2-Lanes (km)	4533	4379	1070	299
3.	Strengthening (km)	3554	3950	1080	303
4.	Improvement of Riding Quality (km)	7769	9321	1672	1228
5.	Widening 4-Lanes (km)	301.5	267	104	23
6.	Bypasses (No)	32	13	7	0
7.	Bridges/ ROBs (No)	518	388	129	17

Source: MoRTH, 2011.

Observations from Table 3.17 above indicate that among the Non-NHDP NHs programs, the categories that have surpassed their completion target are Improvement of Riding Quality and Strengthening. The other categories also indicate good performance in terms of progress and this is significant achievement in general.

⁹³ MoRTH (GoI), *Report of Working Group on Central Road Sector* (New Delhi: MoRTH, 2011), 3.

3.1.18 EXTERNALITIES AND PROBLEMS OF ROAD TRANSPORT DEVELOPMENT IN INDIA

This section will highlight the various externalities of the road transport sector of India. There are a number of several problems and challenges that act as externalities with a negative impact i.e. physical, institutional or environmental on road transport. These problems include:

3.1.18.1 Road Safety and Road Accidents

The official statistical statement on road transport of India denote that approximately 142,000 are killed in road accidents while 511,000 people are involved in severe injuries every year in India which is consequent to an annual social economic cost of ₹ 55,000 Crores (US\$ 550 billion). It was reported that there was a total of 497,686 road accidents in 2011, where 142, 485 people were killed which translates to 1 fatality per 3.5 accidents as shown in the table below.

It is important to highlight the Accident Severity⁹⁴ -the number of persons killed per 100 accidents. As can be observed from the Table 3.18 below, this rate has gradually increased from 20.8 in 2002 to 28.6 in 2011. This is alarming and calls for the situation to be addressed. Further revelations point out that road network expansion, surge in motorization, and rising population contribute indirectly towards the increase in road accidents while lack of awareness in road safety, poor driver training are the main causes of accidents.⁹⁵

⁹⁴ MoRTH (Transport Research Wing), *Road Accidents in India 2011* (New Delhi: MoRTH, 2011), 3

⁹⁵ Fredrick Lemieux, et al eds., *Economic Development, Crime and Policing: Global Perspectives* (Florida: CRC Press, 2015), 264-265.

Table 3.18: Number of Road Accidents, Persons Killed/Injured, 2002-2011⁹⁶

Year	Number of Road Accidents Reported	Number of Persons Killed	Number of Persons Injured	Accident Severity
2002	407,497	84,674	408,711	20.8
2003	406,726	85,998	435,122	21.1
2004	429,910	92,618	464,521	21.5
2005	439,255	94,968	465,282	21.6
2006	460,920	105,749	496,481	22.9
2007	479,216	114,444	513,340	23.9
2008	484,704	119,860	523,193	24.7
2009	486,384	125,660	515,458	25.8
2010	499,628	134,513	527,512	26.9
2011	497,686	142,485	511,394	28.6
Total	4,184,429	1,016,295	4,452,303	

Source: MoRTH, 2011.

3.1.18.2 Low Road Capacity and Congestion

Road congestion on the Indian scenario indicates that traffic congestion especially in Indian cities is of medium to high levels. The National Highways are characterized by low road capacity i.e. two lanes or less and thus consequential to low lane volume hence recurrent congestion. The outcome is such that there is high rate of fuel consumption and an ever growing rate of pollution. Road congestion in India is mostly attributed to the poor state roads, inconsistent road features i.e. carriageway and shoulder width, road encroachment, pedestrian activities, poor lane indiscipline, haphazard bus stop location and design, heterogeneity of traffic, and uncontrolled on-street parking, etc.⁹⁷ The Table 3.19 indicates the number of registered vehicles in India from 2000-2011 a factor that contributes to congestion.

⁹⁶ MoRTH (Transport Research Wing), *Road Accidents in India 2011* (New Delhi: MoRTH, 2011), 3.

⁹⁷ Amudapuram M. Rao and Kalaga R. Rao, "Measuring Urban Traffic Congestion," *International Journal for Traffic and Engineering*, (2012) 2(4): 286-305.

Table 3.19: Number of Registered Vehicles in India, 2000-2011⁹⁸

Fig. 000s

Year (As on 31st March)	Two Wheelers	Cars, Jeeps and Taxis	Buses	Goods Vehicles	Others	All Vehicles
2000	34118	6143	562	2715	5319	48857
2001	38556	7058	634	2948	5795	54991
2002	41581	7613	635	2974	6121	58924
2003	47519	8599	721	3492	6676	67007
2004	51922	9451	768	3749	6828	72718
2005	58799	10320	892	4031	7457	81499
2006	64743	11526	992	4436	7921	89618
2007	69129	12649	1350	5119	8460	96707
2008	75336	13950	1427	5601	9039	105353
2009	82402	15313	1486	6041	9710	114951
2010	91598	17109	1527	6432	11080	127746
2011	101865	19231	1604	7064	12102	141866
Total	757568	138962	12598	54602	96508	1060237

Source: <http://data.gov.in>

3.1.18.3 Mixed Traffic

This is a unique problem that is especially tied to the Indian roads due to the presence of wide variety of vehicles on the roads. The components of a mixed traffic typical to Indian roads include motorized vehicles such as two wheelers, auto rickshaw, cars (personal), taxis, bus, Light Motor Vehicle (LMV), trucks and Heavy Goods Vehicle (HGV); human powered vehicles comprise of handcarts, tricycles, cycle rickshaw and bicycle; while animal drawn vehicles consist of horse cart, bullock cart and camel cart. The impact of mixed traffic on Indian roads is such that it undermines smooth and safe

⁹⁸ Government of India, "Total Number of Registered Motor Vehicles in India" Internet; Available from; <https://data.gov.in/catalog/total-number-registered-motor-vehicles-india>; Internet; Accessed on January 15, 2016.

operation of traffic, encourages traffic congestion, inordinate delays, increased accidents, environmental pollution and a deteriorating quality of life.⁹⁹

3.1.18.4 Pollution

The on the rise demand of public and passenger transport has resulted to further air pollution emissions in India more particularly in the cities. Environmental contamination is escalating because transport is a key contributor to pollution. It must be noted that road transport necessitates the burning of fossil fuels to create viable energy. It is pointed out that the transport sector in India is responsible for 30% of all greenhouse gas emissions. This significantly contributes to global warming and impacts the air quality. Road transport provides grounds for additional pollution by way of the exhausts of millions of vehicles i.e. 63% of air pollution in Mumbai is characteristic to vehicular pollution.¹⁰⁰

3.1.18.5 Unstable Road Policy

The road policy in India is termed to be unstable because it is characterized to be dynamic subject to change in government. Due to the change in government both at the centre but more especially at the State government level, road policy for construction, expansion and maintenance is compromised hence unsteady resulting to poor quality of road infrastructure, poor maintenance, shortage of funds, and an un-surfaced roads. This can be best illustrated by, for example, the frequent changes on road toll policy by State governments; the Mahatma Gandhi National Rural Employment Guarantee Scheme

⁹⁹ D. Johnson Victor and S. Ponnuswamy, *Urban Transportation: Planning, Operation and Management* (New Delhi: Tata Mc Graw-Hill, 2012), 26.

¹⁰⁰ Prabah S. Ranade, *Infrastructure Development and its Environmental Impact* (New Delhi: Concept Publishing Company, 2009), 7.

(MGNREGS) which provides employment of 100 days¹⁰¹ say for road construction activities, but after that period, the MGNREGS policy is subject to changes thus along with the change affecting the road policy.

3.1.18.6 Poor Highway Amenities

There is presence of poor highway/road side amenities in the National Highways but more especially in the State highways.¹⁰² These amenities which include conveniences such as first aid facilities, petrol pumps, hotels, special rest rooms, ambulances, towing equipments, parking space trucks are of importance for long distance travel since they facilitate travel and promote road safety in general.

3.1.18.7 Shortage of Funds

Shortage of funds in road development in India creates an environment that restricts investment capacity expansion in road construction activities. The consequential impact for this is such that there is an inadequate road length, inadequate safety features in road infrastructure, narrow roads which ultimately leads to congestion in the roads.

3.1.18.8 Multiple Check Posts (Toll/Octroi Taxes)

The question of multiple check posts for toll tax collection and Octroi collection booths present an additional quandary for the road users especially heavy duty transportation for Agricultural and Industrial product haulage. The multiplicity of these check posts result to lower traffic speeds hence delay in deliveries, arbitrary sales taxes

¹⁰¹Rural Development & Panchayat Raj Department (GoI), *MGNREGS*; Internet; Available from: <http://www.tnrd.gov.in/schemes/nrega.html>; Internet; Accessed on March 05, 2015.

¹⁰²Majid Husain, *Geography of India* (New Delhi: Tata-McGraw Hill, 2012), 12.8.

and check post norms which are an unnecessary hold ups thus frustrating transporters, and contribute to wastage of time. Furthermore, this policy of multiple check posts, toll tax and octroi collection on the Indian roads differ from one State to another thus complicating the process.

Table 3.20: Problems of Road Sector in India¹⁰³

SNo.	Problem/Challenge	Physical	Institutional	Environmental
1	Congestion	❖		❖
2	Road Safety	❖		
3	Improper Maintenance	❖	❖	
4	Mixed Traffic	❖		
5	Multiple Check Posts		❖	
6	Poor Highway Side Amenities (First Aid Centers, Toilets,	❖	❖	
7	Shortage of Funds		❖	
8	Unstable Road Policy		❖	
9	Narrow Roads	❖		❖
10	High Cost of Construction		❖	
11	Increased Vehicular Traffic	❖	❖	❖
12	Inadequacy of In-built Safety Measures in Road Projects	❖	❖	
13	Pollution	❖		❖
14	Inadequate Road Length	❖	❖	

Source: Husain, 2012.

The above table, points out the most prevalent problems of road transport sector in India. The physical and environmental problems entail the challenges that are experienced on the ground, while institutional problems comprise of the problems surrounding the policy structure of the road sector.

3.1.18.9 Suggested Solutions for Problems of Road Sector in India

This section will highlight the recommended solutions by the researcher for the various road externalities that are experienced on Indian roads. Mind you, these

¹⁰³ Majid Husain, *Geography of India. 3rd ed.* (New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2012), 12.8.

challenges present complexities on the process of road infrastructure development in India. Consequently, there is need for a systemic approach in addressing these complexities so as to improve the outlook of the ecosystem on road development activities in India to match those of the global standards. The current study recommends a few solutions.

Table 3.21: Suggested Solutions to Problems of Road Sector in India

SNo	Problem	Recommendation
1	Narrow Roads, Congestion and Mixed Traffic	Increased resource allocation to construct wider roads in NHs, SHs and in urban areas; Promote use of alternative modes of transport i.e. light trains; Improved public transport system to discourage mixed traffic on roads.
2	Road Accidents and Road Safety	Improved road infrastructure design to promote road safety i.e. road signage, street lights, safe pedestrian crossings, medians, CCTV monitors; Improved safety features in vehicles; Thorough technical vehicle audits; Stakeholder education on road safety; Efficient and transparent RTOs and Driving Test Centers.
3	Improper Maintenance and High Cost of Construction; Inadequacy of In-built Safety Measures in Road Projects	Setting up of a National Asset Administration System (NAAS) to evaluate road infrastructure construction, supervise operations and assist maintenance and rehabilitation of road infrastructure.
4	Pollution	Strict Implementation of regulation on pollution; Stakeholder education on pollution.
5	Poor Highway Side Amenities (First Aid Centers, Toilets, etc)	Increase resource allocation for the construction Highway/Road Side Amenities integrated with Technology.
6	Shortage of Funds	Expansion of Resource Allocation by Government through increased budget allocations for road development; Continued Utilization of centrally sponsored schemes for road development; Promote use of PPPs/annuity model, Engineering, Procurement & Construction (EPC) model on Road infrastructure development; Prudence in use of road funds i.e. elimination of corruption, Integrated audits of funds.

SNo	Problem	Recommendation
7	Unstable Road Policy; Multiple Check Posts (Toll Tax/Octroi)	Provision of a Universal and Integrated Stable Road Policy across the States of India irrespective of change in government.
8	Insufficient R&D	Govt. to promote R&D activities for Road Infrastructure; Govt to facilitate Technology transfer from Developed Countries to India for Road Infrastructure tailored to meet local needs.

Source: Researcher's Compilation.

COUNTRY PROFILE: KENYA

3.2.1 History

3.2.1.1 Pre-Colonial Period

In considering a comprehensive history of Kenya, one has to delve into the pre-colonial period, colonial period and the post-colonial or independent Kenya. To begin with, the pre-colonial history of Kenya can be understood by looking at the people of Kenya. The ancestors of modern Kenya population began arriving in the region in earlier times with the Cushitic-speaking pastoralists migrating from the Ethiopian highlands, and then followed by the Nilotic speakers as well as the Bantu speaking communities.

The *Cushites* form a broadly homogeneous group in language and culture and are spread over a large part of Ethiopia, Somali and Kenya. They are the earliest group to have settled in Kenya and are mainly hunters, gatherers and herders or pastoralists. The Cushites are comprised of Dorobo, Okiek, Borana, Orma, Rendile and Somali. The *Nilotes* are historically from the Nile Valley and they stretched from the Sennar in Sudan to Lake Victoria and then into the Kenya region. These are divided into: Highland Nilotes comprising the Kalenjin, Nandi, Kipsigis and Pokot; the Plain Nilotes consist of Maasai, Teso and Turkana; and River-Lake Nilotes include the Luo who live around Lake

Victoria. The economic activities of the Nilotes are pastoralism, fishing and farming. Lastly *Bantu* speaking people do not project a homogeneous element in terms of language and culture. They are divided into the Abaluhya from Western Kenya, Kikuyu of Central Kenya, the Meru, Embu, and Kamba from Eastern parts of Kenya, Abagusii and Kurai from South Western Kenya and the Mijikenda comprising of nine groups such as Giriama, Digo, Taita, Pokomo and others from the Coastal region.¹⁰⁴

It is of importance to consider the relevance of *Swahili* speakers as an integral part of the pre-colonial Kenyan history. The term ‘Swahili’ carries an element of homogeneity in terms of people and culture. It is viewed by historians that Swahili speakers represent a fusion of Persian and Arabian Indian Ocean traders with the Coastal Bantu i.e. Mijikenda and Pokomo. This fusion dates back from somewhere near mid 7th Century to 9th Century along the Kenyan coastal region. Due to sharing of one language, - Kiswahili, and one religion-Islam, a culture evolved and spread to the southern parts of the Coastal region such as Tanzania, Zanzibar and into the interiors of East Africa.¹⁰⁵

3.2.1.2 Colonial Period

Events leading to British rule in East Africa begun with commercial and political interests by the Arabs, Portuguese, Oman dominance then British spanning from the 7th Century to late 1800s. Historians point out that Arabs had created strong commercial Swahili city-states in the East African coast. This was followed by Portuguese rule from 1600s to 1700s which was brought to an end by Omani dominance. The Omani rulers had

¹⁰⁴ Charles Hornsby, *Kenya: A History Since Independence* (New York: I.B. Tauri & Company Ltd., 2012), 21.

¹⁰⁵ Neal Sobania, *Culture and Customs of Kenya* (USA: Greenwood Press, 2003), 15.

established a vibrant network of caravan trade routes into the hither land and this consequently cleared way for European rivalry in the region thus partitioning and colonization of East Africa by the British and Germans. Thus, Kenya was declared a British Protectorate in 1895 with a main objective of protecting Uganda as source of the River Nile which represented deep British interests in Egypt.¹⁰⁶

Involvement of the British in East African had two main objectives. These were: imperial commercial penetration and political colonization. Kenya as a British Protectorate was for servicing the Industrial Revolution through supply of raw materials such as ivory and also serve as market for finished goods. Other motivating factors included: Kenya possessed economic potential with a temperate climate and fertile land which was an attraction for European settlement; thirst for power, prestige and competition for colonies with other European powers such as Germany, France and Portuguese; strategic advantage in regards to the control of River Nile and Suez Canal for the British interests in Egypt and to control trade routes of Middle East and Indian Ocean respectively.¹⁰⁷

British rule in Kenya had a deep seated impact on land, socio-economic and political atmosphere in general. The main features of colonization were such as: Colonial administrators fancied the idea of transforming Kenya into a “Whiteman’s country” comparable to Canada or Australia. This resulted to the alienation of vast tracks of land from the Kikuyu, Maasai and Nandi and the enforcement of economic policies that strengthened the economic interests of the settlers. The resulting effect was a powerful

¹⁰⁶ S.J.W. Masundu, *Kenya: An Official Handbook* (Nairobi: Ministry of Information and Broadcasting, GoK, 1988), 21.

¹⁰⁷ William Robert Onchieng’ and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 201-203.

settler economy of the occupation that desired to be an autonomous institution from the British government but was passionately resented and resisted.¹⁰⁸

Strategic consideration of the British Government gave into construction of the Uganda Railway to link Kenya and Uganda. Construction of the railway line begun from Mombasa in 1896 to reach Nairobi in 1899, and then Kyushu on Lake Victoria in 1901. This was further expanded through the Uasin Gishu Railway line that linked Nakuru, Eldoret, Bungoma, Malaba and then Kampala in Uganda.¹⁰⁹ It is important to note that the railway line was constructed in areas of economic potential which made it possible for the settlers to exploit Kenya's resources in raw material form such as timber, tea, coffee and cotton. As in regards to railway construction, it is noteworthy to point out that this endeavor was possible because of the role and contribution of the Asian Community that had a significant impact then and still to date. Historians believe that the earliest members of the Asian community arrived in East Africa from India as laborers for the construction of the railway line and other administrative posts. However, these Indian laborers were eventually given an option to go back to India or settle in East Africa and that is how there is a considerable population of the Asian Community in Kenya and East Africa at large.¹¹⁰

World War I presented unique opportunities to the White Settlers in Kenya by acquiring concessions from the British Government. These special considerations had significant impacts in Kenya as a Protectorate. To highlight a few, they were: extension

¹⁰⁸ S.J.W. Masundu, 21.

¹⁰⁹ Neal Sobania, *Culture and Customs of Kenya* (USA: Greenwood Press, 2003), 20.

¹¹⁰ Robert G. Gregory, *Quest for Equality: Asian Politics in East Africa, 1900-1967* (New Delhi: Oriental Longman Ltd., 1993), 3.

of land leases from 99 years to 999 years; direct representation of the Settlers in the Legco; an expanded land of 12,000km² was alienated from the indigenous African population for European settlement expansion; the country was renamed Kenya Colony and Protectorate in 1920; Carter Land Commission of 1933 officially defined the White Highlands.¹¹¹

Resistance from the indigenous African population that began in 1920s picked up speed between 1952 and 1956. This resistance was attributed to a host of oppressive and humiliating measures such as the pass laws, identity cards (*kipande*), color bar, hut and poll tax, increased taxation, lower wages and forced labor, expropriation of African land, lack of political rights and prohibition of growing cash crops among others. The listed grievances set the stage for the *Mau Mau* rebellion in the 1950s which contributed significantly to Kenya's independence in 1963 and thus hold a central position in Kenya's history. Other regional rebellions worth mentioning include, Giriama at the Coast, Kikuyu of Central Kenya, Nandi in the Rift Valley, Abaluhya in Western Kenya and Abagusii in Nyanza.¹¹²

An assortment of African political-cum-social organizations sprouted up with a passionate determination to oppose the European encroachment and the upheavals of its system. These organizations included: Young Kikuyu Association which was later changed to be East African Association in 1921, Young Kavirondo Association from Nyanza, Kikuyu Central Association (1924), Kavirondo Taxpayers and Welfare

¹¹¹ S.J.W Masundu, *Kenya: An Official Handbook* (Nairobi: Ministry of Information and Broadcasting, GoK, 1988), 22.

¹¹² Jim Bailey, *Kenya: The National Epic* (Nairobi: Kenway Publication Ltd., 1993), 18.

Association, Taita Hills Association.¹¹³ It is of interest to note that these politico-cum-social organizations were led by first generation of educated Kenyans. Examples of such included: Harry Thuku, Joseph Kang'ethe, Jesse Kariuki, Jomo Kenyatta, Ezekiel Jonathan Okwirri, James Mwanthi and Muindi Mbingu.¹¹⁴

As the African political activity got more organized and intensified, so were tensions between the colonial government and the general African population as this led to arrests and detention of the African leaders. More fresh and better educated leaders emerged to voice out their grievances and this proved a challenge for the colonial Government. The Kenya African Union (KAU) was formed in 1944 to create a congress organization to represent the whole country. With Jomo Kenyatta as its leader in 1946, KAU became more and more radical with demands for complete political independence. The tensions culminated in 1952 which gave in to an armed struggle between *Mau Mau* and the colonial Government where over 13,500 Africans were killed mainly Kikuyu, Meru and Embu. The *Mau Mau* rebellion lined the way for constitutional reforms and development in subsequent years.¹¹⁵

It is of significance to highlight that albeit there was a broad consensus on political independence as the ultimate aim, sharp divergence in outlook with regard to distribution of political power in a self-governing Kenya. As a result, two parties were formed with different ideologies. Kenya African Democratic Union (KADU) with leaders Ronald Ngala, Daniel arap Moi, Masinde Muliro, Justus ole Tips, among others pitched

¹¹³ Neal Sobania, *Culture and Customs of Kenya* (USA: Greenwood Press, 2003), 24.

¹¹⁴ S.J.W. Masundu, *Kenya: An Official Handbook* (Nairobi: Ministry of Information and Broadcasting, GoK, 1988), 22.

¹¹⁵ *Ibid*, 23.

in for a quasi-federal constitution, *Majimbo*, and Kenya African National Union (KANU) with its leaders Jomo Kenyatta, Oginga Odinga, Tom Mboya, James Gichuru who campaigned for a unitary system of government. Nevertheless, KADU secured the ear of the Colonial Government, consequently in June 1963, Kenya was granted self governance and on 12th December of the same year, it achieved independence with an intricate *Majimbo* Constitution, which advocated a great deal of independence to the regions.¹¹⁶

3.2.1.3 The Post-Independence Kenya to Date

Kenya prides itself of 50 years of self-governance having virtually inherited the colonial structure politically, economically and socially. It is important to note that it has been more or less impractical to dismantle the ‘Colonial State’ and as such Kenya has to a great deal experienced neo-colonialism more particularly in the economic sense i.e. there are strong economic ties with the British and the Western world at large. Nevertheless, Kenya has been deemed a stable nation in the region, in Africa and among the international community for reasons that it has a strong economy in the region, and has projected a fairly secure socio-political tranquility. Kenya is also famed to be a tourist attraction destination with an affluent reserve of wild animals, national museums all over the country that come along with a pleasant tropical climate and hospitable population.

3.2.1.4 Politically

By December 12, 1964 Kenya ultimately disposed residual trappings of Colonial domination over her affairs and took on the status of a sovereign republic with KANU as

¹¹⁶ S.J.W. Masundu, *Kenya: An Official Handbook* (Nairobi: Ministry of Information and Broadcasting, GoK, 1988), 24.

the ruling party.¹¹⁷ A number of the problems that President Kenyatta took over from the Colonial Government were such as: entrenched tribalism dating back to Colonial days; a disparity in development supported by the Colonial Government; an intricate *Majimbo* constitution; wide-ranging socio-economic problems i.e. unemployment, land alienation, an unskilled man power, flight of capital, a foreign dominated economy and a Somali secessionist movement in North-Eastern Kenya.¹¹⁸

It is of significance to underscore the advancement experienced under a Kenyatta led Kenya. At the outset, a Peace Accord was reached in 1967, between Kenya and Somalia that concluded the *Shifita* (brigand) war between Kenya and Somalia in the North-Eastern Province. Secondly, President Kenyatta was capable to steer the country through turbulent political waters in the post independence era and Kenya remained a stable country. Finally, President Kenyatta was able to re-establish investor confidence consequently promoting economic growth.¹¹⁹ Kenyatta's presidency was cut short when he died at the age of 86 and the reins of power were taken up by the Vice President, Daniel arap Moi in a surprisingly smooth changeover.

Under the Moi Administration, a constitutional amendment was made to make KANU the only State Party by law. This had been promoted by a failed coup d'état in 1982, therefore President Moi sought to consolidate more power. Accordingly, in 1983 to 1988 the State President became the de facto party leader giving him immense power and authority in Parliamentary and Government business. This extensively factored into the presidency being the center of state power. President Moi further tightened political

¹¹⁷ S.J.W. Musandu, *Kenya: An Official Handbook* (Nairobi: Ministry of Information & Broadcasting, 1988, 29.

¹¹⁸ Ibid, 25.

¹¹⁹ Ibid, 25.

control even as there was rampant corruption extending to his inner circle.¹²⁰ However, President Moi could not hold long to his executive presidency since he faced strong opposition internally from the banned political parties as a result of the constitution amendment to create a one party state. There was more antagonism from student politicians in the State universities of Kenyatta and Nairobi as well as the general population all demanding the return of a multiparty and a democratic system of governance.

Eventually, in 1992 President Moi gave into the pressure from International donors, Western powers and opposition groups and multiparty system was reintroduced when Section 2(a) of the Constitution was repealed.¹²¹ This opened wide the doors for a vibrant political multiparty culture i.e. new parties were formed and there was a reemergence of a new creed of politicians. Since the reinstating of multiparty elections, Kenya has had general elections in 1992, 1997, 2002, 2007 and 2013. It is of importance to note that President Moi and KANU won the 1992 and 1997 elections which were marred with electoral fraud and corruption. Nevertheless, Moi and KANU were dislodged from power in 2002 by Mwai Kibaki under the National Rainbow Coalition (NARC) party.¹²²

President Mwai Kibaki faced major challenges as regards to the draft proposals of the new Constitution. The NARC party was internally divided in regards to proposals on

¹²⁰ David Throup and Charles Hornsby, *Multi-Party Politics in Kenya: The Kenyatta and Moi States and the Triumph of System in 1992 Elections* (Nairobi: East African Education Publishers, 1998), 30-32.

¹²¹ Ibid, 88.

¹²² Kimani Njogu, ed., *Defining Moments: Reflections on Citizenship, Violence and the 2007 General Elections in Kenya* (Nairobi: Twaweza Communication Ltd., 2011), 12.

strong points such as a new office of the Prime Minister, an upper chamber of parliament and devolution of power from the Centre to the regions, e.t.c. This eventually split the party that saw the defectors joining KANU forming a coalition opposition, the Orange Democratic Movement (ODM). The final government draft of the new Constitution was defeated in a popular referendum in November 2005.¹²³ This effected further discussions for a new Constitution as the 2007 elections approached. The 2007 elections was a low point in Kenya's history as it was marred with post election violence resulting to internal displacement of people and deaths of over 1,000 lives. Due to this, a coalition government was formed with the intervention of International leaders chaired by Kofi Annan the former UN Secretary General, in the power-sharing negotiations and the two principals, Mwai Kibaki and Raila Odinga shared power as Mwai Kibaki being the President and Raila Odinga as the first Prime Minister of Kenya.¹²⁴

The Coalition government facilitated the promulgation of the new Constitution of Kenya 2010 as well as the elections of 2013. The salient features of the new Constitution are a democratic, devolved system of governance with a President and a Deputy President -tenure of security at the Central Government, a bi-camera Parliament, whilst Governors, Senators, Members of Parliament, County Representatives and Women Representatives at the County level or regional levels. Under this new dispensation, the constitution advocates the reforms in the Judiciary system with the appointment of the Supreme

¹²³ Charles Hornsby, *Kenya: A History Since Independence* (New York: I.B. Tauri & Company Ltd., 2012), 740.

¹²⁴ Jerome Lafargue, ed., *The General Elections in Kenya, 2007* (Nairobi: IFRA, May-August 2008), 4-5.

Court, its Judges and vetting of Judges and Magistrates and all other public service appointments.¹²⁵

3.2.2 Economic Overview since Uhuru (Independence)

Performance of the Kenyan economy since Independence has exhibited vibrancy and dynamism by surviving 2 energy crisis, 4 major droughts after a robust economic development in the 1st decade. Into the 1990s, Kenya faced harsh economic and political problems i.e. aid freeze by international donors, economy liberalization, multi-party elections, constitutional amendments not forgetting 2 droughts. Following is an x-ray of the Kenya economic performance from 1964 to 2010.¹²⁶

1964-73 – Kenya’s Miracle: the young government was dynamic and had placed incentive measures in the economy. Generous aid from overseas painted Kenya a success story in free Africa. The average GDP growth rate in that 1st decade was close to 7%.

1973-76 – Global Crisis: 1973 oil crisis in the international markets resulted to an internal high inflation in the Kenyan economy. The crunch was severe as the economy was hit hard with complication from an expanding population growth and soaring unemployment rates. A severe drought and negative Balance of Payments (BOP) made things worse. Average GDP growth rate dwindled to just over 3%.

¹²⁵ Kenya National Bureau of Statistics, *Economic Survey 2013* (Nairobi: KNBS, GOK, 2013), 231.

¹²⁶ Kul Bhushan, *Kenya Fact Book 2000-2001*. 16th ed. (: Nairobi: Newsread International, 2000), 1.

1977-78 – Coffee Boom: Kenya's coffee prices rose to record high in the late 70s when Brazil experienced coffee frost. Nevertheless, economy combats energy crisis with a surplus in BOP with an average GDP growth rate of 8%.

1979-84 – The Big Slide: A severe global economic recession affected the developing countries and Kenya slide to an economic depression. Average GDP growth rate sunk to below 3% which was attributed to erratic farm outputs, high import prices, very sluggish exports earnings and a drought to wash down everything.

1985-90 – Boom Again: Another stint of Brazil coffee frost became Kenya's fortune as prices shot up riding the economy to boom. Fiscal discipline in terms of inflation and public spending were curbed, tourism industry picked up speed and average growth rate rose to about 5%.

1991-93 – Tough Times: Effects of the Gulf War in Middle East shook the world economies as Kenya's tourism was hit hardest. Tea and coffee prices plunged and this drove inflation up the roof. Donor funds were suspended and currency value plummeted resulting to low levels of investment. Average GDP growth rate crashed to less than 1%.

1994-96 – Recovery: Average GDP growth rate grew to over 4% attributed to political stability after the 1992 elections, and strong exports from Kenya due to firm world prices hence there was resurgence in the economy.

1997-2000 – The Crash: Tourism and investment collapse and foreign aid is disrupted due to the pre-election violence of 1997. Elnino rains play

disaster in the Agriculture sector to bring the average GDP growth rate crashing down to around 2%.

2001-07 – A New Beginning: A break away in 2002 elections from a 24 year long of Moi rule in Kenya, it was a new beginning for Kenya. Vibrant advancement was evident with introduction of universal free primary education, implementation of anticorruption policies, a crackdown in the judiciary system, international aid resumed, and implementation of the Government's Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 brought robust economic growth. Real growth rate as revealed in the Economic Surveys of the same periods denote that the GDP was at 0.4% in 2000, 0.8 % in 2002 and 2.2% in 2004. A steady rise continued to 5.8% in 2005 and an all time high of 7.6% in 2007.

2008-2012 – Vision 2030: With the effects of post election violence of 2007-08 setting in, the economy was hit badly and real growth rate plummeted to 1.7% in 2008. However, the economy recovered from the quadruple shock of post election violence, drought, global food and financial crisis to achieve growth momentum across all sectors. Emphasis was as given to Vision 2030 announced early in 2007. An expanding ICT sector, mobile money, improved transport infrastructure contributed significantly to economic growth to a modest 5% in 2010.¹²⁷ Going with the latest issue of

¹²⁷ Jane Kiringai and Wolfgang Fengler, *Kenya Economic Update* (Nairobi: World Bank, 2010), 9.

the Economic Survey 2013, the Real Gross Domestic Product grew by 4.6% in the year 2012.¹²⁸

3.2.3 Location

Kenya is named after Mount Kenya or Kirinyaga – the mountain of whiteness of which it is situated approximately at the centre of the country. It is also of importance to note that Kenya sits astride the Equator and lies on the East African Coast next to the Indian Ocean. Kenya is located in the region of 4°N to 4°S latitudes and 34°E to 41°E longitude. In terms of size, Kenya covers an area of 582,646 sq.km with 1,025km as the farthest distance from South to North of the country and with a water surface of 13, 393 sq.km. The neighbor countries to Kenya are: Uganda to the West, Tanzania to the South, and Indian Ocean to the South East with a Coastal line of 536 kilometers, Somalia to the East and North East and lastly Ethiopia and Southern Sudan to the North.¹²⁹

The border outline that gives the country its shape is credited to the political heavyweight of the British colonial masters in the late 1800s. As pointed out by R.T Ogonda and W.R Ochieng, the colonial masters were able to confront pressure from competing imperial powers such as German, Italy and Ethiopia to give Kenya its geographical position.¹³⁰ See the outline map of Kenya in Appendix 1(b).

3.2.4 Population

The Kenyan's 2009 population and housing census reveal that the enumerated persons was 38,610,097 which reflected a rise of 35% as compared to the 1999 census.

¹²⁸ Kenya National Bureau of Statistics, *Economic Survey 2013* (Nairobi: KNBS, GOK, 2013), 1.

¹²⁹ Kul Bhushan, *Kenya Fact Book 2000-2001*. 16th ed. (Nairobi: Newsread International, 2000), 1.

¹³⁰ W.R. Ochieng' and R.M. Maxon, ed. *An Economic History of Kenya* (Nairobi: East African Educational Publishers Ltd., 1992), 1.

Of this, the males constituted a handsome 49.7% which is 19,192,458 whereas the females comprised 50.3% which is a figure of 19,417,639. Kenya's population is emergent in nature and has increased quickly from a population of 10.9 million in 1969 to 38.6 million in 2009. Considering the elevated number of births per women, this will result to a continuous increase in population. It is further estimated that the population will nonetheless expand to 65.9 million people even though the aggregate fertility rate drops from an average of 4.6 children per woman in 2009 to 3.7 by 2030.¹³¹

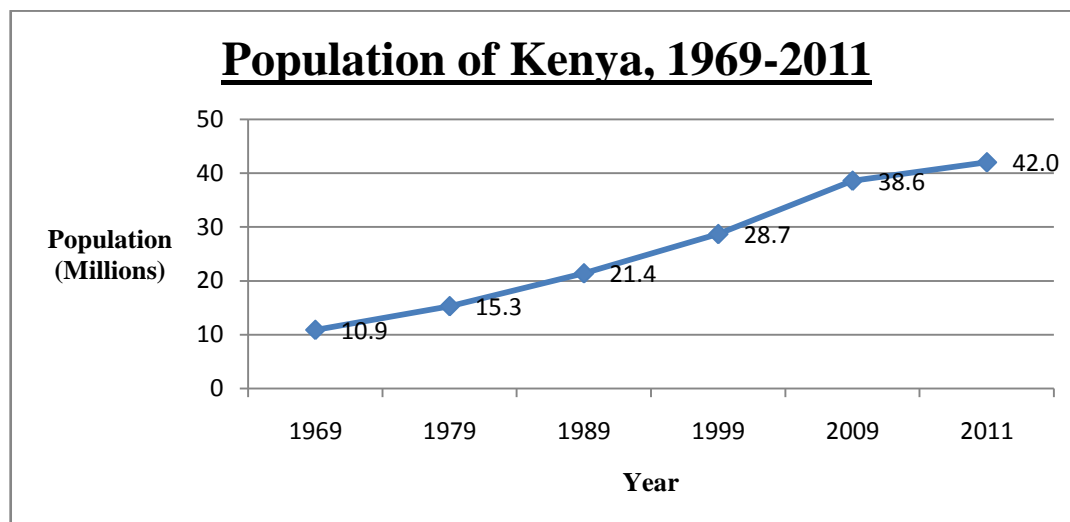
Further revelation from the 2009 population census states that 32.3% of the population lives in the urban areas whilst 67.7% reside in the rural areas. Supplementary information points out that the population ranging between the ages of 15 and 24 years is categorized into 51.2% as female and 48.8% as males. As regards to whether the Kenyan population is tech-savvy, 3.6% of the households in Kenya possess at least a computer while 63.2% of the family units possess at the minimum a mobile phone.¹³²

The religious fabric of the population is comprised of a variety of religions such as Protestants, Catholics, Muslim, Hindu, Other Christians, Traditionalists and others. The Protestants make the Lion's share of approximately 18.3 million people, closely followed by Catholic at approximately 9 million then Other Christians, Muslims and others respectively. It is of significance to point out that Kenya has an African population of 42 tribes in addition to a small minority of Asians, Arabs and Europeans.

¹³¹ Government of Kenya, *2009 Kenya Population & Housing Census Vol. IA* (Nairobi: Kenya National Bureau of Statistics, 2010), 20.

¹³² *Ibid*, 3-6.

Line Graph 3.1: Population of Kenya 1969-2011¹³³



Source: Researcher's Analysis.

3.2.5 Agro-Climatic Zones

Agro-Climatic zones of Kenya are the potential areas which are suitable for crop production and factors such as soil, climate and vegetation have been taken into consideration to classify Kenya's agro-climatic zones. An excess of 80% of Kenya's land is unreliable for crop production as only 18% of Kenya's land is viable for agro-production. The limited productive land is plagued with erratic rainfall seasons, drought and soil erosion. North-East region of Kenya has poor soil and short supply of rainfall hence poor farming practices living the region viable for pastoralism. Kenya's Agro-Climatic Zones are as follows:

- i. Afro-Alpine 0.41% (800sq.km)
- ii. Medium Potential – 26.93% (53,000 sq.km)
- iii. High Potential – 26.93% (53,000 sq.km)
- iv. Semi Arid – 24.39% (48,000 sq.km)

¹³³ Government of Kenya, *2009 Kenya Population & Housing Census Vol.1A* (Nairobi: Kenya National Bureau of Statistics, 2010), 20.

- v. Arid – 15.25% (300,000sq.km)
- vi. Very Arid – 6.1% (112,000sq.km)¹³⁴

Like many third world economies, Agriculture is the main backbone of the Kenyan economy. The agricultural centers in the country are mainly in Central Kenya, the Rift Valley, Western Kenya and Nyanza areas with the Rift Valley being considered as the granary of the country. Crop production of coffee is mainly from Central Kenya, tea is largely produced in the Kenya Highlands home to the Kenya Tea Zones, pyrethrum, maize and wheat are vastly cultivated in the Rift Valley. Sugarcane growing is popular in Nyanza and in Western Kenya, while livestock and livestock products production is widely distributed in the agricultural centers mentioned above.

It is further observed that these agricultural activities are heavily dependent on the erratic rains in the prevailing climate. This attribution is due to the fact that rainfall precipitation is seasonal and occurs twice a year in the months of March to May for the long rains as opposed to the short seasonal rains later in the year from October to December.

3.2.6 Topography

Kenya's topography is broadly divided to four main categories. These are: Coastal Plains, Arid Low Plateaus, Kenya Highlands and Lake Victoria Borderlands. The Coastal Plains comprises of narrow natural harbours, mangroves and coral reefs. Secondly, the Arid Low Plateau is the largest physical geographic region extending from the Tanzanian border to Northern Kenya which is approximately 72% land mass of Kenya. Highland

¹³⁴ Kul Bhushan, *Kenya Fact Book 2000-2001*. 16th ed. (Nairobi: Newspress International, 2000), 33.

enclaves such as the Taita Hills are found in this region adding beautiful scenery to the landscapes. Thirdly, the Kenya Highlands rising from 3,000m to 10,000m above sea level are a series of high plateaus and volcanic regions where the Rift Valley sits cutting across the face of Kenya from North to South. A number of lakes are found in the Rift Valley such as Lakes Bogoria, Baringo, Nakuru, Naivasha among others. Different escarpments find their home in the Rift Valley and these include Aberdare Range, Mau Hills, Uasin Gishu Plateau, Kericho Highlands as some examples. Fourthly, Lake Victoria Borderlands features a miniature Rift Valley with heavily non-volcanic plateau, the Kano Plains and low lands which experience reliable and evenly distributed rainfall.¹³⁵

3.2.7 Soils

Due to the blend of fertile volcanic soils and near-perfect climatic conditions, Kenya is home to some of the best farmlands in the world. In regards to the historical influence of the European settlers, they settled in the Kenyan Highlands and grew agricultural products such as tea and coffee to export back to Britain. At present, Kenya's most important agricultural products include tea, coffee, pyrethrum and of recent, horticulture which has become high value and high quality export segment.¹³⁶ Sugar, rice and maize are other agricultural products that are grown in areas rich with loam soils such as in Rift Valley, Kisii Highlands, and Western Kenya. Areas of Kenya such as North Western, North Eastern Province, Eastern and Coastal regions have sandy soils hence not good for agriculture therefore pastoralism is the economic activity in those areas. Other

¹³⁵ Edward W. Soja, *The Geography of Modernization in Kenya: A Spatial Analysis of Social, Economic and Political Change* (New York: Syracuse University Press, 1968), 6-8.

¹³⁶ Rob Bowden, *Countries of the World: Kenya* (London: Evans Brothers Ltd., 2007), 19.

soils like alluvial occur around lakes such as Victoria, Naivaisha and along rivers in Tana, Galana, Nzoia, Yala, Gucha, etc.¹³⁷

3.2.8 Rainfall and Climate

Rainfall and climate of Kenya is generally determined by its position in the Equator. Due to this, there are two major rainfall seasons, long rains stretching from March to June with high precipitation levels in the months of March to May and short rain season from September to November. Another factor to consider is the occurrence of high mountain ranges and large water bodies such as the Indian Ocean, Lake Victoria and the Great Rift Valley lakes which induced localized climatic patterns in Kenya. Consequently, a range of climatic conditions are experienced such as humid tropical climate in the Coastal areas; semi desert and desert climates in Northern and Eastern regions; temperate climate in the Rift Valley highlands suitable for agriculture; and typical rain forest climate in Western Kenya. The International Livestock Research Institute (ILRI) indicates that rainfall in Kenya is interrelated to topography i.e. the higher elevated regions receive up to 1,800mm per year as opposed to 320mm for low plateaus with an average precipitation of less than 500mm per year to two thirds of the country.¹³⁸

3.2.9 Rivers and Lakes

Kenya's main rivers are seasonal in nature and some of them swell during the rain seasons resulting to floods in western Kenya. A few of these rivers have been harnessed to produce hydro-electricity. Some of the rivers in Kenya include: Tana (708km), Athi-

¹³⁷ Simiyu Wandiba and Joseph Turanira, *Social Studies for Primary Schools*, (Nairobi: East African Education Publishers Ltd., 2005), 97-98.

¹³⁸ ILRI, *Kenya Adaptation to Climate Change in the Arid Lands: Anticipating, Adapting to and Coping with Climate Risks in Kenya – Operational Recommendations for KACCAL* (Nairobi: ILRI, 2007), 33-34.

Galana-Sabaki (547km), Mara (290km), Nzoia (258km), Turkwell-Suam (354km), Ewaso Ngiro (531km).¹³⁹

With the exception of Lake Victoria, Kenya's main lakes lie in the Rift Valley. Lake Victoria is shared among the three East African countries namely Uganda, Tanzania and Kenya in the ratio of 40%, 50% and 10% respectively.¹⁴⁰ The Rift Valley lakes include: Lakes Turkana, Baringo, Magadi, Bogoria, Elementaita and Nakuru. Lakes Naivasha and Amboseli increase and decrease in size with the rainy season.¹⁴¹ Crater lakes of Kenya include: Lakes Simbi, Chala, Sonachi and those on Mt. Kenya and Mt. Marsabit.¹⁴² The areas around most of Kenya's lakes are notably least developed agriculturally. Small scale activities such as irrigation, fish farming, recreational uses and other forms of economic activities play a role in the economic cycle of the population around these lakes. It is of importance to note that drainage basins of Kenya are divided into: Lake Victoria Basin, Rift Valley Basin, Athi River Basin, Tana River Basin and Ewaso Ngiro Basin.¹⁴³

3.2.10 Land Holding Patterns

In the pre-colonial era, land hold patters/land tenure system of Kenya was based on community and clan i.e. land was owned by the community or clan e.g. the Maasai. After independence, the government introduced legislation to privatize land. As a result

¹³⁹ Kul Bhushan, *Kenya Fact Book 2000-2001*. 16th ed. (Nairobi: Newsread International, 2000), 1.

¹⁴⁰ R. A. Obudho and J.B. Ojwang', eds., *Issues in Resource Management and Development in Kenya: Essays in Memory of Prof. Simon H. Ominde* (Nairobi: East African Educational Publishers Ltd., 2000), 44.

¹⁴¹ R. A. Obudho and J.B. Ojwang', eds., 68.

¹⁴² S.A Crafter, S.G. Njuguna & G.H. Howard, ed., *Wetlands of Kenya* (Switzerland: IUCN, 1992), 9.

¹⁴³ R. A. Obudho and J.B. Ojwang', eds., 77.

of this and coupled with corrupt government leaders, the land tenure system was and is skewed to a few elite group of people owning more land than the general population. To make things worse, Kenya being an agricultural based economy, land becomes the most sought-after natural resource since more than 80% of the population lives in the rural areas.

The pattern of land tenure system in Kenya is categorized into four categories: Government land; trust land held by the county councils; private land i.e. free hold and groups. As of 1990, the government land constituted about 20% of total land area which included national parks, forest lands, alienated and unalienated lands. Trust lands accounted for 64% while privately owned land was 6% of the total land.¹⁴⁴

3.2.11 Agriculture

Agricultural sector is the backbone of the economy and performs variedly due to the significant account of the erratic long and short rains across the ecological zones. The key crops include coffee, tea, maize, sugar cane, wheat, horticulture, and pyrethrum. Livestock and its products are also subsectors that contribute to the economy significantly.¹⁴⁵

It is realistic to point out that since the late 80s the Kenyan Government has been employing Structural Adjustment Policies (SAPs) with the objective of making a modest reduction on its budgetary deficits. However this being a good instrument for achieving the same, it resulted to the adoption of less sustaining practices in the Agricultural sector.

¹⁴⁴ Nathalie J. Chalifour et al, eds., *Land Use Law for Sustainable Development* (London: Cambridge University Press, 2007), 137.

¹⁴⁵ Dhirendra K. Vajpeyi, *Deforestation, Environment, and Sustainable Development: A Comparative Analysis* (USA: Greenwood Publishing Group, 2001), 15-18.

The consequent effect of the SAPs was that it decreased employment through retrenchment programs and at the same time increased the number of people below the poverty line from 23% to 43% who were forced to directly depend on Agricultural sector for their survival.¹⁴⁶ It therefore called for the government and the private sector to work together in building and fostering a combination of factors such as forming strong social organizations of communities that support sustainable Agriculture, be custodians of institutions that are well managed, corruption free and function with efficiency. These factors coupled with Government policies structured to provide an enabling environment for sustainable Agriculture will thus promote and guarantee an Agricultural sector that performs vibrantly and is self sufficient.¹⁴⁷

3.2.12 Irrigation

Historians believe that systems of irrigation in Kenya can be dated back as far as 400 years well before the existence of most African countries, however, large scale irrigation in Kenya is of recent development. The estimated potential of Kenya's irrigation is more than 300,000 ha but unfortunately the current total irrigated area is about 80,000 ha while public and private small-scale irrigation falls behind with less than 50, 000 ha. The three major types of irrigation systems practiced in Kenya include small holder of 28,000 ha, private commercial forms consisting of 26,600 ha and government/public schemes of 12,000 ha.¹⁴⁸

¹⁴⁶ J.K. Nyoro and H.K. Muiruri, *Policies for Agricultural Sustainability in Kenya* (London: International Institute for Environment and Development, 2001), 45.

¹⁴⁷ *Ibid*, 58.

¹⁴⁸ A.M. Michael, *Irrigation: Theory and Practice* (New Delhi: Vikas Publishing House Pvt. Ltd., 2008), 51.

A number of public irrigation schemes consist of Settlement Schemes which are under the Ministry of Agriculture with the operations being administered by the National Irrigation Board (NIB) and Bura Irrigation Scheme. A few other schemes in the same category include: Yala Irrigation Scheme under the Lake Basin Development Authority (LBDA); Sigor Irrigation Scheme under the Kerio Valley Development Authority (KVDA); Kibwezi and Tana deltas, under the Tana and Athi River Development Authority (TARDA). The role of irrigation development in Kenya to the national economy is of significance as it enhances in agricultural diversification, contributes to national food security, generation of foreign exchange, employment opportunities, settlement schemes and rural income expansion.¹⁴⁹

3.2.13 Animal Husbandry and Dairy

With Agriculture being the backbone of the Kenyan economy and more especially the rural economy, it is therefore important to note that Animal Husbandry and Dairy plays a vital role in the Kenyan economy i.e. it plays an integral part in the welfare of many families and communities. In respect to Kenya, many small and mixed farms combine crop and animal husbandry to produce high outputs of cereal and livestock. However, animal husbandry is dedicated to the production of milk for the sole purposes of income generation and as well as leather and flesh products. The production of milk is carried out under the various systems ranging from extensive to highly intensive zero grazing methods.¹⁵⁰

¹⁴⁹ Herbert G. Blank, Clifford M. Meturo & H. Murray-Rust eds., *The Changing Face of Irrigation in Kenya: Opportunities for Anticipating Change in Eastern and Southern Africa* (Colombo: International Water Management Institute, 2002), 36-37.

¹⁵⁰ ILCA Bulletin, *Economic Trends: Dairy Products* (Addis Ababa: ILCA, 1979), 9.

Amos Omore points out statistics of the dairy industry showing that of the 40,000 jobs created by milk processing and marketing, 70% of these jobs are in the informal sector of the Kenyan economy. It is further indicated that 600,000 to 800,000 dairy farm households create and employ up to 365,000 full time wage jobs.¹⁵¹ This is solid evidence that animal husbandry has a role to play in the welfare of the Kenyan communities and to this effect, the government has instituted the Ministry of Agriculture, Livestock and Fisheries to nurture and support the Animal Husbandry and Dairy activities in the country.

3.2.14 Forest and Wasteland Development

In so far as the Flora and Fauna of Kenya is vastly rich and varied there is however, a rundown forest cover in Kenya attributable to the impeded efforts for sustainable forest management. The estimated forest cover in Kenya is approximately 2,341,767 ha of which 1,662,472 ha are government (gazzetted), 679,295 ha are trust lands (ungazzetted). Additional estimations state that closed canopy indigenous forests account for 1.2 million ha and woodlands accounting for 2 million ha.¹⁵²

Rationale for the existing condition of forests in Kenya is attributed to an ever-growing population and low poverty levels that promote unchecked illegal logging, unlawful charcoal production and forest encroachment for farming and settlement. The forests are protected by the government by provisions from Forest Act, 2005 and Forest

¹⁵¹ George Ayaga et al, *Policy Dialogue in Kenya: Urban and Pre-Urban Agriculture Policy Prospects in Kenya* (Lima: Urban Harvest-International Potato Center, 2005), 7.

¹⁵² Dharendra K. Vajpeyi, *Deforestation, Environment, and Sustainable Development: A Comparative Analysis* (USA: Greenwood Publishing Group, 2001), 206.

Policy (Kenya, 2007).¹⁵³ The type and distribution of forests in Kenya are as follows: Natural forests include, tropical rain forests which grow in hot and wet areas found in areas such as Tindereti, Turbo, Kakamega, Maragoli, Kaimosi, Malava, Shimba Hills, Lambwe Valley and Arabuko-Sokoke along the coast; Mangrove forests are situated along the Kenyan coast i.e. Kilifi, Lamu, Kikambala, and Gedi; Highland forests are temperate forests located in cool and wet regions as Meru forests in Mt. Kenya, Abadare forests in Nyandarua, Mbooni and Kilala forests, Marsabit forest, Ngong Hills and Karura forests. Examples of exotic forests are situated in places like Kibirichia, Kirinyaga, Timau on the slopes of Mt. Kenya, Timboroa, Webuye, Eldoret, Molo, Nakuru, Londiani, among others.¹⁵⁴

3.2.15 Natural Resources

A quick look at Kenya gives an impression that the country is devoid of natural resources since there are no major deposits of gold, diamond or oil. However, Kenya is home to a stunning flora and fauna in the East African region with astounding physical landscapes. Such is important for the economy of Kenya in regards to the tourism industry. Unfortunately, for long Kenyans have failed to appreciate her natural resources and this is seen by poaching and habitat destruction, the forests are felled for farmland or timber leading to the destruction of water catchment areas and wetlands are reclaimed for agriculture.¹⁵⁵

¹⁵³ Paul Martin et al., eds, *Environmental Governance and Sustainability* (United Kingdom: Edward Elgar Publishing Ltd., 2012), 291.

¹⁵⁴ A. Okoth & A. Ndaloh, *Social Studies* (Nairobi: East African Educational Publishers Ltd., 2008), 174.

¹⁵⁵ Rob Bowden, *Countries of the World: Kenya* (London: Evans Brothers Ltd., 2007), 16-18.

Kenya's environmental and natural resources include forest plantations which produce forest products like timber, wood and charcoal, fish landings, wildlife population and the minerals. In the mining industry, the minerals include Soda Ash, Fluorspar, and Salt, Gemstones, Gold, Carbon Dioxide, Diatomite and Oil which was recently discovered. Earnings from mineral productions are due to the exports in Gold, Soda Ash, and Fluorspar among others.¹⁵⁶

In the years 2000 to 2010, the population of Kenya has increased and so has the economy expanded. Consequently, the need for energy to run the economy has increase proportionately. There are three main sources of energy in Kenya i.e. wood fuel which accounts for 70% reflecting the much amount of deforestation in the country, petroleum 21% and electricity which accounts for 9%. The key sources of electricity are namely Hydro, Geothermal and Thermal. The major players in the power sector are Kenya Power and Lighting Company (KPLC), Kenya Electricity Generating Company Ltd (Kengen) and other Independent Power Producers (IPP) all who function under the umbrella of the Energy Commission of Kenya.¹⁵⁷

Kenya relies heavily on Hydro Electric Power most of which comes for the constructed dams along River Tana. To augment the short fall due to high demands, Kenya imports hydro power from Uganda. Efforts have been made by the government to create alternative sources of power by developing capacities to generate and the geothermal power in the Rift Valley region of Kenya. Feasibility studies are on going to

¹⁵⁶ Kenya National Bureau of Statistics, *Economic Survey 2013* (Nairobi: KNBS, GOK, 2013), 169-170.

¹⁵⁷ United Nations Environmental Programme, *Sustainable Trade and Poverty Reduction* (Nairobi: UNEP, 2003), 103.

map out the possibility and capacity of whether civil nuclear energy can be integrated in to the Kenyan power grid.

3.2.16 Industry Development

Kenya is the most industrially developed country in East Africa. Its manufacturing sector is mostly involved in agro-processing. Industrial growth however slowed down in the mid nineties owing to the fact that free imports started to compete strongly with the locally made goods. Other factors that have been a hindrance to the development of Industrial sector include poor infrastructure especially in power and water supply, lack of enthusiasm by both the government and private sector in strong Research and Development pursuits, high interest rates which make the cost of capital a burden, inflexible market laws and regulations which are mostly archaic and extraneous just to point out a few.¹⁵⁸

It is useful to point out that in Kenya's Industrial sector. It is the informal sector that is the biggest employer as compared to the formal sector. The small scale establishments are initiated by enterprising crafts persons and so employ the highest numbers.¹⁵⁹ Commonly known as '*Jua Kali*' for '*In the Open Sun*', it was originally applied in the 1970s to artisans who produced goods in the open sun. Dynamic as it is, this sector has grown and expanded to include all the Small and Micro Enterprises (SMEs) who produce consumer and capital goods under minimum regulation and

¹⁵⁸ Kul Bhushan, *Kenya Fact Book 2000-2001*. 16th ed. (Nairobi: Newspress International, 2000), 49.

¹⁵⁹ *Ibid*, 49-50.

protection from the government. The *Jua Kali* sector also covers the auxiliary sectors, such as trade, repair and raw material supply.¹⁶⁰

The Census of Industrial Production (CIP) by the KNBS observes that the formal establishment in the Kenya's Industrial sector is constituted by mining and quarrying, manufacturing, electricity, gas, steam, air conditioning supply, water supply, sewerage, waste management and remediation activities. A big chunk of the total Industrial output is accounted by manufacturing activities then closely followed by electricity, gas, steam and air conditioning supply activities.¹⁶¹

The capital utilization of the Kenya's industrial sector has a significant bearing on the level of labor productivity, employment, compensation of employees as well as the overall profitability of Industrial activities. The CIP of 2010 points out that the main determinants of the level of capacity utilization include the supply of skilled manpower, raw materials and the mechanical condition of the machinery in use. Some of the causes identified for capacity utilization below 50% include high cost of materials, high cost of fuels and electricity, loss of products due to strikes and stoppages, high cost of labor and poor transportation.¹⁶² When all these are in place accordingly, the Industrial sector as a whole will post improved performance across the board and hence a vibrant economy.

3.2.17 HISTORY OF TRANSPORT DEVELOPMENT SYSTEM IN KENYA

Long before the entry of the European settlers to East Africa, Kenya did not have clearly defined transport routes of commercial significance as compared to modern day

¹⁶⁰ Steve Daniels, *Making Do: Innovation in Kenya's Informal Sector* (USA: Creative Common Attribution, 2010), 8.

¹⁶¹ Kenya National Bureau of Statistics, *Economic Survey 2013* (Nairobi: KNBS, GOK, 2013), 254.

¹⁶² *Ibid*, 255.

Kenya. What was in existence then was just village to village foot paths which people and livestock used from one point to another. It is of significance to point out that in the hither lands, there were not established trading centers however; the coastal parts of Kenya such as Vanga, Mombasa, Kilifi, Malindi, Lamu and Pate did have organized trading centers of which the Arabs and Indians traders used in the movement of their merchandise from the inner lands to the ports.¹⁶³ Signs of a developing transport system in Kenya are indicative in the 19th century with the entry of the European settlers i.e. as explores, missionaries, traders, administrators and as settlers. The development of transport systems picked up speed with the formation of the Imperial British East African Company (IBEAC). The mandate of IBEAC was to establish Uganda as a British protectorate and spur trade activities between Uganda and the Kenyan coast. Out of this rose important trade centers such as Machakos, Dagoretti, Fort Smith, Eldama Ravine and Mumias.¹⁶⁴

3.2.17.1 Development of Road Transport

The development of Kenya's road and rail transport has its beginnings dated to as early as late 1800s. The initial construction of roads and rail networks in time and space was primarily contracted by the IBEAC from the 1890s to around 1940s to give Kenya its original road and rail network blue prints. The table below gives the historical development of road initial framework networks of Kenya as developed by the European settlers, and from which the Kenya's modern road network have emerged. It is recorded by Ogonda that by 1946, Kenya's road network system was approximately 27,162km. An

¹⁶³ William Robert Onchieng' and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 130.

¹⁶⁴ Ibid, 130.

additional observation points out to state that roads such as Nairobi-Thika, Nairobi-Nakuru and Kipkelion-Kericho had been tarred with bitumen which was a major boost for the infrastructure development in regards to the promotion of trade activities conducted by IBEAC.¹⁶⁵ The table that follows indicates the road development in Kenya.

Table 3.22: Historical Development of Kenya's Road Transport System¹⁶⁶

Region	Name of Road	Route	Construction Starting Year	Completion Year
Coast	Mackinnon Road	Mombasa-Kibwezi	1890	1894
		Mombasa-Vanga		1902
		Mombasa-Malindi		1902
		Voi-Taveta		1902
		Witu-Mkonumbi Rd		1902
		Kibwezi-Kitui Rd		1910
Eastern	Machakos Road Station	Machakos-Kitui Rd		1902
Rift Valley	Sclater Road	Kericho-Muhoroni		1902
		Londiani- E. Ravine		1902
		Kipkelion-Kericho		1905
		Nakuru-Baringo		1907
		Solai-Rumuruti		1907
		Murang'a-Embu		1908
		Londiani-Eldoret		1910
		Kapsabet-Kaimosi		1910
		Kericho-Sotik-Kisii		1910
		Nakuru-Solai		1910
		Central		Nairobi-Murang'a		1910
Nairobi- Nyeri				1910
Nairobi-Kiambu				1910
Nairobi-Limuru				1910
Nairobi-Rumuruti				1910
Nyeri-Meru				1914
Kijabe-Mara Post Rd				1916
Western		Kisumu-Mumias Rd		1903
		Mumias-Busia		1914

¹⁶⁵ William Robert Onchieng' and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 133.

¹⁶⁶ *Ibid*, 132-133.

Region	Name of Road	Route	Construction Starting Year	Completion Year
		Mumias-Mbale		1914
		Kimumu-Kaimosi		1910
S. Nyanza		Homa-bay-Karungu		1910
		Homa-bay-Kisii		1910
		Kendu-bay-Kisii		1910
African Reserves		Gilgil-Nyahururu Rd		1920-1940
		Nakuru-Njoro-Londiani Rd		1920-1940
		Eldoret-Kapsabet Rd		1920-1940
		Kacheliba-Lodwar		1920-1940
Mining Roads		Kisian-Asembo bay		1936
		Homa-bay-Suna		1936
		Muhuru-bay-Lolgorian		1936
		Kisumu-Ahero-Kebirigo		1938
		Jamji-Chemajel-Lolgorian Rd		1937

Source: Onchieng' and Maxon, 1992.

3.2.17.2 Development of Rail Transport

The rail transport of Kenya was designed by the European settlers and was set up along the Mombasa, Nairobi, Nakuru, Kisumu and Eldoret trade centers. Construction of the rail network begun in 1896-The Uganda Railway- starting from the port at Mombasa and ran across the breath of Kenya into Uganda. The Thika-Murang'a-Nyeri-Nanyuki route and the Butere Rail Line are the last railway lines to be completed by 1930. Consequently, the road network was also developed in the peripherals of the rail network. The table shows the development of rail transport in Kenya.

Table 3.23: Historical Development of Rail Network of Kenya¹⁶⁷

S.No	Rail Route	Construction Year	Completion Year
1.	Mombasa-Nairobi Line	1896	1899
2.	Nairobi-Nakuru Line		1900
3.	Nakuru-Kisumu Line		1901
4.	Nairobi-Thika Line		1913
5.	Voi-Taveta Line		1914
6.	Lake Magadi Rail		1915
7.	Taveta-Tanzania Line		1918
8.	Eldoret Rail Line		1924
9.	Solai Rail Line		1926
10.	Eldoret-Kitale Line		1926
11.	Kitale-Uganda Line		1928
12.	Nyahuru Rail Line		1929
13.	Thika-Murang'a-Nyeri-Nanyuki		1930
14.	Buture Rail Line		1930

Source: Ochieng' and Maxon, 1992.

3.2.17.3 Development of Air Transport

These two sectors of transport, Air and Water were not that developed in the early colonial years as compared to Road and Rail. The colonial transport architects saw more importance on road and rail in regards to their interests and therefore did not emphasis in air and water transport development. It is in the early 1930s that the air transport sector came into view with very limited operations at the Lake Victoria (inland) and the coastal waters. Due to the poor demand for transcontinental air transport services, there was a lesser need for the development of airstrips. However, it is in the 1930s that the East African Airways was commissioned from Wilson Airport operating flights within the East Africa segment i.e. Kenya, Uganda and Tanzania. It is in 1949 that new routes were added with a need of expansion. These routes included Mozambique and South Africa.

¹⁶⁷ William Robert Onchieng' and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 132.

European routes especially to London were started in 1954. It is of importance to note that Kenya had four customs airports namely: Embakasi (1958), Wilson, Mombasa and Kisumu, 21 secondary and minor fields and 19 emergency and private airstrips.¹⁶⁸

The Table 3.24 that follows provides the list of the current airports in Kenya to illustrate the growth of Kenya’s aviation industry from its inception era of the British up to the current state.

Table 3.24: List of Airports in Kenya¹⁶⁹

Location	Airport	Location	Airport
Amboseli	Amboseli Airport	Lodwar	Lodwar Airport
Bamburi	Bamburi Airport	Lokichoggio	Lokichoggio Airport
Eldoret	Eldoret Airport	Loyangalani	Loyangalani Airport
Eliye Springs	Eliye Springs Airport	Malindi	Malindi Airport#
Fergusons Gulf	Furgusons Gulf Airport	Mandera	Mandera Airport
Garissa	Garissa Airport	Mara Lodges	Mara Lodges Airport
Hola	Hola Airport	Marsabit	Marsabit Airport
Kakamega	Kakamega Airport	Mombasa	Moi International Airport#
Kalokol	Kalokol Airport	Moyale	Moyale Airport
Kericho	Kericho Airport	Mumias	Mumias Airport
Kerio Valley	Kerio Valley Airport	Nairobi	Jomo Kenyatta International Airport#
Kilaguni	Kilaguni Airport	Nairobi	Wilson Airport
Kisumu	Kisumu Airport #	Nakuru	Nakuru Airport
Kitale	Kitale Airport	Nanyuki	Nanyuki Airport
Kiunga	Kiunga Airport	Nyeri	Nyeri Airport
Kiwayu	Kiwayu Airport	Nzoia	Nzoia Airport
Lake Baringo	Lake Baringo Airport	Samburu	Samburu Airport
Lake Rudolf	Lake Rudolf Airport	Ukunda	Ukunda Airport
Lamu	Lamu Airport#	Wajir	Wajir Airport
Liboi	Liboi Airport		

Source: The Airport Authority, 2015; #-Major Airports

¹⁶⁸ William Robert Onchieng’ and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 134.

¹⁶⁹ The Airport Authority “List of All Airports in Kenya”, Internet; Available from; <http://airport-authority.com/browse-KE> ; Internet; Accessed on March 05, 2015.

It is of particular note to point out that military airports of Kenya are located in Nairobi i.e. Moi Air Base and Nanyuki i.e. Laikipia Air Base.

3.2.17.4 Development of Water Transport

As regards to water transport, this was an important means of transport especially for the traders in the coastal region. However, Kenya does not have navigable rivers especially with main rivers such as Galana and Tana that empty to the Indian Ocean run through falls and cataracts while in the inland, hence the rivers can barely be navigable due to the complicated river courses. Significantly though, Lake Victoria played an important commercial role by linking Kisumu to Uganda and Tanzania. Other bays that service the Lake Victoria include Port Victoria, Asembo bay, Homa bay, Kadima bay, and Karungu bay.¹⁷⁰

With references to the ports in Kenya, The Kenya Ports Authority (KPA) is mandated with the maintenance, operation, improvement and regulation of all port activities along the Kenyan coastline. The principle port is Kilindini Harbour in Mombosa while the other ports are Lamu, Malindi, Kilifi, Mtwapa, Kiunga, Shimoni, Funzi and Vanga along the coastline.¹⁷¹

3.2.18 ORIGINAL AND CURRENT STATUS OF ROAD TRANSPORT

Ogonda and Onyango aptly point out that the road network in Kenya was initially developed to support the railway network i.e. to provide feeder road connections to the railway stations along the railway line. The rationale for such a perspective was that

¹⁷⁰ William Robert Onchieng' and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 134.

¹⁷¹ Kenya Ports Authority, "Ports of Kenya", Internet, Available from; <http://www.kpa.co.ke/About%20Us/Introduction/Pages/OurMandate.aspx> ; Internet; Accessed on March 05, 2015

feeder road networks provided speed, versatility and the ability to change with volume brand.¹⁷² It is now evident that the Kenyan experience is such that road transport facilitates the efficiency and quick exchange of goods and services to the extent that it has assumed great importance as compared to the other modes of transport. However, it is equally important to note that it is for the same reasons that resulted to the neglect and further deterioration of the railway network development in Kenya.

Nevertheless, at the time of Kenya's Independence, the road network system was mostly of gravel and earth roads with a few bituminized trunk roads which served to connect the trading junctions in the country. Kenya had a classified road network of 41,800km of which 1,811km were tarmacked. The following table indicates the various road development policies that the government undertook in order to develop the road networks.

From the table below, it can be observed that the four Development Plans focused on the improvement of heavy trunk roads and primary roads, the construction of feeder and minor roads, and there was a major focus on promoting rural development through an increased development of rural access roads with the objective of improving accessibility to boost the movement of the agricultural produces from the farms to the urban areas for market. It is important to note that traditionally and more over through the Development Plans indicated in the table, Kenya was an agricultural based economy and therefore the rural access program was a much needed program.

¹⁷² William Ochieng' ed., *Historical Studies and Social Change in Western Kenya: Essays in Memory of Professor Gideon S. Were* (Nairobi: East African Educational Publishers Ltd., 2002), 225.

Table 3.25: Road Network Development in Kenya since Independence¹⁷³

Development Plan	Roads	Government Policy/Program
DP 1963-70: -Upgrade of heavy traffic trunk roads and primary roads to bitumen and gravel standard. -Construction of Feeder roads.	Nairobi-Mombasa. Mombasa-Malindi. Kiganjo-Nanyuki. Sagana-Embu.	-Special Purpose Roads Program, 1964 i.e. tea, sugar, rice, wheat and tourism roads.
DP 1970-74: Construction of Feeder and Minor roads. -Selective bituminization of trunk and primary roads.	Ahero-Isebania. Athi River-Namanga. Kakamega-Webuye. Yala-Busia.	-Expansion of Special Roads Program in Settlement Areas. -Transport Policy. -Freedom of Licensing Road Haulers.
DP 1974-78: Boosting Rural Development through improved road accessibility. -Major bituminization program	Mombasa-Lunga Lunga road.	-Rural Access Road Program, 1974. -Gravelling, Bridging and Culverting Program.
DP 1979-83: Balance development of entire road system.	Mombasa-Nairobi-Malaba. Molo-Kericho-Kisumu-Busia.	-Continuation of Rural Access Road Program and Gravelling, Bridging and Culverting Program. -Revision of existing laws and vigorous enforcement of traffic rules with regards to axle-load and Vehicle dimensions.

Source: Ochieng' and Maxon, 2002.

Further observations show that through the 1980s and 1990s, the agenda for road network development emphasized on the rural oriented road programs, improvement of the secondary and minor roads as well as the rehabilitation and reconstruction of the failed bitumen roads constructed in the 1960s. It is further noted that development work on the Kenyan road network was adversely hampered in the 1990s due to the donor funds

¹⁷³ William Robert Ochieng' and Robert M. Maxon, *An Economic History of Kenya* (Nairobi: East African Publishers, 1992), 321.

freezing by the development partners early in the same period, as well as the negative impact of the El Nino rains between the years of 1997-98.¹⁷⁴

3.2.18.1 Reforms in the Road Sector

Since independence, the road sector has evolved through the following Acts of Parliament i.e. Public Roads & Roads of Access Act, Cap 399, The Mtwapa Bridge Act, Cap. 402, Traffic Act, Cap. 403, The Streets Adoption Act, Cap. 406 and Roads Tall Act, Cap.407.¹⁷⁵ However, through the 1980s and 1990s, the condition of the Kenya road network continued to deteriorate majorly due to lack of funding so that rehabilitation of bad roads and the construction of new roads could take place. These worsening conditions called for introspection and consequently studies were carried out in Sub-Saharan African Countries under the supervision of the World Bank. Conclusions of the findings from the studies stated strongly that: the creation of ownership, clarification of responsibilities, creation of stable financing for the sector and introduction of professional management in the sector had to be established and satisfied to guarantee functionality and sustainability.¹⁷⁶

The table that follows provides the various reforms that have been implemented in the Road Sector since the early 1990s through to late 2000s. These reforms project the sole objective of providing good and sustainable road infrastructure that would support Kenya's National Development Strategy in achieving the Vision 2030.

¹⁷⁴ Ministry of Transport, *A Brief on Road Transport Sector in Kenya* (Nairobi: Ministry of Transport, 2013), 3.

¹⁷⁵ Ministry of Roads, *Policy On Aligning The Roads Sub-Sector With The Constitution* (Nairobi: GoK, 2012), 27.

¹⁷⁶ Kenya Roads Board, *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012* (Nairobi: KRB, 2007), 15.

Table 3.26: Reforms in the Kenya's Road Sector¹⁷⁷

Year	Reforms	Objective
1993	The Road Maintenance Levy Fund (RMLF)	Provision of Needed and Stable Financing
1999	Kenya Roads Board Act, 1999	Provide Ownership
2007	The Kenya Roads Act, 2007	Established three road authorities i.e. Kenya National Highways Authority (KeNHA), Kenya Rural Roads Authority (KeRRA), and Kenya Urban Roads Authority (KURA).

Source: KRB, 2007.

Other proposed reforms in the road sector that could push for better service delivery in the Ministry of Roads include:

- i. Mechanical and Transport Department (M&TD) to be restructured into a Semi-Autonomous Government Agency (SAGA) mandated with the provision, on commercial basis, of equipment to the road agencies and private sector for development and maintenance of road infrastructure.
- ii. Materials, Testing and Research Department to be restructured to ensure that it discharges its duties effectively.
- iii. Kenya Institute of Highways and Building Technology (KIHBT) to be restructured into a SAGA with the mandate of training public and private sector staff for road development, rehabilitation and maintenance.¹⁷⁸

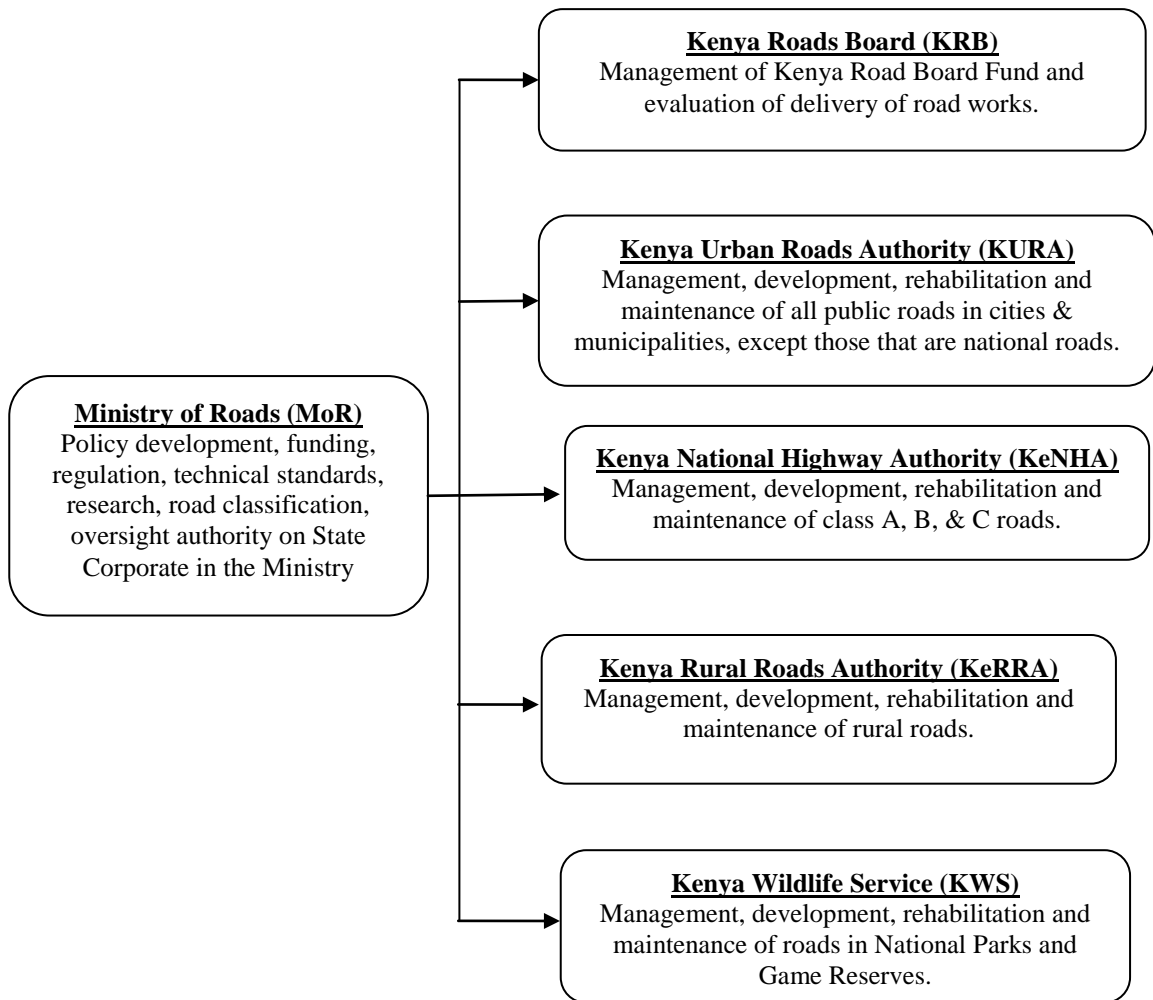
¹⁷⁷ Kenya Roads Board, *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012* (Nairobi: KRB, 2007), 15.

¹⁷⁸ Ibid, 15.

3.2.18.2 Administrative Structure of the Road Sub-Sector of Kenya

The introduction of reforms in Kenya's road sub sector especially The Kenya Roads Act, 2007, brought into operation road authorities that were mandated as it is revealed in the following diagram.¹⁷⁹ As can be noted from Fig. 3.3 below is that all the five administrative agencies fall under the Ministry of Roads.

Fig. 3.3: Administrative Structure of the Road Sub-Sector of Kenya



Source: KRB, 2012.

¹⁷⁹ KRB, *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012* (Nairobi: KRB, 2012), 7.

The Table 3.27 below presents Kenya's road networks in kilometers along with their corresponding road classifications.

Table 3.27: Kenya's Road Networks in Kilometers¹⁸⁰

AGENCY	Road Class	Paved	Unpaved	Total
KeNHA	A	2,772	816	3,588
	B	1,482	1,156	2,638
	C	2,529	4,932	7,461
	Total	6,783	6,904	13,687
KeRRA	D	1,069	9,092	10,161
	E	461	24,448	24,909
	SPR*	46	9,817	9,863
	U**	692	84,442	85,134
	Total	2,268	127,799	130,067
KURA	B	7		7
	C	164	2	166
	D	169	367	536
	E	116	919	1035
	SPR*	64	552	616
	U**	1,620	8,569	10,189
	Total	2,140	10,409	12,549
KWS	C		230	230
	D		24	24
	E		704	704
	SP*		7	7
	U**	6	3,612	3,618
	Total	6	4,577	4,583
	Total Classified	8,879	53,066	61,945
	Total Unclassified	2,318	96,923	98,941
	TOTAL NETWORK	11,197	149,689	160,886

Source: KRB, 2007; *Special Purpose Road; **Unclassified

Observations from Table 3.27 above point out that over 93% of the road network in Kenya are unpaved. This is a clear indication of the poor quality of roads in Kenya. It

¹⁸⁰ Kenya Roads Board, *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012* (Nairobi: KRB, 2007), 16.

is further implied that the government of Kenya has to systematically address this deficit to promote economic activity in the country.

Records from the Central Bureau of Statics point out that the classification of the Kenya road network was completed in 1970 to fall under either of the following. These include:

- i. A – International Trunk Roads – link the centers of international importance and crossing international boundaries or terminating at international airports.
- ii. B – National Trunk Roads – link nationally important centers.
- iii. C – Primary Roads – link locally important centers to each other and to higher class roads.
- iv. D – Secondary Road – link locally important centers to each other and to higher class roads.
- v. E – Minor Roads – any link to a minor center
- vi. F – Special Purpose Roads – include parks, township, agriculture, fish and strategic roads. Special Purpose Roads include government access, settlement, rural access, sugar, tea and wheat roads.¹⁸¹

On the other hand, it is of importance to point out that in November 2012, the Thika road was inaugurated and classified as Thika Super Highway. This is a standard 8 lane highway stretching 50km to connect the capital city of Nairobi to the industrial city

¹⁸¹ Central Bureau of Statics, *Statistical Abstract 2003* (Nairobi: CBS, 2003), 198.

of Thika. It features service roads, underpasses, interchange sections at roundabouts, flyovers and pedestrian crossings.¹⁸²

3.2.18.3 Road Density of Kenya

Considering the Table 3.28 below, Kenya’s road density is presented for the years 2000 to 2011. It is observed that for the period under study, Kenya’s road density was static at 11km/100sq.km for 10 years only to drastically increase in 2011 to 28km/100sq.km reflecting a 154.55% growth rate over the former. It is perplexing as to why the road density was static for that length of time and this question begs answers.

Table 3.28: Road Density of Kenya, 2000-2011¹⁸³

Year	Kenya’s Road Density (km/100sq.km)
2000	11
2001	11
2002	11
2003	11
2004	11
2005	11
2006	11
2007	11
2008	11
2009	11
2010	11
2011	28

Source: factfish.com

¹⁸² KeHNA, “Nairobi-Thika Superhighway –A Dream Realized”[report online]; Internet; Available from; http://www.kenha.co.ke/index.php?option=com_content&view=article&id=75:nairobi-thika-superhighway-a-dream-realised&catid=20:2014news&Itemid=8 ; Internet; Access on March 05, 2015.

¹⁸³ FactFish, “Kenya’s Road Density”, [report online]; Internet, available from; <http://www.factfish.com/statistic-country/kenya/road%20density> ; Internet; Accessed on March 05, 2015.

3.2.18.4 Road Sector Development Agenda

The first Medium Term Plan (MTP) of the Kenya Vision 2030 lays out programs and plans that the Government proposes to undertake. Under this guideline, we find the Road Sub-Sector's developmental agendas which were to be developed in tandem with Vision 2030 during the period 2008 to 2012. These developmental agendas include:

- i. National Integrated Transport Master Plan: project will be related with the National Spatial Plan that will guarantee that investment and location of transport infrastructure and services are coherent with public investment position of Kenya.
- ii. Development of Southern Sudan and Ethiopia Transport Corridor: this involves the development of a transport corridor from port city of Lamu to Ethiopia and Southern Sudan which entails a road network, railway line among others.
- iii. Maintenance Current Road Network and Airstrips: this involves the construction of roads, reconstruction and rehabilitation of 1,327km, and 1,364km respectively. Under this program, the upgrade of weighbridges and establishment of road axle load controls was of importance.
- iv. Road Network Expansion: The program intended to construct 1,950km of new roads by 2012 to major production, marketing and consumption junctions as well as furnish a legal structure for repossessing unlawfully acquired land on road reserves and execute the expansion of 10,103km of road width.
- v. Road Transport Policy: involved a three tier concessioning programs of Nairobi bypasses, major roads as well as the road network on the Northern Corridor by 2012.

- vi. National Road Safety Program: involves the fast-tracking of the implementation process of the National Road Safety Action Plan that was aimed at arresting the incidences of road accidents and addresses the impact of the same in the Kenya economy.
- vii. Computerized Information Maintenance Management Systems: Objectives of this program was to develop three integrated computerized systems that would manage Kenyan roads, bridges and pavements.¹⁸⁴

3.2.18.5 Agencies and Source of Funds for Road Development in Kenya

Table 3.29: Road Agency and Source of Funds for Road Development in Kenya¹⁸⁵

S.No	Agency	Classified Roads	Source of Funds
1	KeNHA	A, B, & C	RMLF, Transit Tolls.
2	KURA	B, C, D, E, SPR* & Unclassified (All public roads in cities and municipalities)	RMLF
3	KeRRA	D, E, SPR & Unclassified	RMLF, Agricultural Cess
4	KWS	C, D, E, SPR, & Unclassified (All roads in National Parks and Game Reserves)	RMLF
5	District Committee Roads	Rural Access Roads, Footpaths and Bridges	Constituency Funds, Agricultural Cess

*SPR- government access, settlement, rural access, sugar, tea and wheat roads

The Table 3.29 above shows the different agencies responsible for the development, maintenance and rehabilitation of the different road classifications in Kenya as well as the source of funds for their mandate.

¹⁸⁴ Kenya Roads Board, *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012* (Nairobi: KRB, 2007), 20-21.

¹⁸⁵ Kenya Roads Board, *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012* (Nairobi: KRB, 2012), 20-23.

3.2.19 ROAD DEVELOPMENT FUND ALLOCATION

In Kenya, the process of road development, maintenance and rehabilitation fund allocation is structured in a two-tier format. This is to state that the development of road transport is concurrently funded from two government agencies i.e. the Ministry of Roads (and Public Works)¹⁸⁶ and Kenya Roads Board (KRB).¹⁸⁷ The mandate of road development, maintenance and rehabilitation solely lies on the Kenya Roads Board however; the Ministry of Roads also plays a role in funding the auxiliary services that are tied to road development i.e. Building and Works, Other Services and Roads.¹⁸⁸

The fund allocation by the Ministry of Roads and Public Works is furnished by the Central Government i.e. the Ministry of Finance through its annual budgets. This fund is outlined for development through their capital expenditure which includes, “General Administration and Planning, Consultancy, Design, Expenditure on Government Buildings, Other Buildings Works, *Development of Roads*, Materials Branch, Mechanical and Transport Department, Electrical Department, Staff Training Department, Housing Services and Loans to National Housing Corporation’.¹⁸⁹ It is of importance to note that fund allocations from the Ministry of Roads and Public Works will play a core role in the current research exercise.

On the other hand and as earlier noted, the KRB was established in 1999 through an Act of Parliament and was given the charge of Kenya’s road network with a mandate

¹⁸⁶ Government of Kenya, *2001/2002 Estimates-Development Expenditure* (Nairobi: Government Printer, 2001), 522.

¹⁸⁷ Kenya Roads Board, *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012* (Nairobi: KRB, 2012), 7.

¹⁸⁸ Government of Kenya, *2001/2002 Estimates-Development Expenditure* (Nairobi: Government Printer, 2001), 522.

¹⁸⁹ *Ibid*, 522.

of rehabilitation, maintenance and development. The KRB Act 1999, empowers the KRB to manage the Road Maintenance Levy Fund (RMFL) which is comprised of Fuel Levy and Transit Toll that is collected on behalf of KRB by the Kenya Revenue Authority (KRA). The other sources of funds for KRB include Agricultural Cess and income from treasury operations i.e. interests earned from the KRB's liquid assets.¹⁹⁰ Table 3.30 indicates the allocation principle followed by the KRB.

Table 3.30: Allocation Principle by the KRB¹⁹¹

AGENCY	ALLOCATION CRITERIA (%)	PURPOSE OF FUND: Maintenance, Rehabilitation and Development of
KeNHA	40%	A, B and C Roads.
KeRRA	32%	Constituency/Rural roads & link roads within the constituency.
KURA	15%	Urban Roads within municipalities or cities.
KWS	1%	Roads in National Parks and Game Reserves
ALLOCATION BY THE MINISTER	10%	Roads based on the five year Road Sector Investment Program (RSIP).
KRB	2%	Funds for KRB operations.

Source: KRB, 2012.

3.2.20 ACHIEVEMENTS OF ROAD DEVELOPMENT IN KENYA

This section highlights some of the achievements as regards to the road network development activities in Kenya during the period under study to provide a qualitative perspective as regard to the road sector activities in the country. It is to be noted that a number of programs under the umbrella program Roads 2000 were put into operation

¹⁹⁰ Kenya Roads Board, *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012* (Nairobi: KRB, 2012), 19.

¹⁹¹ Ibid, 19.

particularly in the years 2004 and 2010. Furthermore, it is also underscored that apart from the physical progress of road network development, the other achievements included employment creation, training and creating economic and social prospects for the youth and women of the society.¹⁹² The tables that follow show the achievements of Roads 2000 program in terms of physical progress and employment creation.

Table 3.31: Physical Progress of Road Development in Kenya 2004-2010¹⁹³

Project	Province/Region	Planned Progress (km)	Actual Progress (km)	% Achievement
AfDB	North Rift	934	993	106
AfDB	South Rift	1637	1339	85
AFD	Central	1015	864	85
Danida(DASS)	Coast & Central	627	837	133
EU/EC	Eastern	1128	935	83
KfW	Central Rift/ Nyanza	1004	971	97
Sida	Nyanza	1500	1224	82
Total		7845	7247	92

Source: Ministry of Roads, 2012.

Observations from Table 3.31 above reveal that the projects in the North Rift and Coast and Central regions of the country surpassed the planned target with 106% and 133% respectively. The Central Rift/Nyanza region also indicate significant achievement of 97% to give a an average achievement of 92% of all the listed projects. It is to be noted that this physical progress of road network development significantly contributes to the advancement of the road network in the country and will have a positive impact on the growth of the economic activities.

¹⁹² Ministry of Roads (GoK), *Roads 2000 Strategic Plan 2013-2017* (Nairobi: Ministry of Roads,2012), 3-4.

¹⁹³ Ibid, 4.

Table 3.32: Employment Creation and Participation of Women in Road Development in Kenya, 2004-2010¹⁹⁴

Project	Province/Region	Employment		Total	% Women
		Men	Women		
AfDB	North Rift	632321	71499	708820	10
AfDB	South Rift	266315	29580	295895	10
AFD	Central	703000	247000	950000	26
Danida(DASS)	Coast & Central	341478	60261	401739	15
EU/EC	Eastern	338547	42998	381545	11
KfW	Central Rift/Nyanza	130575	39082	169657	23
Sida	Nyanza	1179111	608520	1787631	34
Total		3591347	1098940	4695287	23

Source:Ministry of Roads, 2012.

From Table 3.32 above it is observed that employment creation was one of the achievements in the process of road development activities in the country. It is noted that women were beneficiaries in the employment created. As pointed out in the table above, the regions of Central, Central Rift/Nyanza and Nyanza had the highest women beneficiaries in the rate of 26%, 23% and 34% respectively.

3.2.21 EXTERNALITIES AND PROBLEMS OF ROAD TRANSPORT DEVELOPMENT IN KENYA

This section will highlight the various externalities with negative impact of road transport sector along with the problems that plague the road transport system in Kenya.

These include:

3.2.21.1 Road Accidents

The Kenyan experience as regards to road accidents and road safety in general has been a cause for worry. It was reported in 2006 that over 1,900 people lost their lives

¹⁹⁴ Ministry of Roads (GoK), *Roads 2000 Strategic Plan 2013-2017* (Nairobi: Ministry of Roads, 2012), 4.

through road accidents on the Kenyan roads. Statistics further state to show it is only malaria and HIV that claimed more lives than road accidents. This is an indication that road users faced a high risk of danger and insecurity while travelling on Kenyan roads. The table below shows the number of road accidents reported, the number of persons killed and injured. Suggested measures to curb the high rates of road accidents include: more effective policing of speeding; encouraging greater professionalism and accountability to customers by drivers and conductors; and tighter restrictions on operating routes.¹⁹⁵

Table 3.33: Number of Road Accidents, Persons Killed/Injured, 2001-2011

Year	Number of Road Accidents	Persons Killed	Persons Seriously Injured	Persons Slightly Injured
2001	13407	2790	10504	16114
2002	13418	2782	10912	15080
2003	13378	3004	10036	15935
2004	10717	2264	6751	11858
2005	12399	2531	7899	12341
2006	12201	2714	8722	11828
2007	12470	2921	8932	13735
2008	9093	2463	9481	9476
2009	12369	4072	10644	11906
2010	9771	3055	9327	9739
2011	8193	3302	8647	7144
Total	127416	31898	101855	135156

Source: Economic Surveys 2006, 2008, 2013.

3.2.21.2 Congestion

The traffic congestion in Kenyan roads and more especially in the capital city of Nairobi as well as other urban areas of the major cities has become a serious problem. Data shows that the cost of traffic congestion in Kenya is approximately equivalent to

¹⁹⁵ UNHSP, *Enhancing Urban Safety and Security* (USA: UN-Habitat, 2007), 225.

US\$ 434 million a year due to lost productivity, stress, fuel consumption, and environmental degradation.¹⁹⁶ The traffic congestion has reached these maddening levels because of the failure of local government authorities not taking measures to update the insufficient road network. It is noteworthy to state that congestion on roads in Kenya is characterized by reckless driving, speeding, and peak hour congestion.

Table 3.34: Number of Registered Vehicles in Kenya, 2000-2011

Year	Saloon Cars	Station Wagons	P. Vans, Pick-ups,	Lorries/ Trucks	Buses & Coaches	M. Buses/ Matatu	Wheeled Tractors	Motor & A Cycles	Other Vehicles#	Total Vehicles*
2000	6510	2971	4311	1690	779	596	977	1841	111	20236
2001	8258	4733	4747	1283	490	3598	575	1559	178	26024
2002	10534	6746	5834	1919	407	3996	678	1907	114	32638
2003	9709	8032	6819	2069	667	2854	663	2084	159	33917
2004	12628	8863	7042	2461	872	4405	829	4136	286	42634
2005	14216	10158	6308	3113	885	4076	856	3759	930	45652
2006	14829	12631	6721	3610	856	3714	920	6250	1580	52817
2007	17893	24115	9470	6329	2006	4252	1213	16293	1560	85324
2008	18686	24747	8983	6691	1243	5206	1262	51412	1501	121831
2009	16930	27599	7120	6037	1057	4483	1115	91151	3438	161813
2010	16165	37553	6975	4924	1264	3600	1161	117266	5169	196456
2011	11026	31199	7442	5247	1662	451	1179	140215	4864	205841
Total	157384	199347	81772	45373	12188	41231	11428	437873	19890	1025183

Source: Economic Surveys, 2001, 2006,2008,2013;

Includes 3 Wheelers; * Including Trailers

3.2.21.3 Poor Funding

It is noted that poor funding for road construction, rehabilitation and maintenance is the main challenge in the road sector. The report on poverty reduction strategy dated 2007 pointed out that under-funding of the road sector in Kenya contributed significantly

¹⁹⁶ Kempe R. Hope, *The Political Economy of Development in Kenya* (New York: Continuum International Publishing Group, 2012), 73.

for the challenges facing the road sector.¹⁹⁷ The main contributing factors to the inadequate funding for the Kenyan roads are that road funds are still centralized and there is political interference as regards to fund allocations both at the National government and the Constituency levels.

3.2.21.4 Lack of Comprehensive and Integrated Transport Policy Framework

Due to the lack of a comprehensive and integrated transport policy regime, this has resulted to poor performance of the road development sector in Kenya as regards to both national and rural roads. Consequently, the management of the rural road networks is undermined when these processes are not devolved so as to increase road revenue and maintenance. Key factors identified as challenges in this regards include: lack of fiscal decentralization, poor accountability, deficient transparency and good governance.¹⁹⁸ An integrated transport policy will address both the positive and negative road externalities created from the rural and urban roads as well as provide a framework for balance in regards to the externalities and their attached social costs.

3.2.21.5 Taxes

Taxes on road transport in Kenya comprise of the externalities that are experienced by the road users i.e. tax impositions for the use of road infrastructure. These levied taxes include: motor fuel taxes, motor vehicle sales taxes, motor vehicle use taxes, import duties and others. Reasons for the imposition of taxes on road users and thereby considered as an externality are because of the added externalities associated with road

¹⁹⁷ IMF, *Kenya: Poverty Reduction Strategy Annual Progress Report 2004/2005* (New York: International Monetary Fund, 2007), 5.

¹⁹⁸ S. Kasuku and L. Muchira, *Links Between Transport and Poverty: A Review of Transport Policies in Kenya and the Links with Poverty Reduction* (Nairobi: Poverty Watch Publication, 2003), 30-31.

transport in Kenya i.e. environmental pollution through green house gases, lead, carbon monoxide, noise, accidents and traffic congestions.¹⁹⁹

As been discussed above, Kenya’s road transport sector is confronted by a number of problems. These problems have been compiled and listed in the table below in accordance to their nature and consequent impact.

Table 3.35: Problems of Road Sector in Kenya²⁰⁰

S No.	Problem/Challenge	Physical	Institutional	Environmental
1	Poor Coordination between Road Agencies		❖	
2	Poor Funding		❖	
3	Poor Maintenance, Repair and Rehabilitation	❖	❖	
4	Congestion	❖		❖
5	Pollution	❖		❖
6	Road Safety	❖		
7	Lack of Comprehensive/Integrated Transport Policy Frame work	❖	❖	
8	Poor or Lack of Rural Access Roads	❖	❖	
9	Lack of Efficiency in Using Road Funds		❖	
10	Lack of Adequate Control in Execution of Road Works	❖	❖	
11	Misuse of Road Facilities	❖	❖	
12	Lack of Foot Path ad Bicycle Lanes	❖	❖	
13	Lack of Adequate R&D in Roads		❖	

Source: Kasuku and Muchira, 2003.

¹⁹⁹ Sijbren Cnossen, ed., *Excise Tax Policy and Administration in Southern African Countries* (Pretoria: University of South Africa Press, 2006), 120.

²⁰⁰ S. Kasuku and L. Muchira, *Links Between Transport and Poverty: A Review of Transport Policies in Kenya and the Links with Poverty Reduction* (Nairobi: Poverty Watch Publication, 2003), 12, 17-18.

The above Table 3.35, points out the most prevalent problems of road transport sector in Kenya. The physical and environmental problems entail the challenges that are experienced on the ground, while institutional problems comprise of the problems surrounding the policy structure of the road sector. It must be noted that, though these problems have been sighted, it is also acknowledged hereby that the Road Agencies responsible for road sector development have tried to combat the problems and have provided solutions either both short term and long term with the objective of improving the situation of road sector in Kenya.

3.2.22 SUGGESTED SOLUTIONS FOR PROBLEMS OF ROAD SECTOR IN KENYA

This segment will draw attention to the suggested solutions for the diverse problems that are prevalent in Road Transport Development process in the Road sector of Kenya. It has been noted that these road externalities possess an unconstructive and unhealthy impression in the process of road development in Kenya. It therefore calls for attention so that these problems are addressed with the objective that the plight of the road development activities in Kenya will improve to meet the world standards. It is imperative therefore, that all the stakeholders involved in developmental process of road sector to participate in a gene pool of solutions so as to combat the problems that plague the Kenyan road sector. The current study suggested a few solutions of the said problems as indicated on Table 3.36 below.

Table 3.36: Suggested Solutions to Problems of Road Sector in Kenya

SNo	Problem	Recommendation
1	Poor Coordination between Road Agencies	Set up an Integrated Framework for Coordination and Cooperation between Road Agencies, Govt ministries & stakeholders.
2	Poor Funding; Lack of Efficiency in the use of Road Funds	Expansion of Resource Allocation by Government through increased budget allocations for road development; Set up centrally sponsored schemes for road development; Raise investment capital from the Financial Market i.e. Capital/bonds; Advocate for PPPs/Annuity Model/EPC on Road infrastructure development; Prudence in use of road funds i.e. elimination of corruption, Integrated audits of funds;
3	Poor Maintenance, Repair and Rehabilitation; Misuse of Road Infrastructure facilities; Lack of adequate control in execution of road works	Setting up of a National Asset Administration System(NAAS) to appraise performance and monitoring of road infrastructure and facilitate maintenance and rehabilitation of road infrastructure.
4	Congestion	Construction of wide roads i.e. 2,3,4 Lanes on Road classes A,B,C; Construction of roads to accommodate different road users i.e. 4,2 wheelers, pedestrian, Non Motorized Transport; Alternative modes of transport i.e. light trains especially in populated urban areas, long distance trains to traverse the country
5	Pollution	Strict Implementation of regulation on pollution; Stakeholder education on pollution
6	Road Safety	Continued implementation of existing laws on speed limits, mandatory use of seat belts, text driving, drink driving, helmet use; Improved safety features in vehicles; Implementation of thorough technical vehicle inspections; Improved road infrastructure design to promote road safety such as road signage, CCTV monitoring, pedestrian crossings, etc.
7	Lack of Comprehensive/Integrated Transport Policy Frame Work	Intensified implementation of the recent “Integrated National Transport Policy: Moving A Working Nation, 2009” with emphasis on “National Roads Development Policy Management” with respect to this study.
8	Poor or Lack of Rural Access Roads	Continued construction, rehabilitation and maintenance of the Rural Roads Network Infrastructure through the KeRRA.
13	Lack of Adequate R&D in Roads	Govt. to promote R&D activities for Road Infrastructure; Govt to facilitate Technology transfer from India and other Developed Countries to Kenya for Road Infrastructure tailored to meet local needs.

Researcher’s Compilation.

References

1. Amarasinghe, Upali A. et al. eds. *Strategic Analysis of National River Linking Project (NRLP) of India Series 1: India's Water Future-Scenarios and Issues*. New Delhi: International Water Management Institute, 2009.
2. Arasu, J. G. Valan. *Globalization and Infrastructural Development in India*. New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008.
3. Ayaga, George. et al. *Policy Dialogue in Kenya: Urban and Pre-Urban Agriculture Policy Prospects in Kenya*. Lima: Urban Harvest-International Potato Center, 2005.
4. Bailey, Jim. *Kenya: The National Epic*. Nairobi: Kenway Publication Ltd., 1993.
5. Bajpal, Peeyush, L. Bandhari and A. Sinha. *Social and Economic Profile of India*. New Delhi: Indicus Analytics, 2005.
6. Bansil, P. C. *Water Management in India*. New Delhi: Concept Publishing Company, 2004.
7. Bhardwaj, A. P. *Study Packet for CLAT and LLB Entrance Examinations*. New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010.
8. Bhushan, Kul. *Kenya Fact Book 2000-2001*. 16th ed. Nairobi: Newsread International, 2000.
9. Blackwell, Fritz. *India: A Global Studies Handbook*. California: ABC-CLIO, 2004.
10. Blank, Herbert G. Clifford M. Meturo & H. Murray-Rust. eds. *The Changing Face of Irrigation in Kenya: Opportunities for Anticipating Change in Eastern and Southern Africa*. Colombo: International Water Management Institute, 2002.
11. Bowden, Rob. *Countries of the World: Kenya*. London: Evans Brothers Ltd., 2007.
12. Central Bureau of Statics. *Statistical Abstract 2003*. Nairobi: CBS, 2003.
13. Chalifour, Nathalie J. et al. eds. *Land Use Law for Sustainable Development*. London: Cambridge University Press, 2007.
14. Chaturvedi, M. C. *India's Waters: Environment, Economy and Development*. Florida: CRC Press, 2012.

15. Chaudhary, Ajeet K. et al. *"A Report on Road Sector in India"*. Ahmedabad: India Institute of Management, 2001.
16. Chopra, P. N. et al. *A Comprehensive History of Modern India*. New Delhi: Sterling Publishers Pvt. Ltd., 2003.
17. Crafter, S.A, S.G. Njuguna & G.H. Howard. eds. *Wetlands of Kenya*. Switzerland: IUCN, 1992.
18. Daniels, Steve. *Making Do: Innovation in Kenya's Informal Sector*. USA: Creative Common Attribution, 2010.
19. Department of Animal Husbandry, Dairying & Fisheries. *Annual Report 2012-13*. New Delhi: Ministry of Agriculture, 2013.
20. Ganguly, S., L. Diamond and M. F. Platter. eds. *The State of India's Democracy*. USA: The John Hopkins University Press, 2007.
21. Gopal, Lallanji and V.C. Srivastava. *History of Agriculture in India, Upto C. 1200AD*. New Delhi: Concept Publishing Company, 2008.
22. Government of Kenya. *2001/2002 Estimates-Development Expenditure*. Nairobi: Government Printer, 2001.
23. _____. *2009 Kenya Population & Housing Census Vol.1A*. Nairobi: Kenya National Bureau of Statistics, 2010.
24. Gregory, Robert G. *Quest for Equality: Asian Politics in East Africa, 1900-1967*. New Delhi: Oriental Longman Ltd., 1993.
25. Hashim, S. R. et al. eds. *Indian Industrial Development and Globalization: Essays in Honor of Prof S. K. Goyal*. New Delhi: Academic Foundation & ISID, 2009.
26. Hope, Nicholas C. et al. eds. *Economic Reforms in India: Challenges, Prospects and Lessons*. Cambridge: Cambridge University Press, 2013.
27. Hornsby, Charles. *Kenya: A History Since Independence*. New York: I.B. Tauri & Company Ltd., 2012.
28. Husain, Majid. *Geography of India*. New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2009.
29. _____. *Geography of India. 3rd ed.* New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2012.
30. ILCA Bulletin. *Economic Trends: Dairy Products*. Addis Ababa: ILCA, 1979.

31. ILRI. *Kenya Adaptation to Climate Change in the Arid Lands: Anticipating, Adapting to and Coping with Climate Risks in Kenya – Operational Recommendations for KACCAL*. Nairobi: ILRI, 2007.
32. Jain, S. K., P. K. Agarwal and V. P. Singh. *Hydrology and Water Resources of India*. Netherlands: Springer, 2007.
33. Jain, T.R. et al. *Microeconomics and Indian Economy*. New Delhi: V.K. Publications, 2009-10.
34. Jha, L. K. and P. K. Sen-Sarma. eds. *Forest Entomology*. New Delhi: A.P.H. Publishing Corporation, 2008.
35. Johari, J. C. *The Constitution of India: A Politico-Legal Study*. 4th ed. New Delhi: Sterling Publishers Pvt. Ltd., 2007.
36. Kapila, Uma. ed. *India's Economic Development Since 1947*. 3rd ed. New Delhi: Academic Foundation, 2008.
37. Kenya National Bureau of Statistics. *Economic Survey 2013*. Nairobi: KNBS, 2013.
38. Kenya Roads Board. *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012*. Nairobi: KRB, 2007.
39. _____ . *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012*. Nairobi: KRB, 2012.
40. Krishna, K. R. *Agroecosystems of South India: Nutrient Dynamics, Ecology and Productivity*. Florida: BrownWalker Press, 2010.
41. Kumar, Rajiv., Abhijit Sen Gupta. eds. *India and the Global Economy*. New Delhi, Academic Foundation, 2008.
42. Kiringai, Jane and Wolfgang Fengler. *Kenya Economic Update*. Nairobi: World Bank, 2010.
43. Lafargue, Jerome. ed. *The General Elections in Kenya, 2007*. Nairobi: IFRA, May-August 2008.
44. Lemieux, Fredrick et al. eds. *Economic Development, Crime and Policing: Global Perspectives*. Florida: CRC Press, 2015.
45. Lok Sabha Secretariat (GoI). *National Highway Development Project: An Overview*. New Delhi: LARRDIS, August 2013.

46. Martin, Paul. et al. eds. *Environmental Governance and Sustainability*. United Kingdom: Edward Elgar Publishing Ltd., 2012.
47. Masundu, S.J.W. *Kenya: An Official Handbook*. Nairobi: Ministry of Information and Broadcasting, GoK, 1988.
48. Mehta, Udai S. *Research Study of the Road Transport Sector in India*. New Delhi: Ministry of Corporate Affairs, GoI, 2012.
49. Menzies, Nicholas K. *Our Forest, Your Ecosystem, Their Timber: Communities, Conservation, and the State in Community-Based Forest Management*. New York: Columbia University Press, 2007.
50. Michael, A.M. *Irrigation: Theory and Practice*. New Delhi: Vikas Publishing House Pvt. Ltd., 2008.
51. Ministry of Finance. *Economic Survey of India 2013-14*. New Delhi: Government of India, 2014.
52. Ministry of Road Transport & Highways (GoI). *Annual Report 2011-12*. New Delhi: GoI, 2012.
53. Ministry of Roads Transport & Highways (Transport Research Wing). *Road Accidents in India 2011*. New Delhi: MoRTH, 2011.
54. Ministry of Roads (GoK). *Policy On Aligning The Roads Sub-Sector With The Constitution*. Nairobi: GoK, 2012.
55. _____. *Roads 2000 Strategic Plan 2013-2017*. Nairobi: Ministry of Roads, 2012.
56. Ministry of Transport. *A Brief on Road Transport Sector in Kenya*. Nairobi: Ministry of Transport, 2013.
57. Nag, Prithvish & Smita Sengupta. *Geography of India*. New Delhi: Concept Publishing Company, 2002.
58. Njogu, Kimani. ed. *Defining Moments: Reflections on Citizenship, Violence and the 2007 General Elections in Kenya*. Nairobi: Twaweza Communication Ltd., 2011.
59. Nyoro, J.K. and H.K. Muiruri. *Policies for Agricultural Sustainability in Kenya*. London: International Institute for Environment and Development, 2001.

60. Obudho, R. A. and J.B. Ojwang' ed. *Issues in Resource Management and Development in Kenya: Essays in Memory of Prof. Simon H. Ominde*. Nairobi: East African Educational Publishers Ltd., 2000.
61. Ochieng', W.R. and R.M. Maxon. eds. *An Economic History of Kenya*. East African Educational Publishers Ltd: Nairobi, 1992.
62. Ochieng', William. ed. *Historical Studies and Social Change in Western Kenya: Essays in Memory of Professor Gideon S. Were*. Nairobi: East African Educational Publishers Ltd., 2002.
63. Okoth, A. & A. Ndaloh. *Social Studies*. Nairobi: East African Educational Publishers Ltd., 2008.
64. Planning Commission (GoI) 2008. *Eleventh Five Year Plan 2007-2012: Inclusive Growth Vol.II* New Delhi: Oxford University Press, 2008.
65. Planning Commission (GoI) 2013. *Twelfth Five Year Plan 2012-2017: Faster, More Inclusive and Sustainable Growth*. New Delhi: Sage Publications Pvt. Ltd., 2013.
66. Pletcher, Kenneth. ed. *The Geography of India: Sacred and Historic Places*. New York: Britannica Educational Publishing, 2011.
67. Prakash, B. A. ed. *The Indian Economy Since 1991: Economic Reforms and Performance*. India: Pearson Education, 2009.
68. Qazi, S. A and N. S. Qazi. *Natural Resource Conservation*. New Delhi: A. P. H. Publishing Corporation, 2007.
69. Ramani, Shyma V. ed. *Innovation in India: Combining Economic Growth and Inclusive Development*. United Kingdom: Cambridge University Press, 2014.
70. Rao, Amudapuram M. and Kalaga R. Rao, "Measuring Urban Traffic Congestion", *International Journal for Traffic and Engineering*, (2012) 2(4): 286-305.
71. Razi, M. and A. Aggarwal. *Transport Geography of India: Commodity Flows and Regional Structure of Indian Economy*. New Delhi: Concept Publishing Company, 1999.
72. Reddy, K. K. *History: General Studies*. New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2006.
73. Sharma, M. D. *Paramilitary Forces of India*. Delhi: Kalpaz Publications, 2008.

74. Shira, Dezan et al. *Doing Business in India*. New York: Asia Briefing Ltd., 2012.
75. Shree, Deepa. *Indian Economy: Performance and Policies*. New Delhi: Tata McGraw-Hill Publishing Company, 2008.
76. Shringare, Alaknanda. *Party Politics and Democratic Governance in India*. New Delhi: Concept Publishing Company, 2009.
77. Sobania, Neal. *Culture and Customs of Kenya*. USA: Greenwood Press, 2003.
78. Soja, Edward W. *The Geography of Modernization in Kenya: A Spatial Analysis of Social, Economic and Political Change*. New York: Syracuse University Press, 1968.
79. Throup, David and Charles Hornsby. *Multi-Party Politics in Kenya: The Kenyatta and Moi States and the Triumph of System in 1992 Elections*. Nairobi: East African Education Publishers, 1998.
80. Thorpe, Edgar and Showick Thorpe. *General Studies Manual*. New Delhi: Dorling Kindersley, 2009.
81. United Nations Environmental Programme. *Sustainable Trade and Poverty Reduction*. Nairobi: UNEP, 2003.
82. Vaidya, B. C. ed. *Geography of Transport Development in India*. New Delhi: Concept Publishing Company, 2003.
83. Vajpeyi, Dhirendra K. *Deforestation, Environment, and Sustainable Development: A Comparative Analysis*. USA: Greenwood Publishing Group, 2001.
84. Varghese, Alexander P. *India: History, Religion, Vision and Contribution to the World*. New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008.
85. Victor, D. Johnson and S. Ponnuswamy. *Urban Transportation: Planning, Operation and Management*. New Delhi: Tata Mc Graw-Hill, 2012.
86. Wandiba, Simiyu and Joseph Turanira. *Social Studies for Primary Schools*. Nairobi: East African Education Publishers Ltd., 2005.
87. Yadav, Hridai R. *Agro-Afforestation Management on Wastelands*. New Delhi: Concept Publishing Company Pvt. Ltd., 2011.

Websites

1. FactFish, “Kenya’s Road Density”, [report online]; Internet, Available from; <http://www.factfish.com/statistic-country/kenya/road%20density>; Internet; Accessed on March 05, 2015.
2. Government of India, “*Census of India 2011: Provisional Population Totals*” Internet; Available from; http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf, pg 38. Internet; Accessed October 20, 2014.
3. Government of India, “*Census*” Internet; Available from; http://www.censusindia.gov.in/vital_statistics/SRS_Report/9Chap%20%20-%202011.pdf pg 13. Internet; Accessed October 20, 2014.
4. Government of India, “Total Number of Registered Motor Vehicles in India during 1951-2012” Internet; Available from; <https://data.gov.in/catalog/total-number-registered-motor-vehicles-india> ; Internet; Accessed on January 15, 2016.
5. KeHNA, “Nairobi-Thika Superhighway –A Dream Realized” [report online]; Internet; Available from; http://www.kenha.co.ke/index.php?option=com_content&view=article&id=75:nairobi-thika-superhighway-a-dream-realised&catid=20:2014news&Itemid=8 ; Internet; Access on March 05, 2015.
6. Kenya Ports Authority, “Ports of Kenya”, Internet; Available from; <http://www.kpa.co.ke/About%20Us/Introduction/Pages/OurMandate.aspx>; Internet; Accessed on March 05, 2015.
7. Ministry of Finance, GoI, “Rationalization of the Functions, Activities and Structure of the Ministry of Road Transport and Highways”, pg 21 [Article online]; Available from <http://finmin.nic.in/reports/9thReportEMC.pdf> ; Internet; Accessed October 17, 2014.
8. The World Bank, “*World Development Indicators*” Internet; Available from; <http://databank.worldbank.org/data/reports.aspx?source=2&country=USA&series=&period=>; Internet; Accessed October 20, 2014

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

4.1.1 Introduction

The concept of Role of Government in Road Transport Development and its effectiveness features predominantly in the developmental plans of the government and this is central to achieving the objectives of the national road transport development policies and programs aimed at developing a Road Transport System that is efficient and effective. Such a commitment will enhance a competence that will drive the economy to higher heights of global relevance and competitiveness. This can only be a reality if and when the government invests heavily on infrastructure with road networks being a key sector.

To this end, the government will therefore have a direct role to play in designing, appraising, investigating, shaping, and recognizing obstacles as well as recommending methodologies that will foster a well balanced processes of budget allocation system towards the development needs of the country i.e. Road Transport Development. Under this purview, Road Transport Development begs for government's role in terms of reforms that will promote the road commercialization. This is to suggest that the role of the government will induce multifaceted reforms what will encourage ownership, financing, management and responsibility of the road network ecology.¹ Further on, and as observed in the preceding chapters of this research work, the process of budget

¹ Ian G. Heggei, "Management and Financing of Roads: An Agenda for Reform," [article on-line]; Internet; Available from <http://www.ssatp.org/sites/ssatp/files/publications/WorldBank-TechnicalPapers/TP275/TP275.pdf>; Internet; Accessed December 05, 2014.

allocation should and must involve a simple formula that facilitates budget administration to be a process that is straightforward, clear and reliable at the same time.

The government must assume a dynamic and promotional position in the development process in its totality but also more distinctively in Road Transport Development. The concept of linking the evaluation instruments to the process of budgetary allocation is commendable. Imas and Rist observe that when evaluation instruments are employed, this will create a corrective mechanism for policy and public expenditure programs that will further enhance the relationship between the National Development Plans and the budgetary allocation process.² Embracing this concept promotes the matching of costs and this increases the benefits of economic efficiency as it encourages the simple and rational budget allocation practices.

It is of importance to note that the same approach of the analysis exercise for the budgets i.e. RT&H and R&PW will be followed separately and there after a combined comparative approach be employed based on the same parameters employed for a separate analytical exercise.

4.1.2 BUDGET ANALYSIS OF ROAD TRANSPORT DEVELOPMENT: INDIA

This is an account of the analysis made on “The Role of Government in Road Transport Development with Special Reference to India and Kenya from 2000 to 2010” and the highlight being made on the Budget Allocations for Road Transport Development in India. This is an appraisal of the civil budget allocation process for the department of Road Transport & Highways (RT&H) in India.

² Linda G. M. Imas and Ray C. Rist, *The Road to Results: Designing and Conducting Effective Development Evaluations* (Washington D.C.: The World Bank, 2009), 64.

A bird's eye view on the entire Civil Budget for the Department of RT&H will highlight the other main categories which are composite to the complete structure of the Department of RT&H. These categories are broadly classified into three main divisions. These are:

- i. Budget Allocation Net of Recoveries.
- ii. Investment in Public Enterprises.
- iii. Plan Outlay.

The first category is Budget Allocations, Net of Recoveries which is comprised of: (1)Secretariat-Economic Services; (2)BRDB Secretariat; (3)Training and Research; (4)Roads and Bridges; (5)Works Executed by BRDB; (6)Grants to States for Strategic Roads; (7)Schemes Financed from Central Road Fund; (8)Development of State Roads; (9)NHAI; (10)Other Expenditure i.e. Development and Planning; (11)Central Road Fund Transfers; (12)Cost of Collection of Bridges Fees Fund Payable to States; (13,14)Schemes Financed from National Highway Permanent Bridges Fees Fund i.e. Recoveries and Transfers; (15)Development, Widening and Inter-State Connectivity of the Roads of Economic Importance; (16)Lump sum Provision for Projects/Schemes for the benefit of North Eastern Region and Sikkim.³

The second division entails the Investments in Public Enterprises which constitutes of the National Highways Authority of India, while the third division of Plan Outlays is comprised of entries such as Roads and Bridges; North Eastern Areas; State

³ Ministry of Finance (GoI), *India Budget 2008-2009: Expenditure Budget 2008-09 Vol. 1* (New Delhi: Ministry of Finance [GoI], 2008), 206-207.

Plans on Roads and Bridges; Union Territory Plans i.e. UTs with legislature and UTs without Legislature.⁴

It is noteworthy to point out that the current study focuses on the first division of Budget Allocations, Net of Recoveries for RT&H that generally deals with allocations for Road Transport, Schemes financed from Central Road Fund and allocations towards Other Transport Services. It further calls for special mention that budget allocations for (3) Training and Research which is under Road Transport, are mainly directed to research and development, studies on transport industry, pollution checking equipments, road safety programs, facilities for NH for relief extension, removal of damaged vehicles for the restoration of traffic, development of National Database Network, creation and operations of the National Road Safety Board and strengthening of Public Transport.⁵

Further on, the budget allocations towards (4) Roads and Bridges are primarily directed towards the maintenance of NH; development of NH including expressways, 6 laning and 2 laning projects under the NHDP among others; as well as expenditure on NH Tribunals and incidentals of State Highway Administration. The Central Road Fund revamped under the Central Road Fund Act, 2000 finances the approved schemes of road projects in various States and UTs for the development of selected roads of Inter-State and Economic importance and also for the servicing of the external loans for various projects of NHDP that are under the NHAI.⁶ See sample of Department of RT&H budget in Appendix 2(a).

⁴ Ministry of Finance (GoI), *India Budget 2008-2009: Expenditure Budget 2008-09 Vol. 1* (New Delhi: Ministry of Finance [GoI], 2008), 207.

⁵ *Ibid*, 207.

⁶ Ministry of Finance (GoI), *India Budget 2008-2009: Expenditure Budget 2008-09 Vol. 1* (New Delhi: Ministry of Finance [GoI], 2008), 207-208.

4.1.3 Survey of the Total Budget of Department of RT&H 2000-2011

Table 4.1: Total Budget of RT&H 2000-2011

(In crores of Rupees)

Dept of RT&H	Year	Total RT&H	Percentage of the Total (%)	Percentage Increase y n y (%)
	2000-01	7844.36	5.29%	
	2001-02	7946.81	5.35%	1.31%
	2002-03	8684.14	5.85%	9.28%
	2003-04	8045.00	5.42%	-7.36%
	2004-05	8566.00	5.77%	6.48%
	2005-06	13293.75	8.96%	55.19%
	2006-07	14995.21	10.10%	12.80%
	2007-08	16281.00	10.97%	8.57%
	2008-09	17249.64	11.62%	5.95%
	2009-10	19941.20	13.44%	15.60%
	2010-11	25562.77	17.22%	28.19%
Grand Total		148409.88	100.00%	

Source: Compiled from the India Budgets, 2000-2012.

The Table 4.1 above presents the entire budget allocations for the Department of RT&H for the period 2000 to 2011. The table indicates the totals of Revenue and Capital comprising both Plan and Non-Plan outlays as outlined in the budgets. Observations from the table reveal that the total allocations for RT&H have been rising gradually across the period of 11 years. From the beginning of 2000-01 to 2004-05, there was a marginal rise in allocations i.e. ₹7,844.36Cr, ₹7,946.81Cr, ₹8,684Cr.14, ₹8,045Cr, ₹8,566Cr, respectively while from 2005-06 to 2009-10 the table indicates gradual increase in allocations to suggest a moderately steady ascendant trend i.e. ₹13293.75Cr,

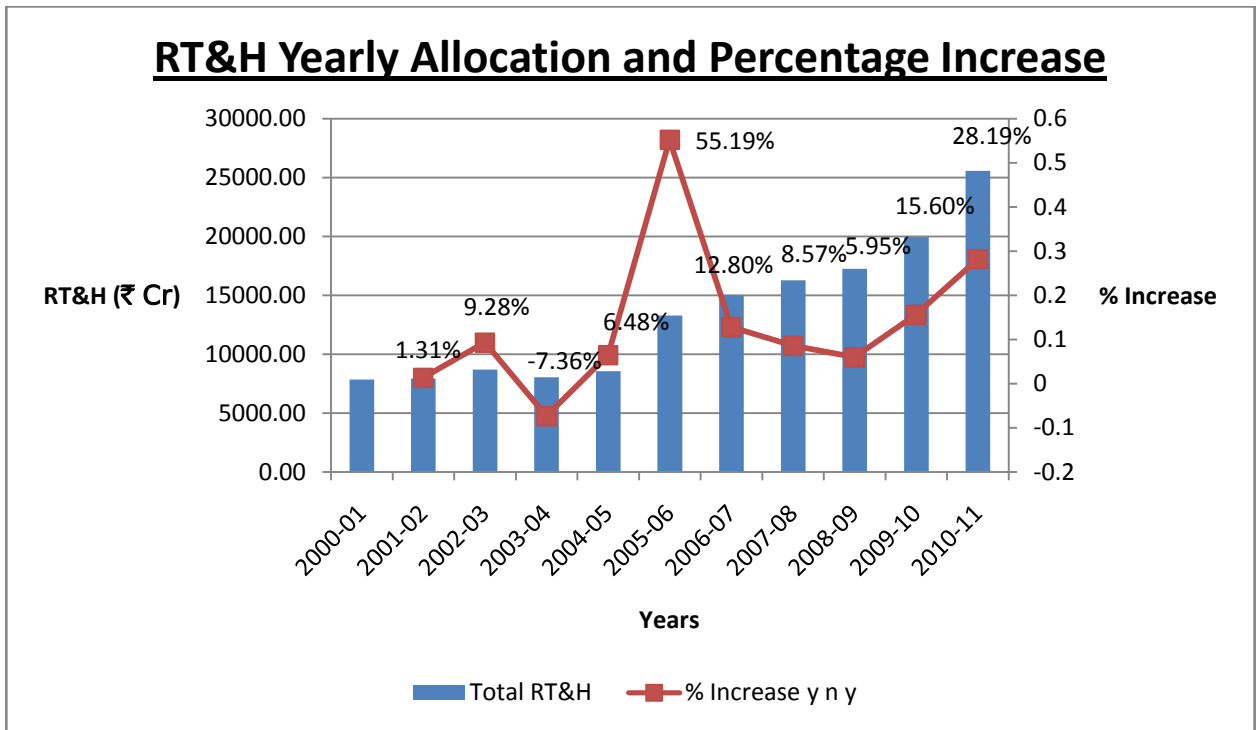
₹14,995.21Cr, ₹16,281Cr, ₹17,249.64Cr, ₹19,941.20Cr respectively. Interestingly, the year 2010-11, which is of the time line that is not under the purview of the current research, reveals that the allocations were continuously healthier in keeping up with the trend to a tune of ₹25,562.77Cr which was equivalent to 28.19% increase from the previous year. An emphasis of such magnitude will only suggest a greater scope for road development activities.

The study also examines that the percentage contribution of the totals of budget allocations for RT&H per year for the period of 2000-2011 to indicate that the outlays were persistently on an expanding trajectory under robust impetus of the agenda of the department of RT&H especially on the second half of the period under study. For instance, it is observed from the Table 4.1 above that the period 2000-01 to 2004-05, the percentage contribution was between 5.29% and 5.77% with the year 2002-03 recording the highest with 5.85% while from 2005-06 to 2009-10, the contributions ranged from 8.96% and 13.44% with the last year under the period of study recorded the highest percentage as indicated above. The year 2010-11 separately records a yearly percentage of 17.22%.

As regards to the growth of budget allocations which is represented by the percentage increase from one year to another, the Table 4.1 above indicates that the least positive growth was in 2001-02 with a marginal of 1.31% increase and the highest increase was of 55.19% in 2005-06. In the year 2003-04, it is indicated that there was negative allocation of -7.36% to record a reduction in the allocation budget outlay. Considering the period under study, on average, the percentage increase of budget allocation outlays stood at 13.60%. The Chart 4.1 below illustrates the yearly RT&H

allocation as well as the percentage increase i.e. the growth rate of budget outlays for the Department of RT&H of India for the period 2000-11.

Chart 4.1: Yearly RT&H Allocation and Percentage Increase, 2000-2011



Observations from the above Chart 4.1 indicate the yearly RT&H allocations along with its growth rate. As can be deduced, allocations from the years 2000-01 to 2004-05 show allocations ranging between ₹7,844.36Cr and ₹8,566.00Cr while the rest of the period is indicated by a gradual increase in RT&H allocations. Interestingly on the same chart is the line graph for RT&H growth during the same period and the most significant growth rate is of the year 2005-06 spotting a 55.19% increase.

4.1.4 RT&H Budget in the GoI Central Budget, 2000-2011

Further analysis of the budget allocations for RT&H from 2000 to 2011 compared to the total budget of the Indian Government under the same period will reveal the size RT&H budget and thus give more light to this research exercise. Table 4.2 below gives in summary the total budget of Government of India, the total budget of RT&H as well as the percentage contribution of RT&H budget to the total budget.

Table 4.2: Percentage of RT&H Budget in the Total Budget of GoI

(In Crores of Rupees)

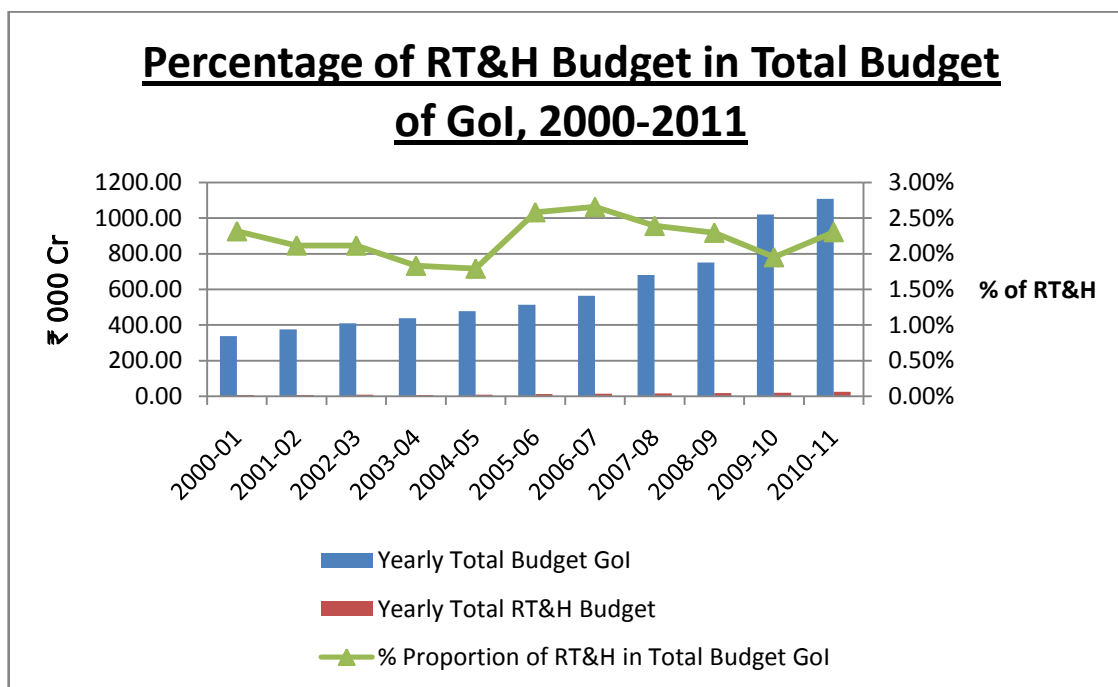
Year	Yearly Total Budget GoI	Yearly Total RT&H Budget	% Proportion of RT&H in Total Budget GoI
2000-01	338486.66	7844.36	2.32%
2001-02	375222.53	7946.81	2.12%
2002-03	410309.47	8684.14	2.12%
2003-04	438795.07	8045.00	1.83%
2004-05	477829.04	8566.00	1.79%
2005-06	514343.80	13293.75	2.58%
2006-07	563991.13	14995.21	2.66%
2007-08	680520.51	16281.00	2.39%
2008-09	750883.53	17249.64	2.30%
2009-10	1020837.68	19941.20	1.95%
2010-11	1108749.24	25562.77	2.31%
Total	6679968.66	148409.88	(Average) 2.22%

Source: Compiled from the India Budgets, 2000-2012.

Table 4.2 above gives the total budget allocations for both the Central government as well as the budget for the department of road transport and highways. It is of

importance to underscore that central government budget expenditure is comprised of Non Plan and Plan expenditures. As revealed from the table, the budget allocations for Central government indicate an increasing trend in terms of growth allocations starting with ₹338,486.66Cr in 2000-01 which was 5.07% of the total allocation to ₹1,108,749.24Cr in 2010-11 reflecting 16.60% of the total allocation during the period under study. The total budget allocation outlay during the period under study was ₹6,679,968.66Cr to give yearly average allocation of ₹607,269.88Cr. The yearly percentage contribution of the budget confirms that the budget allocations for the central government reflected a steady progressive growth in the period under study.

Chart 4.2: Percentage of RT&H Budget in Total Budget of GoI, 2000-2011



As regards to the contribution of the line ministry/department of RT&H in the Central Government budget, Chart 4.2 above reveals that yearly percentage proportion of the RT&H budget in the central budget was under 3% for the period of 11 years i.e. 2000 to 2011 with the least proportion being ₹8,566.00Cr (1.79%) in 2004-05 while the highest proportion was ₹14,995.21Cr (2.66%) in 2006-07. However, considering the total budget during the period under study, it is pointed out that the cumulative RT&H budget proportionate contribution was ₹14,8409.88Cr which is equivalent to a 2.21% proportion to the total Central Government budget for 11 years. It is of importance to note that in 2010-11 a period outside the purview of the current study recorded an allocation to the tune of ₹25,562.77Cr which is equivalent to 2.31% of the GoI budget.

The significance of road transport in the economy can be realized through its contribution to the GDP of the economy. The GDP measurements reflects the real output produced by various economic activities in the country and in our case here, road transport. Therefore, the investment of the government in road transport through the department RT&H is indicated as a percentage of the GDP at factor cost and constant prices. The Table 4.3 below shows the percentage contribution of the various transport modes in India i.e. railways, road transport, water transport, air transport and services with their corresponding contribution to the GDP for the period 2001-02 to 2011-12 which covers the period under study for the current research exercise.

Table 4.3: Percentage Contribution of Various Transport Modes to GDP of India 2001-2012 (As % of GDP at Factor Cost and Constant Prices)⁷

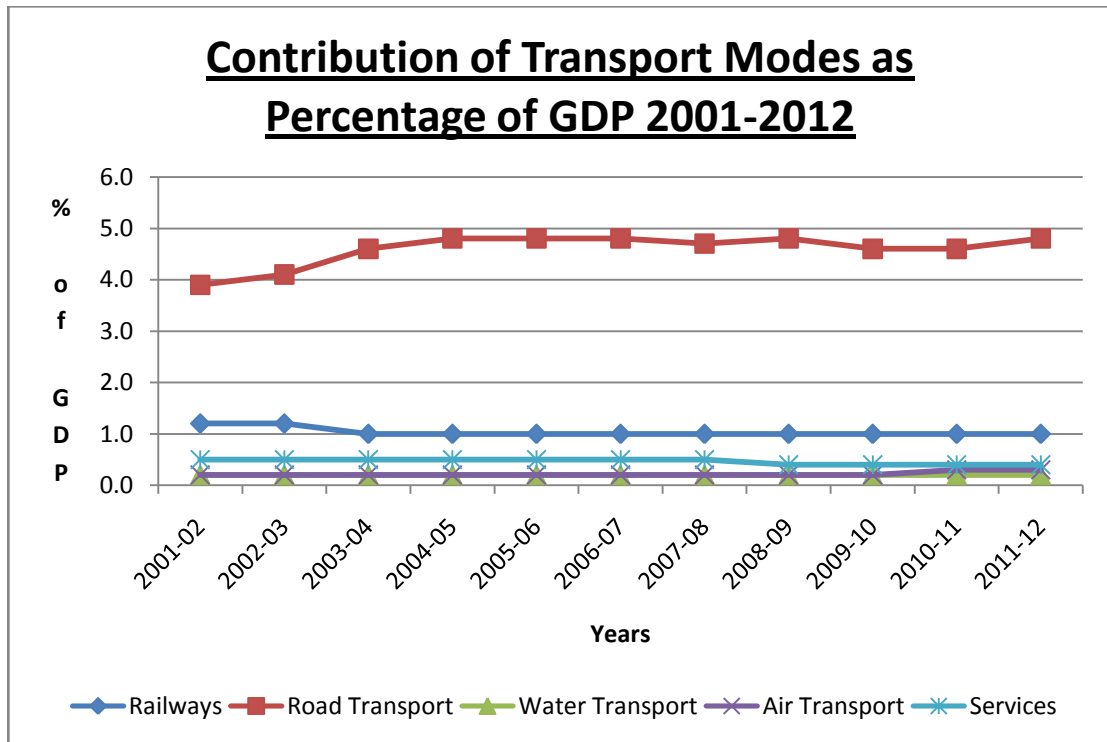
Sector/ Year	Railways	Road Transport	Water Transport	Air Transport	Services	Total
2001-02	1.2	3.9	0.2	0.2	0.5	6.0
2002-03	1.2	4.1	0.2	0.2	0.5	6.2
2003-04	1.0	4.6	0.2	0.2	0.5	6.5
2004-05	1.0	4.8	0.2	0.2	0.5	6.7
2005-06	1.0	4.8	0.2	0.2	0.5	6.7
2006-07	1.0	4.8	0.2	0.2	0.5	6.7
2007-08	1.0	4.7	0.2	0.2	0.5	6.6
2008-09	1.0	4.8	0.2	0.2	0.4	6.6
2009-10	1.0	4.6	0.2	0.2	0.4	6.4
2010-11	1.0	4.6	0.2	0.3	0.4	6.5

Source: www.morth.nic.in (Transport Year Book, 2011-12).

It is observed from Table 4.3 above that road transport is the most significant in the various transport modes in India and it is evident that it is the highest contributor to GDP. In terms of ranking, Road Transport is followed at a distance by Railways, then Services followed by Air and Water Transport in that order. As regards to the contribution to GDP, road transport reflected very vibrant significant figures such as a 3.9% as the least in 2001-02 while 4.8% for five different years during the period under study. Line Graph 4.1 best illustrates this scenario as shown below.

⁷ Harendar M. Singh, "Revenue from Road Transport in India", *Journal of Business Management & Social Sciences Research*, Vol. 3, No.4, April 2014[17-24].

Line Graph 4.1: Contribution of Various Transport Modes in India to GDP 2001-12



4.1.5 Overview Head Wise Survey of the Budgets for RT&H, 2000-2011

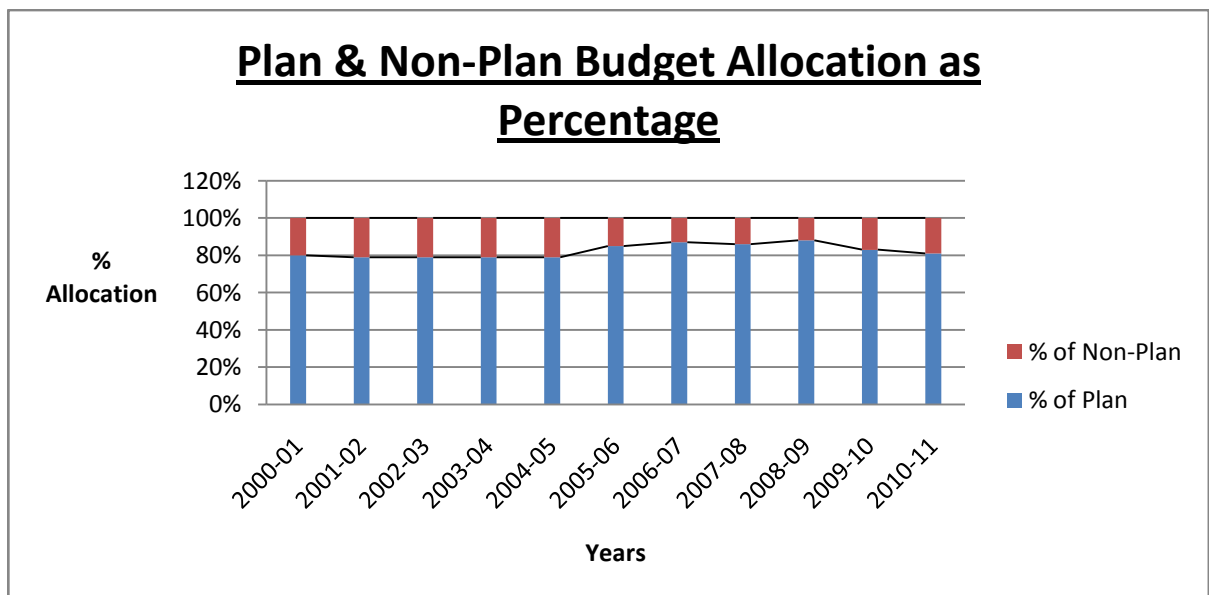
Table 4.4: Major Head Budget Allocations for RT&H, 2000-2011

Year	Major Head	Plan	Non-Plan	Total	% of Plan	% of Non-Plan
2000-01	Revenue	3810.22	1373.32	5183.54		
	Capital	2427.93	232.89	2660.82		
	Total	6238.15	1606.21	7844.36	80	20
2001-02	Revenue	3209.85	1448.94	4658.79		
	Capital	3079.64	208.38	3288.02		
	Total	6289.49	1657.32	7946.81	79	21
2002-03	Revenue	3126.20	1567.42	4693.62		
	Capital	3753.80	236.72	3990.52		
	Total	6880.00	1804.14	8684.14	79	21
2003-04	Revenue	3106.60	1497.35	4603.95		
	Capital	3263.40	177.65	3441.05		
	Total	6370.00	1675.00	8045.00	79	21
2004-05	Revenue	2884.60	1609.60	4494.20		
	Capital	3881.40	190.40	4071.80		
	Total	6766.00	1800.00	8566.00	79	21
2005-06	Revenue	5097.84	1781.12	6878.96		
	Capital	6220.16	194.63	6414.79		
	Total	11318.00	1975.75	13293.75	85	15
2006-07	Revenue	8296.03	1672.63	9968.66		
	Capital	4772.65	253.90	5026.55		
	Total	13068.68	1926.53	14995.21	87	13
2007-08	Revenue	8448.35	1977.80	10426.15		
	Capital	5617.65	237.20	5854.85		
	Total	14066.00	2215.00	16281.00	86	14
2008-09	Revenue	9172.85	1926.50	11099.35		
	Capital	5948.79	201.50	6150.29		
	Total	15121.64	2128.00	17249.64	88	12
2009-10	Revenue	9680.76	2913.83	12594.59		
	Capital	6870.55	476.06	7346.61		
	Total	16551.31	3389.89	19941.20	83	17
2010-11	Revenue	12566.19	2962.20	15528.39		
	Capital	8204.10	1830.28	10034.38		
	Total	20770.29	4792.48	25562.77	81	19
	Average				80	20

Source: Various India budgets, 2000 to 2012.

The Table 4.4 above shows the major heads for budget allocations in the department of RT&H as outlined in the India budget for the period under study. As can be observed, the budget outlays are comprised of Revenue and Capital heads. One striking feature in the process of budget allocation in this department is that which the researcher calls “the 80/20 Rule”. As pointed out from the table above and considering the percentage proportion of the Plan to the Non Plan outlays, it is perceived that the process follows an 80/20 Rule pattern for allocation i.e. the Plan budget comprises of 80% while the Non Plan budget makes up for the 20%. For example, the budget outlays from 2000-01 denotes the use of the rule while budget outlays for 2001-02 to 2004-05 reflect 79% to 21% for Plan and Non Plan respectively while the rest of the years indicate an allocation of more than 80% for the Plan outlays with their corresponding proportions for the Non Plan outlays. See Chart 4.3 for illustration.

Chart 4.3: Plan and Non-Plan Budget Allocation in India, 2000-2011



It must be noted however, that in the period after 2004-05 there was a mild but yet significant departure from the '80/20 Rule' as clearly indicated in Chart 4.3 above where allocation for Plan were exceptionally more than 80% of the whole allocation for the particular year. Nevertheless, on average, the allocation process followed 80% for Plan and 20% for Non Plan as indicated on Table 4.4 above.

The '80/20 Rule' as suggested above is consistent to a relationship that is inversely proportion i.e. when variable 'x' increases then variable 'y' decreases accordingly. A correlation test applied on the Plan and Non Plan sections of the Table 4.4 returns a correlation coefficient of -1 to confirm that the relationship between the Plan and Non Plan outlays as outlined in the budgets during the period under study followed a correlation that is perfectly inverse in proportion i.e. expressed in terms of the 80/20 rule.

It is of importance to understand that the format followed by the Indian policy makers in regard to budget allocations i.e. Plan and Non-Plan. These outlays are those that are in line with the on-going economic plan that runs under the Planning Commission of India. In the context of the current research, the study period falls under the economic plans from 9th Plan (1997-2002) through to the 11th Plan (2007-2012). The Plan outlays are the capital investment of the Public finance while the Non Plan outlays are those that are directed to none capital expenditures such as salaries and others.

4.1.6 RT&H Budget as Percentage of GDP, 2000-2011

For the purposes of understanding the relationship between the RT&H budget and the economy at large, the researcher compares the RT&H budget with the GDP to understand what portion the government spends in RT&H in relation to general government expenditure as is observed in Table 4.5 below.

Table 4.5: RT&H Budgets as Percentage of GDP of India, 2000-2011

(Figures in Rupees of Crores)

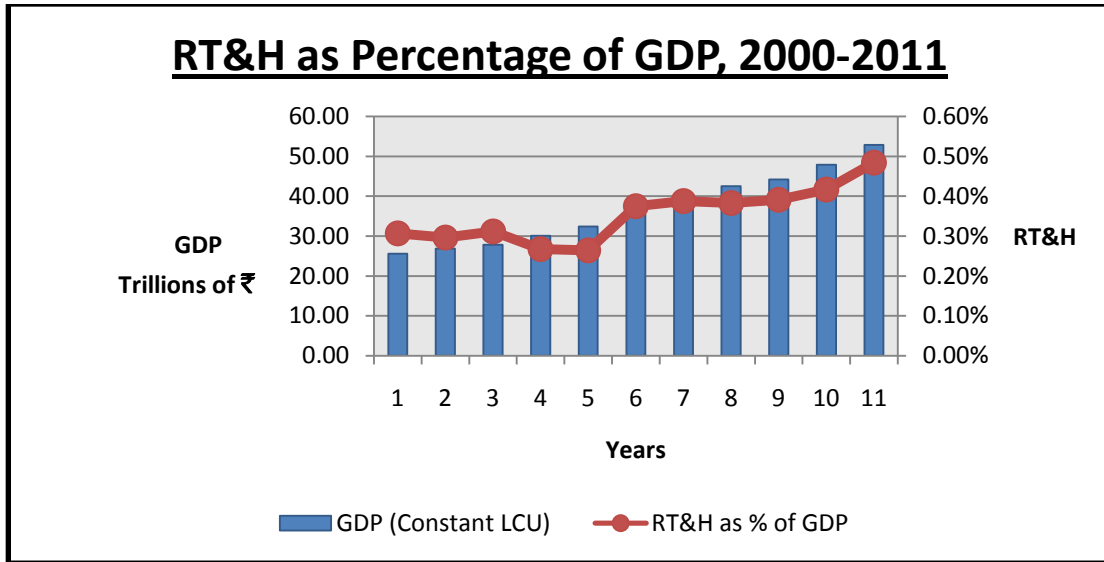
Year	RT&H(Cr)	RT&H	GDP (Constant LCU-Rupees)⁸	RT&H as % of GDP
2000-01	7844.36	78443600000.00	25597107309400.00	0.31%
2001-02	7946.81	79468100000.00	26831903130600.00	0.30%
2002-03	8684.14	86841400000.00	27852582103900.00	0.31%
2003-04	8045.00	80450000000.00	30041901308000.00	0.27%
2004-05	8566.00	85660000000.00	32422102106000.00	0.26%
2005-06	13293.75	132937500000.00	35432439657700.00	0.38%
2006-07	14995.21	149952100000.00	38714888380800.00	0.39%
2007-08	16281.00	162810000000.00	42509474095000.00	0.38%
2008-09	17249.64	172496400000.00	44163499479500.00	0.39%
2009-10	19941.20	199412000000.00	47908470000000.00	0.42%
2010-11	25562.77	255627700000.00	52823861290600.00	0.48%

Source: Researcher's compilation.

The Table 4.5 above displays the figures of RT&H budget as a percentage of the GDP (constant LCU-Rupees). When one considers the RT&H as a percentage of the GDP, it is clearly observed that throughout the study period the budget allocations for RT&H were below 0.5% of the GDP. The first three years i.e. 2000-01 to 2002-03 of the period under study recorded an average of 0.31%. The next two years indicate a drop in the percentage points in GDP to an average of 0.26% of GDP. This was however followed by a growth from 2005-06 to 2009-11 posting 0.38% to 0.48% respectively. This is to show that as a percentage of GDP, the budget allocations for transport development work through the RT&H were very low i.e. unhealthy and that too indicated a growth of marginal magnitude all through the study period.

⁸ World DataBank, "India", [report online]; Internet; Available from <http://data.baml/worldbank.org/data/views/reports/tableview.aspz#>; Internet; Accessed on March 05, 2015.

Chart 4.4: RT&H as Percentage of GDP, 2000-2011



The Chart 4.4 illustrates the relationship between India’s RT&H and GDP for the years outlined for this study.

4.1.7 GoI Central Budget as Percentage of GDP, 2000-2011

Table 4.6: GoI Central Budgets as Percentage of GDP of India, 2000-2011

(Figures in Rupees of Crores)

Year	GoI Budget(Cr)	GoI Budget	GDP (Constant LCU-Rupees) ^{\$}	GoI Budget as % of GDP
2000-01	338486.66	3384866600000.00	25597107309400.00	13.22%
2001-02	375222.53	3752225300000.00	26831903130600.00	13.98%
2002-03	410309.47	4103094700000.00	27852582103900.00	14.73%
2003-04	438795.07	4387950700000.00	30041901308000.00	14.61%
2004-05	477829.04	4778290400000.00	32422102106000.00	14.74%
2005-06	514343.80	5143438000000.00	35432439657700.00	14.52%
2006-07	563991.13	5639911300000.00	38714888380800.00	14.57%
2007-08	680520.51	6805205100000.00	42509474095000.00	16.01%
2008-09	750883.53	7508835300000.00	44163499479500.00	17.00%
2009-10	1020837.68	10208376800000.00	47908470000000.00	21.31%
2010-11	1108749.24	11087492400000.00	52823861290600.00	20.99%

Source: Researcher’s compilation; \$ World Databank.

As regards the GoI budget of the Central government, it is observed that the percentage ratio to GDP was in double digits as denoted in Table 4.6 above. This is to indicate the obvious fact that the central budget of GoI is of a larger proportion than that of the Department of RT&H. Further observations point out that in the first two years of the period under study, the GoI budget as a percentage of GDP had an average of 13.6%, while the years 2002-03 to 2006-07 posted an average of 14.63%. In continuance, the last three years of the period under study show improving figures i.e. 16.01%, 17.00% and 21.31% for the years 2007-08, 2008-09 and 2009-10 respectively. It is hereby also pointed out that the years between 2008-09 and 2009-10 recorded the highest growth of 25.35% from 17.00% (2008-09) to 21.31% (2009-10). Additionally, the year 2010-11 projected a 20.99% decline in percentage points of the GDP down from 21.31% of the previous year.

4.1.8 Per Capita RT&H of India, 2000-2011

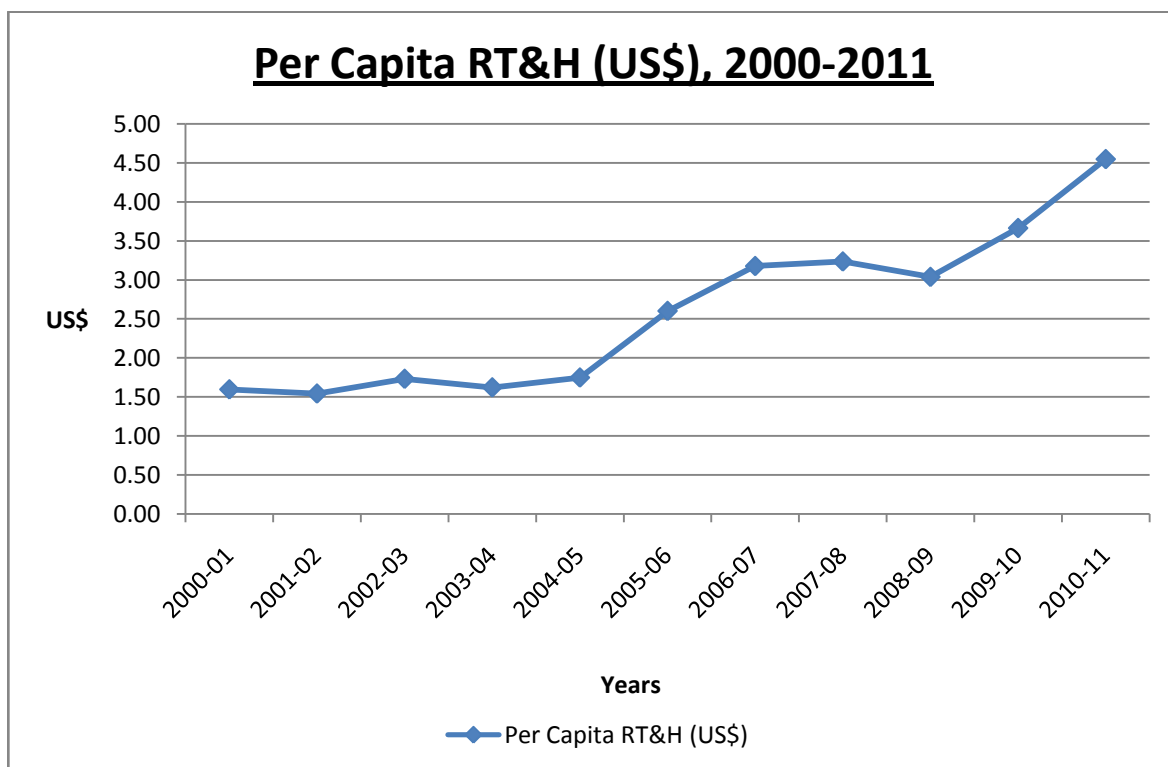
Table 4.7: Per Capita RT&H of India, 2000-2011

INDIA					
Year	RT&H(₹) [a]	Population in Millions[b][@]	Per Capita RT&H (₹) [a/b]	US \$ (YACS Rate)^{&}	Per Capita RT&H (US\$)
2000-01	78443600000.00	1042261758	75.26	47.17	1.60
2001-02	79468100000.00	1059500888	75.01	48.62	1.54
2002-03	86841400000.00	1076705723	80.65	46.58	1.73
2003-04	80450000000.00	1093786762	73.55	45.38	1.62
2004-05	85660000000.00	1110626108	77.13	44.08	1.75
2005-06	132937500000.00	1127143548	117.94	45.36	2.60
2006-07	149952100000.00	1143289350	131.16	41.34	3.17
2007-08	162810000000.00	1159095250	140.46	43.35	3.24
2008-09	172496400000.00	1174662334	146.85	48.35	3.04
2009-10	199412000000.00	1190138069	167.55	45.74	3.66
2010-11	255627700000.00	1205624648	212.03	46.64	4.55

Source: @-World Bank; &- RBI-Yearly Average Conversion Spot Rate.

Considering the Per Capita expenditure of RT&H i.e. this is the budget allocation outlay for road transport development activities divided by the population (counting everybody) of the country as of the same year i.e. as shown in Table 4.7 above. India's Per Capita RT&H, shows the figures of moneys in Rupees and can be divided into two categories i.e. rupees less than ₹100.00 and those that are more than ₹100.00. From the year 2000-01 to 2004-05, the Per Capita RT&H was between ₹75.01(2001-02) and ₹77.13 (2004-05). In contrast, the years 2005-06 to 2009-10 the Per Capita RT&H was between ₹117.94 and ₹167.55. It is also noted that the second half of the period under study exhibited robust continuous growth of 42.06% from ₹117.94 to ₹167.55.

Line Graph 4.2: Per Capita RT&H (US\$), 2000 to 2011



The above Line Graph 4.2 is a representation of the growth of India's Per Capita RT&H considering the period under study. In US dollar terms, India's Per Capita RT&H grew from US\$ 1.60 in 2000-01 to US\$ 3.66 in 2009-10 and further increase to US\$ 4.55 in 2010-11 as shown from the Table 4.7 above. This growth translates to a 129.35% climb from US\$1.60 to US\$3.66 (2009-10) or a growth of 184.63% when considering US\$ 4.55 for the year 2010-11. The significance of this is to ascertain that there has been growth in terms of budget allocation for road transport construction activities. However, at the same time, the impact of such a growth is weak when considering the population size of India as well as the deficit of roads in relation to the size of the land mass.

4.1.9 Per Capita Availability of Roads in India

Table 4.8: Per Capita Availability of Roads in India, 2000-2011

India				
Year	Length of Roads (km)	Population[#] (millions)	Per Capita Availability of Roads (km/person)	Per Capita RT&H (₹) (RT&H/Popl)
2000	3325765	1042261758	0.00319	75.26
2001	3373520	1059500888	0.00318	75.01
2002	3426600	1076705723	0.00318	80.65
2003	3528654	1093786762	0.00323	73.55
2004	3621507	1110626108	0.00326	77.13
2005	3809156	1127143548	0.00338	117.94
2006	3880651	1143289350	0.00339	131.16
2007	4016401	1159095250	0.00347	140.46
2008	4109592	1174662334	0.00350	146.85
2009	4471510	1190138069	0.00376	167.55
2010	4582439	1205624648	0.00380	212.03
2011	4690342	1221156319	0.00384	

Source: #-World Bank.

Table 4.8 above points out the Per Capita Availability of Roads in India for the period under study. The table indicates the length of Indian roads in kilometers, and the population figures that are important factors for the calculation of Per Capita Availability of Roads. It is evident that the Per Capita Availability or Roads index for India has experienced sluggish growth over the period under study i.e. from about 0.0032km/person in the year 2000 to 0.0038km/person in 2010-11. This is a clear indication that there is need for more construction of road network which is a reflection of the existing gap for road transport development especially in regards to Per Capita RT&H and the ever expanding Indian population not to mention the wide geographical area that India occupies. Therefore, the current research recognizes that population pressure, the area of country and an insufficient Per Capita RT&H pose a challenge to the government in terms of providing an adequate index of Per Capita Availability of Roads.

4.2.1 BUDGET ANALYSIS OF ROAD TRANSPORT DEVELOPMENT: KENYA

This is a report of the analysis made on “The Role of Government in Road Transport Development with Special Reference to India and Kenya from 2000 to 2010” and the emphasis being on the Budget Allocations for Road Transport Development in Kenya. It is an assessment of the civil budget allocation process for Ministry of Roads and Public Works (R&PW) in Kenya.

A bird’s eye view on the whole Civil Budget for the Ministry of Roads and Public Works will underline the other various key heads which define the framework of the complete structure of the Ministry of Roads and Public Works. These major heads are generally organized into four main branches. They are:

- i. 130 General Administration and Planning.

- ii. 132 Building and Works.
- iii. 133 Other Services.
- iv. 136 Roads.

The first branch in the budget for Ministry of R&PW is (130) General Administration and Planning that is involved with the Headquarters Administrative Services which entails the Refurbishing of Buildings and Construction and Civil Works. The second section is (132) Buildings and Works which is followed by (133) Other Services that comprises of items such as (505) Mechanical and Transport Department i.e. Refurbishing of Buildings, Purchase of Specialized Plant, Equipment and Machinery; (506) Materials Department that deals with Training Expenses, Refurbishing of Buildings, Purchase of Specialized Plant, Equipment and Machinery, Rehabilitation and Renovation of Plant, Machinery and Equipment, and lastly Research, Feasibility Studies, Project Preparation and Design, and Project Supervision; (506) Kenya Institute of Highways and Building Technology [KIHBT] is a branch that is involved in Routine Maintenance of Other Assets and Refurbishment of Buildings.⁹

The next section of the budget for the Ministry of R&PW and which is of main focus for the current study is (136) Roads. This section is subdivided into four divisions which are (384) Major Roads; (385) Other Roads; (488) Extra-Ordinary Road Maintenance and (489) Miscellaneous [RA.RP and G.B.c]. The items under (384) Major Roads takes into account Construction of Roads; Overhaul and Refurbishment of Construction and Civil Works; and Research, Feasibility Studies, Project Preparation and

⁹ Government of Kenya, *2008/2009 Estimates: Development Expenditure* (Nairobi: Government Printer, 2008), 283.

Design, Project Supervision. The items under (385) Other Roads consist of Purchase of Buildings; Construction of Roads; Construction and Civil Works; Overhaul and Refurbishment of Construction and Civil Works; Research, Feasibility Studies, Project Preparation and Design, Project Supervision. Section (488) Extra-Ordinary Road Maintenance of the budget comprises of items such as Research, Feasibility Studies, Project Preparation and Design as well as Project Supervision. Lastly, (489) Miscellaneous comprises of Overhaul and Refurbishment of Construction and Civil Works.¹⁰

It is noteworthy to point out that in the budget for Ministry of R&PW a significant amount of monies allocated as Development Expenditure towards road development in Kenya is pointed in the direction of sections (384) Major Roads and (385) Other Roads under the Head (136) Roads. This therefore forms the core of analysis for the current study with the objective of understanding the process of budget allocation for road development in the Ministry of R&PW. Furthermore, it is been noted that the budget of the Ministry of R&PW receives monies as “Appropriation in Aids” that are basically constituted by grants from International Organizations and direct payments of Foreign Borrowings. These allocations are to be considered as supplements to the Development Expenditure allocation by the Government of Kenya.¹¹ See sample budget for the Ministry of R&PW in Appendix 2 (b).

¹⁰ Government of Kenya, *2008/2009 Estimates: Development Expenditure* (Nairobi: Government Printer, 2008), 284.

¹¹ *Ibid*, 283-284.

4.2.2 Survey of the Total Budget of Ministry of Roads & Public Works, 2000-2011

Table 4.9: Total Budget of Ministry of R&PW, 2000-2011

(In Billions of Kshs.)

Ministry of R&PW	Year	Yearly Total R&PW Budget	% of the Total	% Increase Y n Y
	2000-01	1593331376	1.14%	
	2001-02	1499804000	1.07%	-5.87%
	2002-03	1627381470	1.16%	8.51%
	2003-04	2537456897	1.81%	55.92%
	2004-05	-	-	-
	2005-06	7132469600	5.08%	181.09%
	2006-07	14246683040	10.15%	99.74%
	2007-08	19611305000	13.98%	37.66%
	2008-09	23623500000	16.84%	20.46%
	2009-10	31469100000	22.43%	33.21%
	2010-11	36964420000	26.35%	17.46%
Grand Total		140305451383	100.00%	

Source: Compiled from Kenya budgets, 2000-2012.

Data for 2004-05 unavailable.

The Table 4.9 above displays the total budget allocations for the Ministry of R&PW for the period 2000 to 2011. The table points out the totals of the Sub-Votes under which the outlays are made in the budgets i.e. General Administration and Planning, Building and Works, Other Services, and Roads. Further scrutiny divulges that the total allocations for R&PW rose progressively particularly from 2005-06 to 2010-11 as when compared with the budget allocations of the earlier years of 2000-01 2002-03. As can be seen from the Table 4.9 above, from the beginning of 2000-01 to 2003-04, there was a marginal rise in allocations i.e. KShs.1,593,331,376, KShs.1,499,804,000, KShs.1,627,381,470, KShs.2,537,456,897 respectively while from 2005-06 to 2009-10

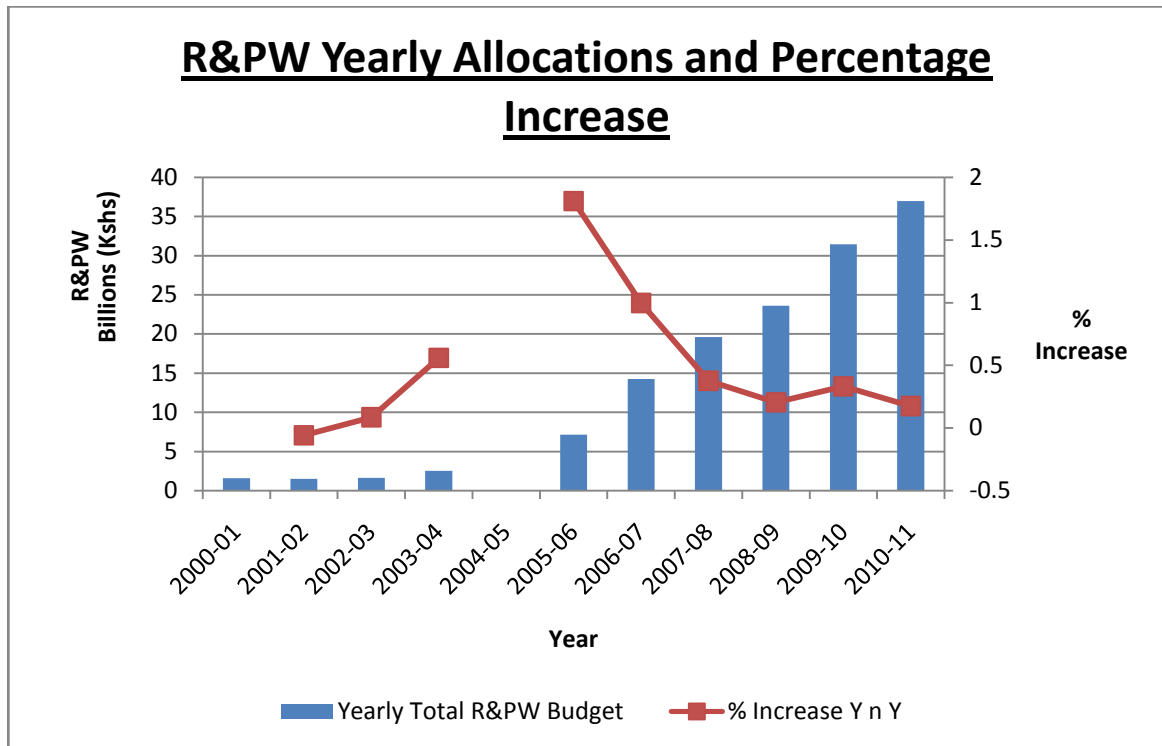
the table indicates a progressively increasing in allocations to suggest a vibrant and stable rising trend i.e. KShs.7,132,469,600, KShs.14,246,683,040, KShs.19,611,305,000,KShs.23,623,500,000, KShs.31,469,100,000, KShs.36,964,420,000 respectively.

The study also observes the percentage contribution of the totals of budget allocations for R&PW per year for the period of 2000-2011 to show that the budget expenditures were steadily on an intensifying increasing curve especially from the 2005-06 to the end of the study period. For illustration purposes, it is noted from the Table 4.9 above that the period 2000-01 to 2003-04, the percentage contribution was under 2% with the year 2003-04 registering the highest of 1.81% and in 2005-06 it recorded an increase to 5.08% while from 2006-07 to 2010-11, the contributions ranged from double digit figures of 10.15% to 26.35% as indicated in the table above.

As regards to the growth of budget allocations which is represented by the proportional increase year on year, the Table 4.9 above reveals that there was a negative growth of -5.87% in 2001-02 from the previous year of Kshs.1,593,331,376m to Kshs.1,499,804,000m. The rest of the years point out positive growth in budget allocations with the most significant increases in the years 2003-04 (55.92%), 2005-06 (181.09%), 2006-07 (99.74%), 2007-08 (37.66%) and 2009-10 (33.21%). It is also revealed in the same table that the least positive growth was in 2002-03 which record a growth of 8.51%. Considering the period under study, on average, the percentage increase of budget allocation outlays stood at 49.80%.

The Chart 4.5 that follows portrays the yearly allocations of R&PW along with the corresponding rate of increase/decrease for the years 2000 to 2011.

Chart 4.5: R&PW Yearly Allocations and Percentage Increase, 2000-2011



Observations from the above Chart 4.5 reveal the yearly R&PW budget allocations along with the rate of percentage increase/decrease that is consistent with the Table 4.9 above. What is of significance from the above Chart 4.5 is that the percentage increase for allocations gives evidence of increasing allocations during the period under study but however, the rate of increase was on a diminishing trend especially for the years 2005-06 to 2010-11 i.e. from 181% of 2005-06 to 17.46% in 2010-11.

4.2.3 R&PW in GoK Central Budget, 2000-2011

Further analysis of the budget allocations for R&PW from 2000 to 2010 compared to the total budget of the Kenyan Government under the same period will

reveal the size R&PW budget and thus give more light to this research exercise. Table 4.10 below gives in summary the total budget of Government of Kenya, the total budget of R&PW as well as the percentage contribution of R&PW budget to the total budget.

Table 4.10: Yearly Percentage of R& PW Budget in the Total Budget of GoK,2000-11

(In Billions of Kshs.)

Year	Yearly Total Budget for GoK	Yearly Total Budget for R&PW	Yearly % of R&PW in GoK Budget
2000-01	20013616740.00	1593331376.00	7.96%
2001-02	13459180945.00	1499804000.00	11.14%
2002-03	20432948578.00	1627381470.00	7.96%
2003-04	32458002192.00	2537456897.00	7.82%
2004-05	-	-	-
2005-06	62216055974.00	7132469600.00	11.46%
2006-07	103868750980.00	14246683040.00	13.72%
2007-08	157026384500.00	19611305000.00	12.49%
2008-09	141837961470.00	23623500000.00	16.66%
2009-10	181408255221.00	31469100000.00	17.35%
2010-11	208623477194.00	36964420000.00	17.72%
Total	941344633794.00	140305451383.00	(Average) 14.90%

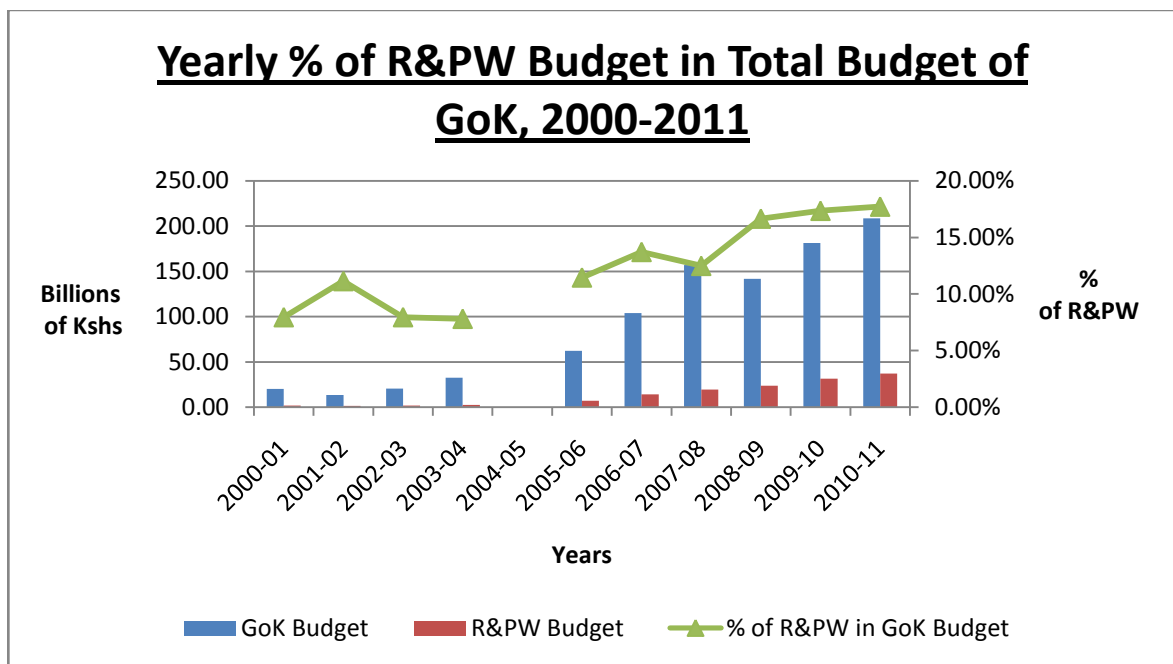
Source: Compiled from Kenya budgets, 2000-2011.

Data for 2004-05 unavailable.

Table 4.10 above provides the total budget allocations for both the Government of Kenya as well as the budget for the department of R&PW. As shown from the table, the budget allocations suggest a rising movement in terms of expansion in allocations initially from KShs.20,013,616,740.00 billion in 2000-01 which was 2.13% of the total allocation to KShs.208,623,477,194.00 billion in 2010-11 constituting 22.16% of the total allocation during the period under study. The total budget allocation expenditure

throughout the period under study was KShs.941,344,633,794.00 billion presenting an annual average allotment of KShs.94,134,463,379.40 billion. The year on year percentage contribution of the budget can be observed from the Table 4.10 above and Chart 4.6 below to corroborate that the budget allocations for the government displayed a continuous expansion in the period under study.

Chart 4.6: Yearly % of R&PW Budget in Total Budget of GoK, 2010-2011



As regards to the proportion of the department budget of R&PW in the GoK central budget, the Chart 4.6 above discloses that yearly percentage proportion of the RT&H budget in the central budget was above 11% for all the years with exceptions for the years 2000-01 indicating Kshs.1,593,331,376.00billion (7.96%) and 2002-03 indicating KShs.1,627,381,470.00billion (7.96%), and 2003-04 had KShs.2,537,456,897.00billion (7.82%). The rest of the annual proportions of R&PW in the government budget ranged between 11.14% to 17.72% with the lowest proportion

being KShs.1,499,804,000.00 billion (11.14%) in 2001-02 whereas the maximum proportion was KShs.36,964,420,000.00 billion (17.72%) in 2010-11. Conversely, considering the total GoK central budget during the period under study, it is highlighted that the R&PW budget proportionate contribution was KShs.140,305,451,383.00 billion which is equivalent to 14.90% of the total GoK central development outlay.

It is hereby observed that the R&PW budget grew in terms of size over the years during the period under study. This is an indication that the ministry of R&PW followed a path of rigorous budget allocations to provide a robust eco-system so as to promote the road development activities in the country. The Chart 4.6 portrays the same scenario especially for the years starting from 2005-06 which indicate a consistent budget allocation for road development activities.

4.2.4 Overview Head Wise Survey of the Budgets for R&PW 2000-2011

The Table 4.11 below shows the major heads for budget allocations in the Ministry of R&PW as outlined in the Kenya budget for the period under study. As can be observed, the budget outlays are comprised of heads such as General Administration and Planning (GA&P), Building and Works (B&W), Other Services (OS), and Roads. From the table it is noticed the heads GA&P did not get fund allocations from the years 2000-01 to 2006-07 while the rest of the years were allocated to a total of KShs.191,000,000 which was equivalent to 0.14% of the total allocations of the Ministry for the period under study. On the other hand, the head B&W was allocated funds for the years 2000-01 to 2006-07 to the tune of KShs.3,772,590,289 equivalent to 2.68% of the total allocations for the period under study yet in the residual period there was no allocation.

Table 4.11: Budget Allocations for the Heads of R&PW, 2000-2011

(In Billions of Kshs)

Year	GA&P	B&W	OS	Roads	TOTAL
2000-01	-	72950639	44821000	1475559737	1593331376
2001-02	-	104150000	31690000	1363964000	1499804000
2002-03	-	99124470	68757000	1459500000	1627381470
2003-04	-	192279580	153461000	2191716317	2537456897
2004-05	-	-	-	-	-
2005-06	-	1469909000	558950600	5103610000	7132469600
2006-07	-	1834176600	128458000	12284048440	14246683040
2007-08	30000000	-	50500000	19530805000	19611305000
2008-09	55000000	-	143000000	23425500000	23623500000
2009-10	57500000	-	254000000	31157600000	31469100000
2010-11	485000000	-	223400000	36692520000	36964420000
Total	191000000	3772590289	1657037600	134954823494	140575451383
% of Total	0.14%	2.68%	1.18%	96.00%	100.00%

Source: Various years of Estimates-Development Expenditure (2000-2010).

Data for 2004-05 unavailable.

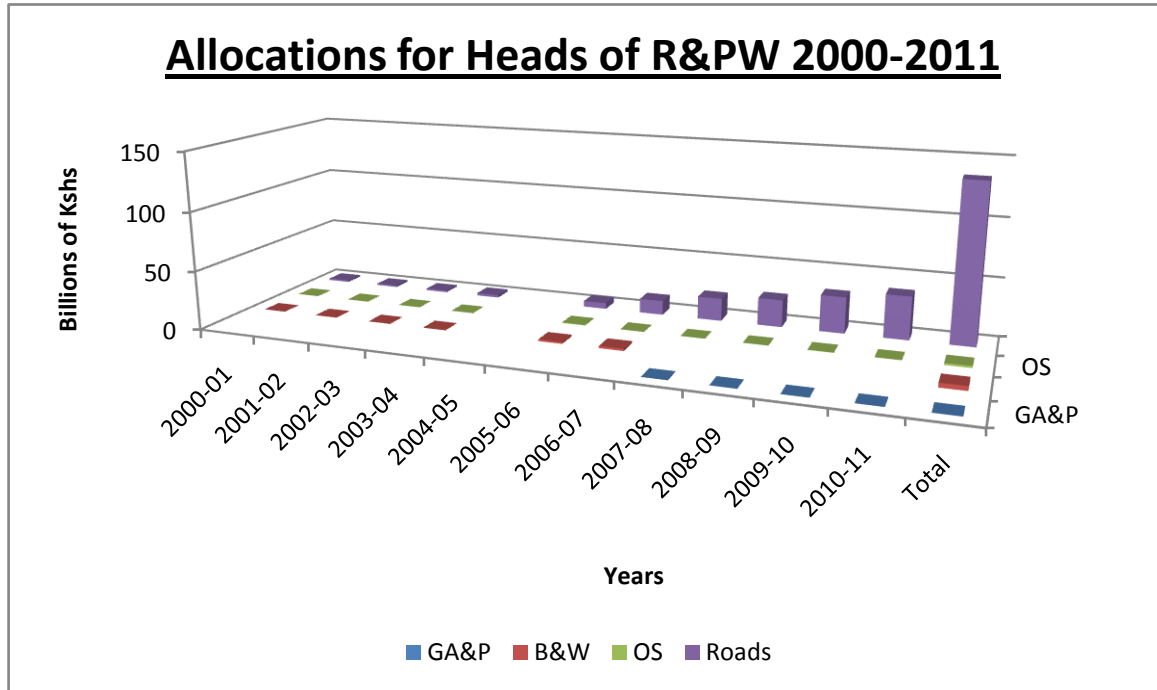
Where: GA&P – General Administration and Planning.

B&W – Building and Works.

OS – Other Services.

Interestingly, it is hereby noted that the fund allocations between GA&P and B&W were swapped one for the other i.e. there were allocations for B&W from 2000-01 to 2006-07 but at the same time no fund allocations for GA&P. The reverse is true for the residual period. It is further on noted that the heads OS and Roads had full fund allocations all through the period under study to reflect totals of KShs.1,657,037,600(1.18%) and KShs.134,954,823,494 (96.00%) respectively.

Chart 4.7: Budget Allocations for the Heads of R&PW, 2000-2011



From the above illustration, it is very clearly indicated that in the Ministry for R&PW budget allocation for the Head Roads got full attention as compared to the other Heads i.e. 96% of total allocation while the rest shared the remaining 4%. It is also consistent that both Heads for Roads and OS got a 100% allocation all through the period under study as compared to B&W and GA&P.

4.2.5 R&PW Budget as Percentage of GDP, 2000-2011

Table 4.12: R&PW Budget as Percentage of GDP, 2000- 2011

Year	R&PW (Billion Kshs)[@]	GDP (Constant LCU- Trillion Kshs)^{\$}	R&PW as % of GDP
2000-01	1593331376.00	2033272922900.00	0.08%
2001-02	1499804000.00	2110128738200.00	0.07%
2002-03	1627381470.00	2121668178300.00	0.08%
2003-04	2537456897.00	2183885578800.00	0.12%
2004-05	-	-	-
2005-06	7132469600.00	2430936757000.00	0.29%
2006-07	14246683040.00	2584830436800.00	0.55%
2007-08	19611305000.00	2765595000000.00	0.71%
2008-09	23623500000.00	2772019000000.00	0.85%
2009-10	31469100000.00	2863688000000.00	1.10%
2010-11	36964420000.00	3104401000000.00	1.19%

Source: @ Various years of Estimates-Development Expenditure Kenya Budgets (2000-2012).

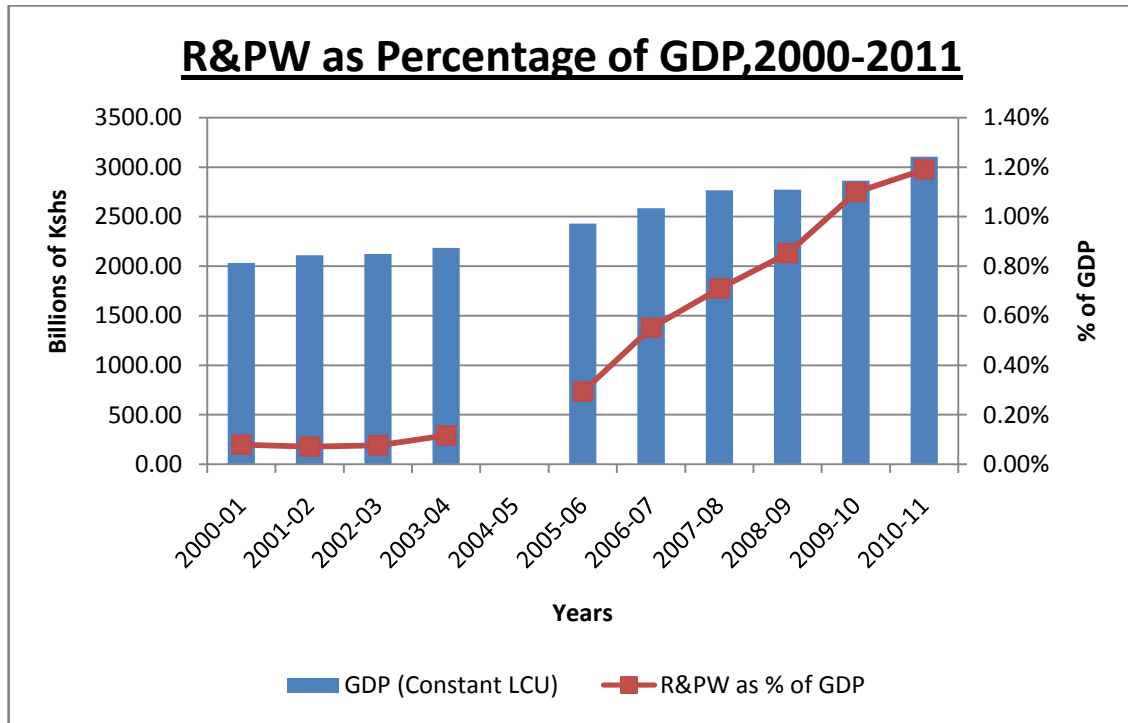
Data for 2004-05 unavailable.

\$ World databank/WDI.

The Table 4.12 above presents the figures of R&PW budget as a percentage of the GDP (constant LCU-KShs). From the Table 4.12 above, it is evidently noted that in the course of the study period the budget allocations for R&PW as a percentage of the GDP were steady in the upward direction though at marginal levels. The first three years i.e. 2000-01 to 2002-03 of the period under study provide an average of 0.08% of the GDP. The period from 2003-04 to 2008-09 posted increased growth year on year, to indicate an average of 0.50% per year as percentage of GDP. This was further followed by a growth in the last two years of the period under study settling at an average of 1.15% per year of the GDP. The general observation for the budget allocations in the R&PW shows that

there were instances of growth mostly throughout the period but however it was of marginal magnitude.

Chart 4.8: R&PW Budget as Percentage of GDP, 2000- 2011



From the above Chart 4.8, R&PW is indicative of its relationship with GDP. It is evident that from 2000-01 to 2003-04 the percentage points were below 0.12% while from 2005-06 to 2010-11 the percentage points rose from 0.29% to 1.19% of GDP.

4.2.6 GoK Central Budget as Percentage of GDP

As regards the GoK budget of the Central government, it is observed that the percentage ratio to GDP was in single digit. Further observations point out that in the first three years of the period under study, the GoK budget as a percentage to GDP had an average of 0.86%, while the years 2003-04 to 2010-11 posted an average of 4.56%.

Table 4.13: GoK Budget as Percentage of GDP, 2000-2011

Year	GoK Budget (Billions of Kshs) [@]	GDP (Constant LCU- Trillion KShs) ^{\$}	GoK Budget as % of GDP
2000-01	20013616740.00	2033272922900.00	0.98%
2001-02	13459180945.00	2110128738200.00	0.64%
2002-03	20432948578.00	2121668178300.00	0.96%
2003-04	32458002192.00	2183885578800.00	1.49%
2004-05	-	-	-
2005-06	62216055974.00	2430936757000.00	2.56%
2006-07	103868750980.00	2584830436800.00	4.02%
2007-08	157026384500.00	2765595000000.00	5.68%
2008-09	141837961470.00	2772019000000.00	5.12%
2009-10	181408255221.00	2863688000000.00	6.33%
2010-11	208623477194.00	3104401000000.00	6.72%

Source: @ Various years of Estimates-Development Expenditure- Kenya Budgets (2000-2012).
\$ World databank.

In continuance, it is hereby also pointed out that the years between 2003-04 and 2010-11 presented consistent growth in general government allocation as compared to the department of R&PW. Due to these robust general allocations at the central government, it resulted to the highest growth record of 352.16% from 1.49% (2003-04) to 6.72% (2010-11).

4.2.7. Per Capita R&PW of Kenya, 2000-2011

In view of the Per Capita expenditure of R&PW i.e. this is the budget allocation outlay for road transport development activities in Kenya divided by the population (counting everybody) of the country as of the same year.

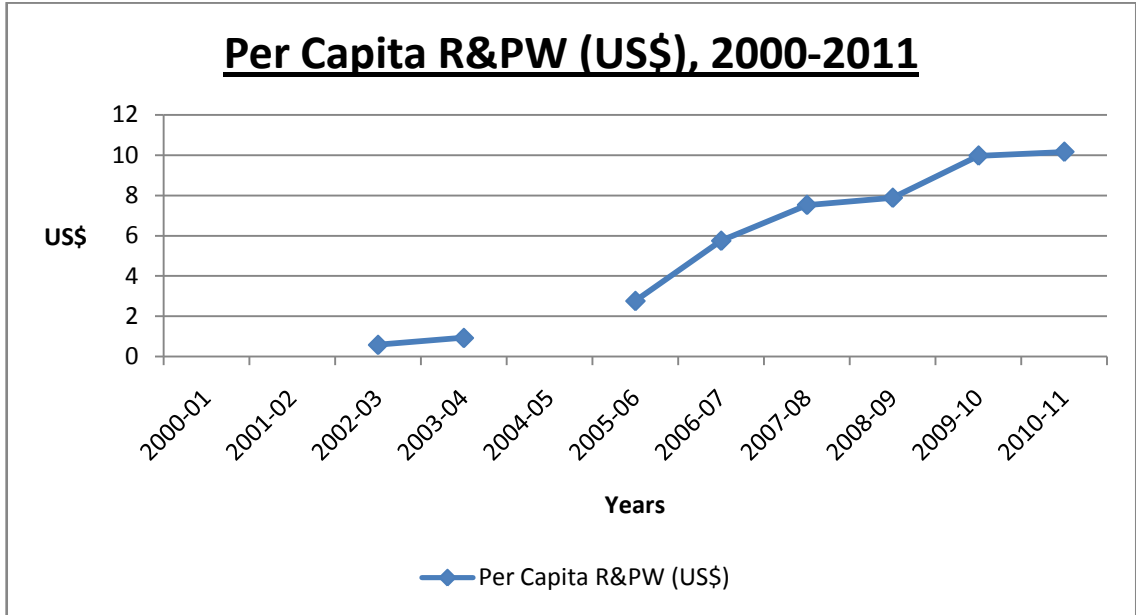
Table 4.14 Per Capita R&PW of Kenya, 2000-2011

Year	R&PW (Kshs) [c]	Population In Millions [d][@]	Per Capita R&PW (Kshs) [c/d]	US\$ (Average Conversion Spot Rate)^{&}	Per Capita R&PW (US\$)
2000-01	1593331376.00	31285050	50.93	-	-
2001-02	1499804000.00	32126351	46.68	-	-
2002-03	1627381470.00	33000524	49.31	84.15	0.59
2003-04	2537456897.00	33905011	74.84	80.62	0.93
2004-05	-	34834606	-	74.45	-
2005-06	7132469600.00	35785718	199.31	72.15	2.76
2006-07	14246683040.00	36757498	387.59	67.45	5.75
2007-08	19611305000.00	37752304	519.47	69.03	7.53
2008-09	23623500000.00	38773277	609.27	77.34	7.88
2009-10	31469100000.00	39824734	790.19	79.26	9.97
2010-11	36964420000.00	40909194	903.57	88.95	10.16

Source: @- World Bank; &-CBK

Observations into Table 4.14 above display the moneys in Kenyan Shillings, and this can be grouped into two classes i.e. R&PW Per Capita less than KShs.100 i.e. 4 years in the period under study and those that are more than KShs.100 i.e. 6 years in the same period. From the year 2000-01 to 2003-04, the Per Capita R&PW increased between KShs.50.93 (2000-01) to KShs.74.84 (2003-04). In contrast, the years 2005-06 to 2010-11 the Per Capita R&PW rose from KShs.199.31 to KShs.903.57. It is also noted that the expansion of budget outlay expressed as R&PW Per Capita suggests tremendous growth i.e. from the least allocation of Kshs.50.93 (2000-01) to the highest allocation during the period under study KShs.903.57 (2010-11). This expansion implies a growth of 1,674.16%, and an indication that the budget outlays for R&PW were increased over the 11 year period for the promotion of road development activities.

Line Graph 4.3: Per Capita R&PW (US\$), 2000 to 2011



The above Line Graph 4.3 is a representation of the growth of Kenya's Per Capita R&PW considering the period under study. Figures for the years 2000-01 to 2001-02 and those of 2004-05 were unavailable for analysis. In US dollar terms, Kenya's Per Capita R&PW grew from US\$0.59 in 2002-03 to US\$9.91 in 2009-10 and further increase to US\$ 10.16 in 2010-11 as shown from the Line Graph 4.3 above. This growth translates to a growth of 1,633.42% from US\$0.59 to US\$10.16 when considering the year 2010-11. The significance of this is to ascertain that there has been growth in terms of budget allocation for road transport construction activities.

4.2.8. Per Capita Availability of Roads in Kenya

The Table 4.15 displays the Per Capita Availability of Roads in Kenya for the period under study. It comprise of the length of roads, population and Per Capita R&PW.

Table 4.15: Per Capita Availability of Roads in Kenya, 2000-2011

Kenya				
Year	Length of Roads[#](km)	Population[#](millions)	Per Capita Availability of Roads (km/person)	Per Capita R&PW(Kshs)
2000	63942	31285050	0.00204	50.93
2001	63291	32126351	0.00197	46.68
2002	63264	33000524	0.00192	49.31
2003	63357	33905011	0.00187	74.84
2004	63265	34834606	0.00182	-
2005	63573	35785718	0.00178	199.31
2006	63564	36757498	0.00173	387.59
2007	63575	37752304	0.00168	519.47
2008	63575	38773277	0.00164	609.27
2009	61945	39824734	0.00156	790.19
2010	61947	40909194	0.00151	903.57
2011	160886	42027891	0.00383	

Source: # World Bank.

It is evident that the Per Capita Availability or Roads index for Kenya experienced a virtually static growth over the period under study i.e. from about 0.0020km/person in the year 2000 to 0.0015km/person in the year 2010 accounting for negative growth of 25.98%. However, it is noted that in the year 2011 the same index increased to 0.0034km/person. This is a clear indication that there is need for more construction of road network which is a reflection of the existing gap for road transport development especially in regards to the static growth figures. This further implies that the Road density in Kenya was static over the same period under study. It is also noted that the growing population will create pressure for new construction of road networks. However, it is encouraging to observe that Per Capita R&PW increased significantly during the period under study and could have attributed to the sudden growth of Per Capita Availability of Roads in 2011.

COMPARATIVE ANALYSIS

4.3.1 Comparison of Items in RT&H and R&PW Budgets

Table 4.16: Comparative Item Heads for RT&H (India) and R&PW (Kenya) Budgets

INDIA: RT&H			KENYA: R&PW		
A. Budget Allocations, Net Recoveries					
S.No	Title	Major Head	Head	Item	Title
1	Secretariat-Economic Services	3451			130 General Planning & Administration
2	BRDB Secretariat	3451	380		HQ Administration Services
Road Transport				3110300	Refurbishment of Buildings
3	Training and Research	3055		3110500	Construction & Civil Works
4	Roads & Bridges				133 Other Services
	Maintenance of NH	3054	505		Mechanical & Transport Dept
	Capital Outlay on NH	5054		3110300	Refurbishment of Buildings
	NH Tribunals & Highway Administration	3054		3110100	Purchase of Specialized Plant, Equip. & Machinery
5	Works executed by BRDB		506		Materials Dept
	Road Works Under BRDB	3601		2210700	Training Expenses
	Works under BRDB	5054		3110300	Refurbishment of Buildings
	Other Works	3054		3110100	Purchase of Specialized Plant, Equip. & Machinery
6	Grants to States for Strategic Roads	3601		3111200	Rehabilitation & Renovation of Plant, Machinery & Equip
7	Schemes Financed from CRF			3111400	Research, Feasibility Studies, Project Prep & Design, Project Supervision
	Grants to States	3601	507		Kenya Institute of Highway & Building Technology
	Grants to Inter-State & Economically Important Roads	3601		2220200	Routine Maintenance – Other Assets
	Grants to UT Govts			3110300	Refurbishment of Buildings
	Grants to UT Govts without Legislature				
8	Development of State Roads	3601			

Source: India Budgets 2008-2009, Kenya Budgets 2008/2009.

Cont...

INDIA: RT&H			KENYA: R&PW		
S.No	Title	Major Head	Head	Item	Title
Other Transport Services					136 Roads
9	NHIA	5054	384		Major Roads
10	Other Expenditure			3110400	Construction of Roads
	Development & Planning	3054		3110600	Overhaul& Refurbishment of Construction & Civil Works
11	CRF-Transfers	3054		3111400	Research, Feasibility Studies Project Prep & Design, Project Supervision
12	Cost of collection of Bridges Fees (to States)	3054		1320200	Grants from IOs
13	Schemes financed from NH Permanent Bridges Fee Funds-Transfers	5054		5120200	Foreign Borrowing – Direct Payments
14	NH Permanent Bridges Fees Fund-Transfers	3054	385		Other Roads
15	Development, Widening & Inter-State connectivity of the roads of Economic Importance	3601		3110100	Purchase of Buildings
				3110400	Construction of Roads
B. Investments in Public Enterprises				3110500	Construction & Civil Works
9	NHIA	13054		3110600	Overhaul& Refurbishment of Construction & Civil Works
				3111400	Research, Feasibility Studies, Project Prep & Design, Project Supervision
C. Plan Outlay				1310100	Grants from Foreign Govts-Cash Through Exchequer
1	Roads & Bridges	13054		1320200	Grants from IOs
2	North Eastern Areas	22552		5120200	Foreign Borrowing – Direct Payments
<i>State Plan</i>			488		Extra-Ordinary Road Maintenance
1	Roads & Bridges	43601		3111400	Research, Feasibility Studies, Project Prep & Design, Project Supervision
<i>Union Territory Plans</i>			489		Miscellaneous (RA.RP&G.B.c)
<i>Union Territory with Legislature</i>				3110600	Overhaul, Refurbishment of Construction & Civil Works
<i>Union Territory without Legislature</i>				5120200	Foreign Borrowing – Direct Payments
Brief Explanations for Allocations				1320200	Grants from IOs

Table 4.16 from above shows the India budget for RT&H¹² as well as the Kenya budget for R&PW.¹³ It is observed that these budgets are generally categorized as follows- India: a) Budget Allocations, Net Recoveries, b) Investments in Public Enterprises and c) Plan Outlay; whereas the Kenya budget is into: a) General Administration and Planning, b) Other Services and c) Roads. It is also revealed that there are the Secretariats for Economic Services and BRDB in the case of India and Headquarters Administration Services to provide for general administration and coordination of the day to day activities of the Department/Ministry in the case of Kenya.

The other notable items in the India budgets that are of significance are such as Training and Research, the National Highway Tribunals and Highway Administration, and the significant role that the BRDB plays in the road development in India. It is noted that these are significantly missing in the Kenyan budget framework. As regards the Kenyan budget, items of significance (grouped under 'Other Services') include the departments of Mechanical and Transport, Materials and the Kenya Institute of Highways and Building Technology (KIHBT) that generally deal with the refurbishment of buildings, purchases of equipments and machinery, research, feasibility studies and project preparations, design and supervision.

The aspect of supplementary budgetary allocation also features in both the budgets of RT&H and R&PW. To begin with the RT&H budget, the notable items include the Grants from the Central Government to the States, Schemes for road development financed through the Central Road Fund (CRF), Grants for Inter-State

¹² Ministry of Finance (GoI), *India Budget 2008-2009: Expenditure Budget 2008-09 Vol. 1* (New Delhi: Ministry of Finance [GoI], 2008), 206-207.

¹³ Government of Kenya, *2008/2009 Estimates: Development Expenditure* (Nairobi: Government Printer, 2008), 283-284.

Economically important roads, Grants to Union Territories as well as the development of State roads. As regards the R&PW, the items of interest in this regard include Grants from International Organizations (IOs), Grants from Foreign governments and Foreign Borrowings in the form of direct payments. There is a striking difference that is noteworthy in view of the supplementary budget allocation across these two budgets under study. In the RT&H budget, the supplementary budget allocations are comprised of Grants and Schemes from the central government of India whereas in the R&PW it is consisted of Grants from without the country i.e. loans and Grants from International Organizations and Foreign governments.

The section on ‘Other Transport Services’ in the RT&H budget points out items of importance input to the development of road networks in India. These items include the NHIA, Development & Planning, and CRF transfers, Schemes for the National Highway Permanent Fee Funds, as well as the development and widening of the Inter-State Connectivity networks.

One interesting item on the RT&H budget is the section on ‘Investment in Public Enterprises’. This section suggests that the department of RT&H is involved in investment venture whereby it is able to generate revenue and thus maintain some kind of self financing and thus sufficiency. It must be noted that this is a good practice at best. The department of RT&H is able to carry out this venture through the arm of NHAI. The other items of importance include the ‘Plan Outlay’ section that carters for road development activities in terms North East regions, State Plans as well as the UT Plans.

Table 4.17 presents a list of items of interest from both budgets that are of significant nature in terms of the comparative exercise of the concerned budgets.

Table 4.17: List of Items with Significance Across the Budgets

S.No	Item	Country	
		India	Kenya
1	Institute of Highway & Building Technology		✓
2	BRDB Secretariat	✓	
3	NH Tribunals & Highway Administration	✓	
4	Schemes Financed from CRF	✓	
5	Investments in Public Enterprises	✓	
6	Plan Outlay-North Eastern Areas	✓	
7	Brief Explanation for the Budget Allocation Entries	✓	

Table 4.17 presents the list of items that are of significance to this research exercise in light of the comparative analysis of the concerned government department budgets. It is of importance to underscore that the above list is to be highlighted by this research exercise more especially in light of road development activities in Kenya. The table reveals that between the two budget documents, Kenya features an institute of Highway and Building Technology which will presumably supply the necessary technical expertise in terms of road construction activities and a qualified human resource for the same. On the other hand, the India budget presents a number of items that are instrumental to activities of road network development in a broad framework.

The BRDB Secretariat has its mandate solely for the planning and development of the national border roads as well as a specialty in bridge construction. The NH Tribunals and Highway Administration provide for services i.e. highway police, highway facilities which facilitate smooth functioning of the National Highways. Further on, the schemes from the Central Road Fund (CRF) are an added advantage to the RT&H as a source of funds for extended road development activities. The aspect of Investment in Public Enterprises calls for commendation as this enhances the process of Road Commercialization that promotes high quality road services to road users and the

department of RT&H achieves this goal through the NHAI. Lastly but not least, the Plan Outlay for North Eastern Areas is a dedicated effort to initiate road network development in the North East region of India. This region for one or the other reason has been largely marginalized since independence. Interestingly, in Kenya too, the North and North Eastern regions have also been marginalized to the extent that the road network in these regions is very poor and thus devastating consequences of poor economic activities due to lack of access.

4.3.2 Comparison of Budget Yearly Percentages & Incremental Percentages

Table 4.18: Budget Yearly Percentages and Incremental Percentages

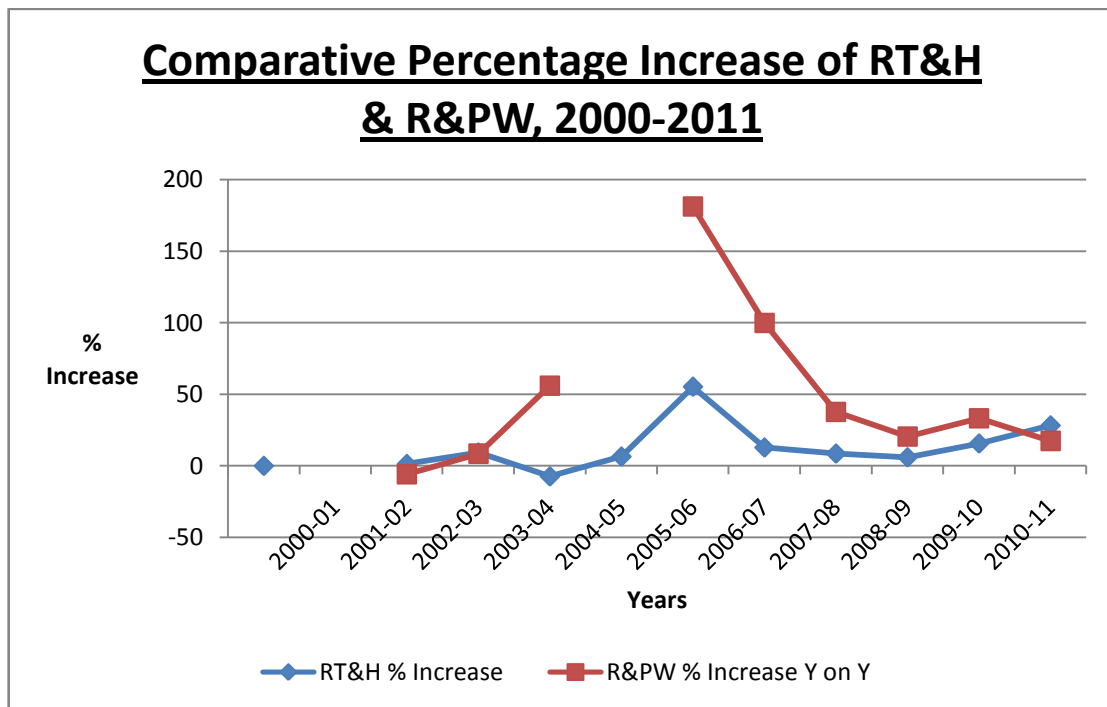
Year	INDIA		KENYA	
	Yearly % of the Total RT&H Budget	RT&H % Increase Y to Y	Yearly % of the Total R&PW Budget	R&PW % Increase Y to Y
2000-01	5.29%		1.14%	
2001-02	5.35%	1.31%	1.07%	-5.87%
2002-03	5.85%	9.28%	1.16%	8.51%
2003-04	5.42%	-7.36%	1.81%	55.92%
2004-05	5.77%	6.48%	-	-
2005-06	8.96%	55.19%	5.08%	181.09%
2006-07	10.10%	12.80%	10.15%	99.74%
2007-08	10.97%	8.57%	13.98%	37.66%
2008-09	11.62%	5.95%	16.84%	20.46%
2009-10	13.44%	15.60%	22.43%	33.21%
2010-11	17.22%	28.19%	26.35%	17.46%
	100.00%	(Average) 13.60%	100.00%	(Average) 49.80%

Source: Compiled from India and Kenya budgets.

R&PW Data for 2004-05 unavailable.

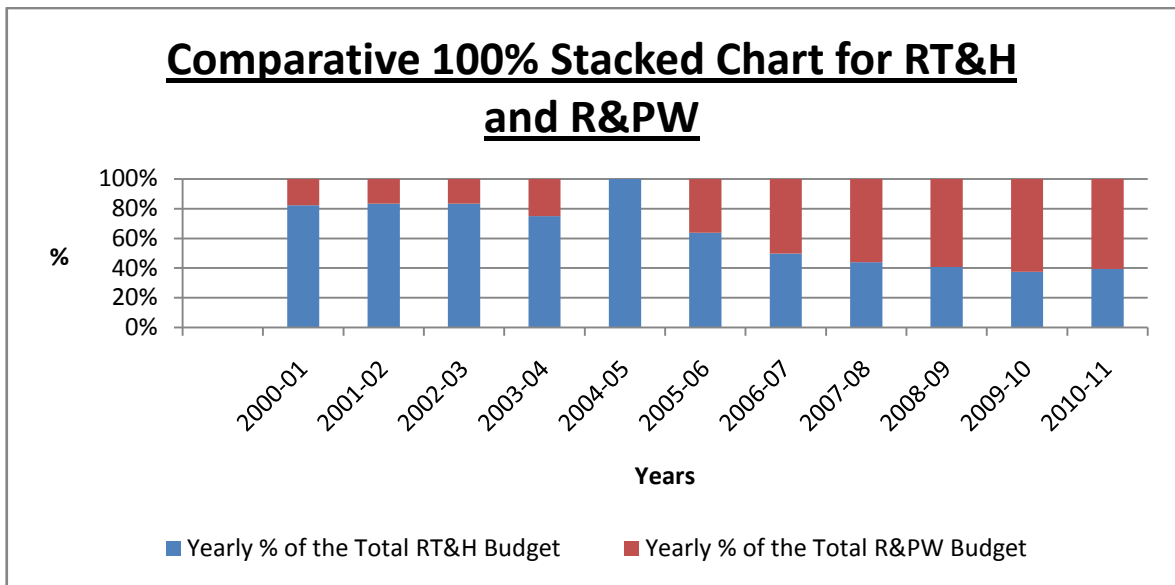
Table 4.18 above presents a comparative table between the budgets of RT&H and R&PW in terms of yearly percentages (the first column) and incremental percentages (second column). The objective is to compare and contrast with the aim of understanding the relationship between the two budgets. To begin with, considering the yearly percentage of the RT&H budget against R&PW budget it is hereby revealed that the margin of expansion in RT&H starts from 5.29% in 2000-01 to a maximum of 17.22% in 2010-11 to present a percentage margin expansion of 225.87%. On the other hand, the R&PW budget displays a margin expansion from as low as 1.07% in 2001-02 to 26.35% in 2010-11 presenting a percentage margin of 2,364.62%. Therefore, this is to suggest that the rate of budget allocation for R&PW was higher than that of RT&H by 946.89%.

Line Graph 4.4: Comparative Percentage Increase for RT&H and R&PW, 2000-2011



As regards to the percentage increase year to year (y to y) of the departmental budgets, the Line Graph 4.4 illustrates this behavior. As observed, the RT&H percentage increase for 2001-02 was 1.31% whereas in the R&PW it was at -5.87% the only negative growth for R&PW in the period under study. However, 2003-04, the RT&H posted a negative growth of -7.36% while for R&PW percentage increase stood at 55.92% in the same year. Considering the period under study, the highest percentage growth for both RT&H and R&PW was in 55.19% and 181.09% respectively in the year 2005-06. It is of importance to note that in the case of R&PW, 2006-07 also posted an increase of 99.74%. Considering the percentage increase average, the RT&H budget posted an average of 13.60% where as that of the R&PW stood at 49.80%.

Chart 4.9: RT&H and R&PW, 2000-2011



The above 100% Stacked Chart 4.9 illustrates the yearly comparative percentages of RT&H to R&PW indicated in percentage terms. As observed above, the budget

allocations for RT&H have been gradually reducing while outlays for R&PW have been steadily increasing.

4.3.3 Comparison of Central Budget and Departmental Budget

Table 4.19: Percentage Proportion of RT&H and R&PW in Central Budgets, 2000-2011

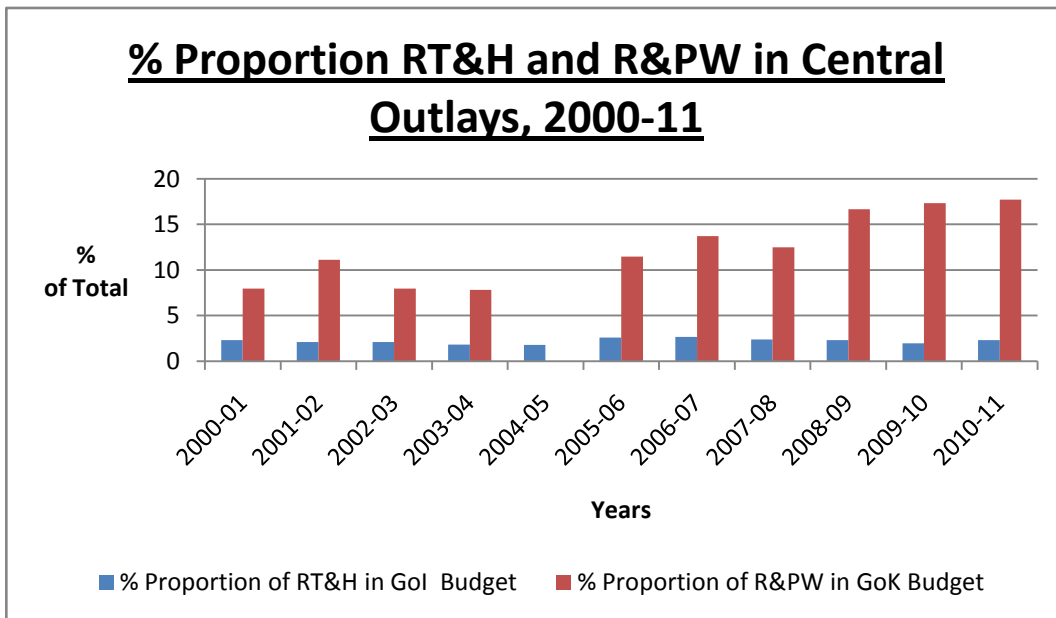
Year	INDIA		KENYA	
	Yearly % of the Total Budget (GoI)	% Proportion of RT&H in GoI Budget	Yearly % of the Total Budget (GoK)	% Proportion of R&PW in GoK Budget
2000-01	5.07	2.32	2.13	7.96
2001-02	5.62	2.12	1.43	11.14
2002-03	6.14	2.12	2.17	7.96
2003-04	6.57	1.83	3.45	7.82
2004-05	7.15	1.79	-	-
2005-06	7.70	2.58	6.61	11.46
2006-07	8.44	2.66	11.03	13.72
2007-08	10.19	2.39	16.68	12.49
2008-09	11.24	2.30	15.07	16.66
2009-10	15.28	1.95	19.27	17.35
2010-11	16.60	2.31	22.16	17.72
	100	(Average) 2.22	100.00	(Average) 14.90

Source: Compiled from India and Kenya budgets.
R&PW Data for 2004-05 unavailable.

Table 4.19 above presents a comparative table between the budgets of RT&H and R&PW in terms of the budget proportion of the departmental budgets in the central outlay budgets. The first column displays the central budget outlay in yearly percentages of its total sum during the period under study. On the other hand, the second column

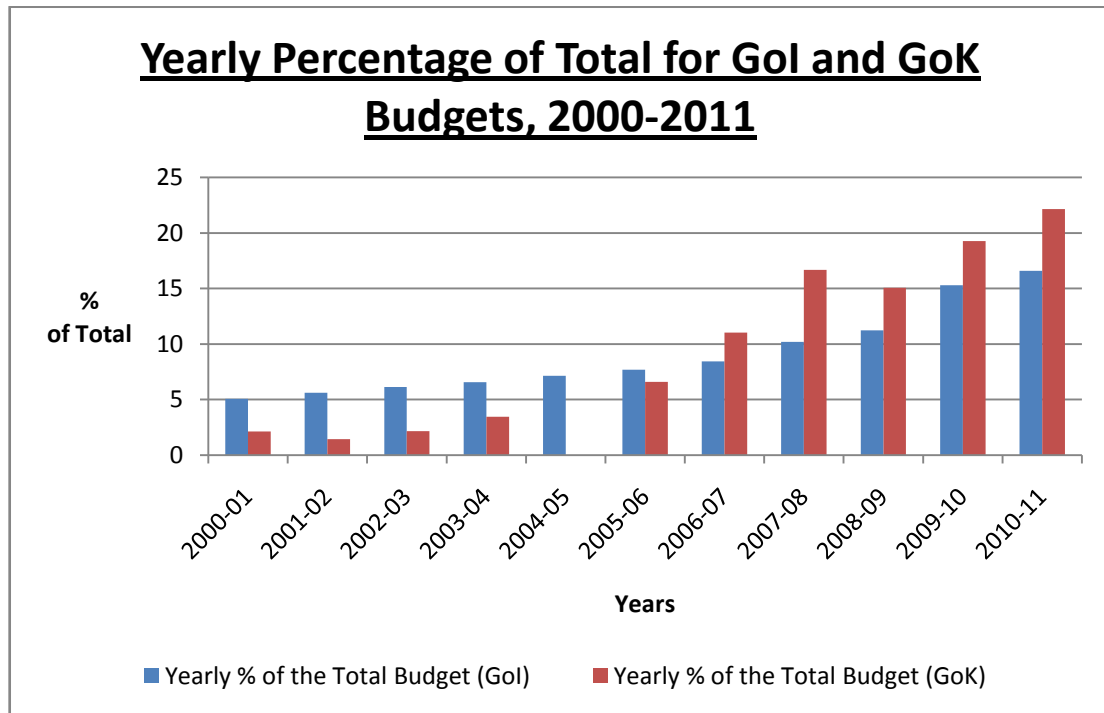
presents the yearly proportion of the departmental budget during the period under study. The objective is to compare and contrast with the aim of understanding the relationship between them. To begin with, considering the yearly proportion of the RT&H budget against R&PW budget, it is hereby revealed that the RT&H yearly proportion budget ranged between a minimum of 1.79% in 2004-05 and a maximum of 2.66% in 2006-07 where as in the R&PW budget, it ranged between 7.82% in 2003-04 of the central outlay and a maximum of 17.72% in 2010-11. It is of importance to note that in the RT&H budget the proportion margin is of single digit figure all through the period under study with marginal growth in terms of percentage proportion whereas in the R&PW budget there are only 3 years in which the budget proportion margin was in single digit while the rest other 7 years all are in double digit figures ranging from 11.14% in 2001-02 and 17.72% in 2010-11. This is to suggest that the R&PW budget experienced a vibrant and consistent growth in terms of outlay allocations as also indicated in the Chart 4.10 below.

Chart 4.10: Percentage Proportion of RT&H and R&PW in Central Outlays, 2000-2011



As regards to the central budget outlays for both respective governments, in the Table 4.19 present both similarities as well as differences. To begin with, the yearly percentage of the GoI budget indicates a consistent growth from single digit figures of 5.07% (2000-01) to 8.44% (2006-07) and then double digit figures from 10.19% (2007-08) to 16.60% (2010-11). Considering the yearly percentage of the GoK budget, it starts off with a single digit proportion of 2.13% (2000-01) to 6.61% (2005-06) while the double digit percentage figures pick up from 11.03% (2006-07) and stretch them to close with 22.16% (2010-11) as also illustrated in Chart 4.11 below.

Chart 4.11: Yearly Percentage of Total for GoI and GoK Budgets, 2000-2011



The striking difference between the two budgets i.e. GoI and GoK budgets, reveals to show that in the GoK budget from 2000-01 to 2003-04 the yearly percentages were all below 5% of which in the GoI budgets the yearly contributions start with a

minimum of 5.07%. However, considering the expansion margin of GoI budget as compared to GoK budget, it is revealed as 5.07% to 16.60% for the GoI budget while that of the GoK budget expands from 1.43% to 22.16%. This behavior suggests that the GoK budget experienced a more vibrant and consistent budget allocation outlay for development activities as compared to the GoI budget outlay allocations.

4.3.4 Comparison of RT&H and R&PW as Percentage of GDP

Table 4.20: RT&H and R&PW as Percentage of GDP, 2000-2011

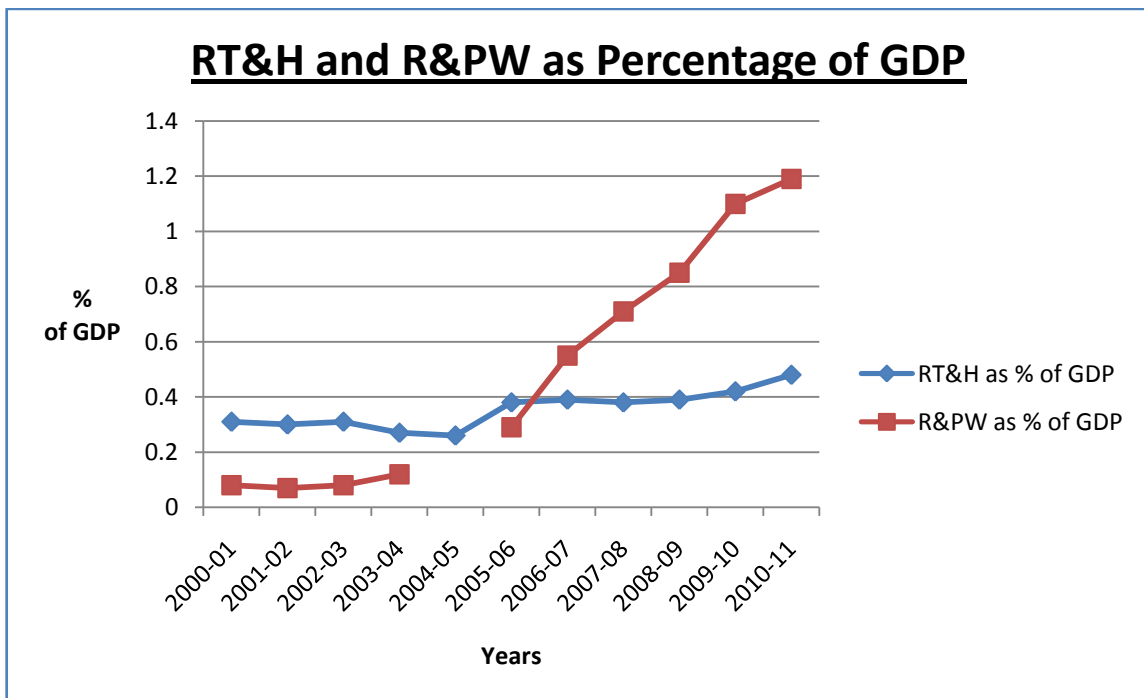
	INDIA	KENYA
Year	RT&H as % of GDP	R&PW as % of GDP
2000-01	0.31	0.08
2001-02	0.30	0.07
2002-03	0.31	0.08
2003-04	0.27	0.12
2004-05	0.26	-
2005-06	0.38	0.29
2006-07	0.39	0.55
2007-08	0.38	0.71
2008-09	0.39	0.85
2009-10	0.42	1.10
2010-11	0.48	1.19
Growth Rate[@]	85.62%	1600%
Average % of GDP	0.35%	0.50%

R&PW Data for 2004-05 unavailable; @ Growth Rate from lowest to highest GDP.

The Table 4.20 above presents the budget allocations for road transport i.e. the RT&H and R&PW as percentage of their respective GDP for the period under the study. Observations into the table reveal that the RT&H budget as a percentage of GDP was

between 0.26% (2004-05) the lowest percentage point and 0.42% (2009-10) as the highest percentage point where as the R&PW indicated 0.07% (2001-02) as the lowest percentage point and 1.19% (2010-11) as the highest percentage point. Two clear annotations from the table pointed out are such that during the period under study, all the RT&H allocations were under the 1% percentage point of GDP while in the case of R&PW allocations crossed to 1.19%. This is to suggest that RT&H indicated marginal growth of 84.62% from the least percentage point of GDP (0.26% in 2004-05) to the highest percentage of GDP (0.48% in 2010-11) while the R&PW reveal aggressive growth of 1,600% (0.07% in 2001-02) to 1.19% in 2010-11). See illustration in Line Graph 4.5 below.

Line Graph 4.5: RT&H and R&PW as Percentage of GDP, 2000-2011



4.3.5 Comparison GoI Budget and GoK Budget as Percentage of GDP

Table 4.21: GoI Budget and GoK Budget as Percentage of GDP, 2000-11

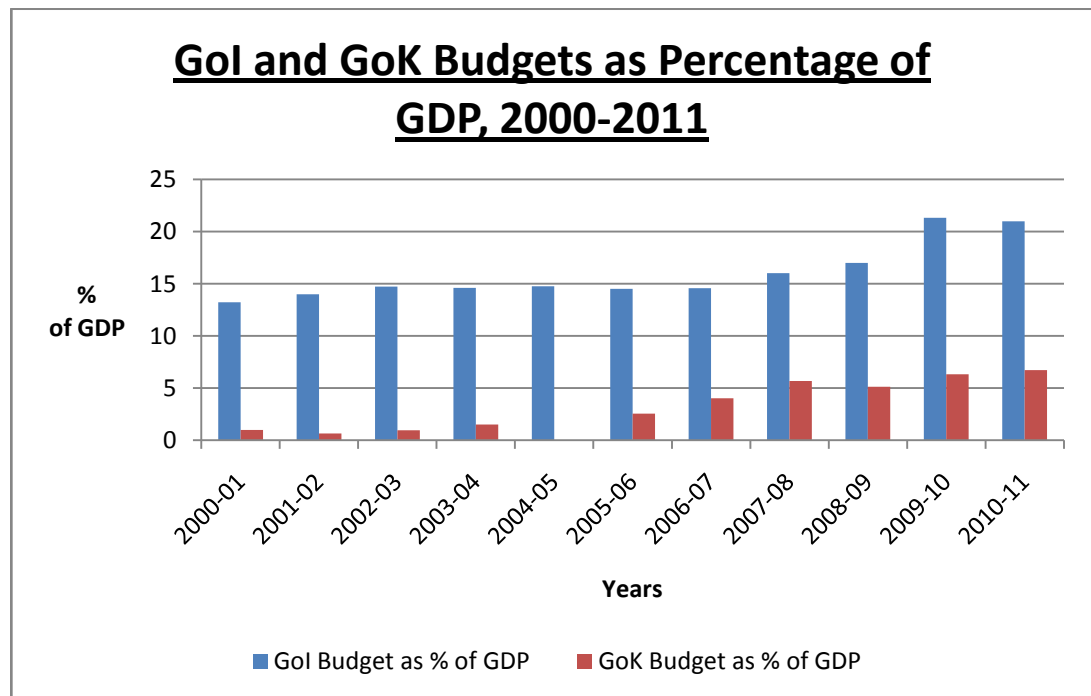
	INDIA	KENYA	
Year	GoI Budget as % of GDP	GoK Budget as % of GDP	% Difference of GoI Budget to GoK Budget
2000-01	13.22	0.98	1248.98%
2001-02	13.98	0.64	2084.38%
2002-03	14.73	0.96	1434.38%
2003-04	14.61	1.49	880.54%
2004-05	14.74	-	-
2005-06	14.52	2.56	467.19%
2006-07	14.57	4.02	262.44%
2007-08	16.01	5.68	181.87%
2008-09	17.00	5.12	232.03%
2009-10	21.31	6.33	236.65%
2010-11	20.99	6.72	212.35%

Data for GoK 2004-05 unavailable.

The Table 4.21 above presents the central government budgets of GoI and GoK as a percentage of their respective GDP. Considering the comparative aspects of both the budgets in relation to the GDP during the period under study, it is revealed that the GoI budget was way significantly bigger in size as compared to the GoK budget. For example, in 2000-01, GoI budget stood at 13.22% of GDP while the GoK budget was 0.98% of GDP earmarking a significant difference of 1,248.98%. This is the trend on all the years as portrayed in the table above. This is an indication to state that the GoI budget is more expansive in terms of size owing to the circumstances that it is reflective of i.e. GoI budget is prepared support an economy that is home to a much larger population and land mass as compared to the GoK budget.

Secondly, it is evident from the Table 4.21 above and Chart 4.12 below that both the GoI and GoK budgets as percentage of GDP generally increased in size considering the period of 11 years i.e. the GoI budget increased from 13.22% (2000-01) to 21.31% (2009-10) reflecting a growth of 61.20% while the GoK budget grew from 0.64% (2001-02) to 6.72% (2010-11) to reflect an expansion of 950.00% to the GDP. It is of importance to underscore at this point that in as much as both budgets increased in terms of size, the GoK budget posted a higher growth rate of 950.00% as compared to that of the GoI budget which stood at 61.20%.

Chart 4.12: GoI and GoK Budgets as Percentage of GDP, 2000-2011



Another interesting aspect that is of worth to highlight is the trend reflected by the percentage difference between the GoI budget and the GoK budget to their respective

GDPs. Considering the column on Table 4.21 above, it is observed that the percentage difference between the two budgets shrunk as the years rolled by i.e. in 2000-01 it stood at 1,248.98% as compared to 217.11% in 2010-11 or when considering the difference between the largest and the smallest, 2,084.38% as compared to 181.87%. This trend observation is of significance to the current study as it reveals that there is a shrinking trend of the gap that exists between the two countries in question in terms of government budget outlay as a percentage of GDP when compared one to another. Further, it is an indication that the GoK government reflected a higher growth rate in terms of budget outlay as compared to the rate at which the GoI government did their general government budget outlays.

4.3.6 Comparison India's RT&H Per Capita and Kenya's R&PW Per Capita

Table 4.22: Per Capita RT&H and Per Capita R&PW, 2000-2011

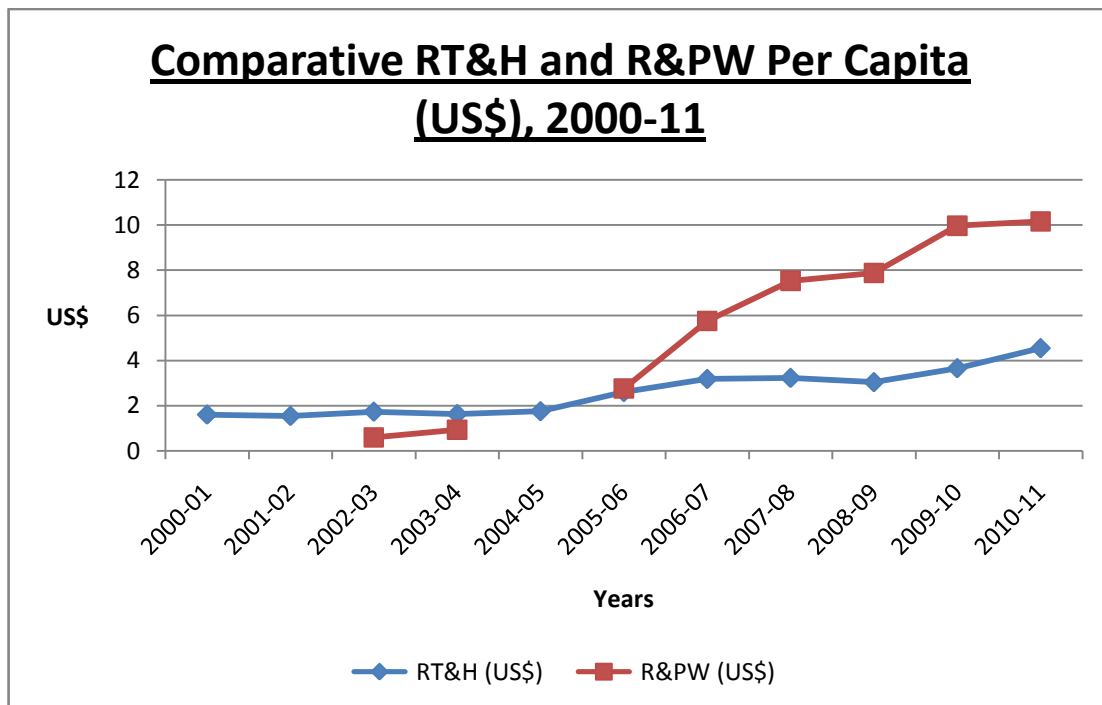
Year	INDIA		KENYA	
	Per Capita RT&H (₹)	Per Capita RT&H (US\$)	Per Capita R&PW(Kshs)	Per Capita R&PW (US\$)
2000-01	75.26	1.60	50.93	-
2001-02	75.01	1.54	46.68	-
2002-03	80.65	1.73	49.31	0.59
2003-04	73.55	1.62	74.84	0.93
2004-05	77.13	1.75	-	-
2005-06	117.94	2.60	199.31	2.76
2006-07	131.16	3.18	387.59	5.75
2007-08	140.46	3.23	519.47	7.53
2008-09	146.85	3.04	609.27	7.88
2009-10	167.55	3.66	790.19	9.97
2010-11	212.03	4.55	903.57	10.16

Source: Researcher's compilation.

Data for GoK 2004-05 unavailable; Conversion Rate unavailable for 2000-2002.

Table 4.22 above considers the comparative aspects of the Per Capita expenditures on road transport. It is observed that on both cases, the allocations for road development as expressed in terms of Per Capita for home currencies i.e. column 2 and 4, of the first 4 years of the period under study had similarities i.e. from 2000-01 to 2003-04 the allocations were above 50 and below 100 units of the respective currency units. Then again, considering the years 2005-06 to 2010-11 the allocations were above 100 unities of currency. However, it must be noted that in the case of India, the allocations did not rise further than ₹212.03 when considered within the study period. On the other hand, in the case of Kenya, the Per Capita allocations expanded to a maximum of Kshs.903.57 in the 2010-11.

Line Graph 4.6: Comparative RT&H and R&PW Per Capita (US\$), 2000-2011



The most significant feature for Per Capita expenditure allocations will be the growth rate. Considering the Table 4.22 above and taking into the account the allocations from the least to the most, India's Per Capita expenditure expanded from ₹73.55 for 2003-04 to ₹212.03 in 2010-11 to reflect a growth rate of 188.28%. In the case of Kenya's Per Capita expenditure, the same table indicates that the expansion was from Kshs.46.68 in 2001-02 to Kshs.903.57 in the last year portraying a growth rate of 1,835.67%. It is therefore observed that Kenya's Per Capita expenditure on road transport experienced far better growth rates in terms of budget allocations as compared to India's Per Capita outlays. A graphical representation of the above analysis can be seen in the Line Graph 4.6 above.

4.3.7 Road Density in India and Kenya

Table 4.23: Comparison of India and Kenya Road Density, 2000-2012

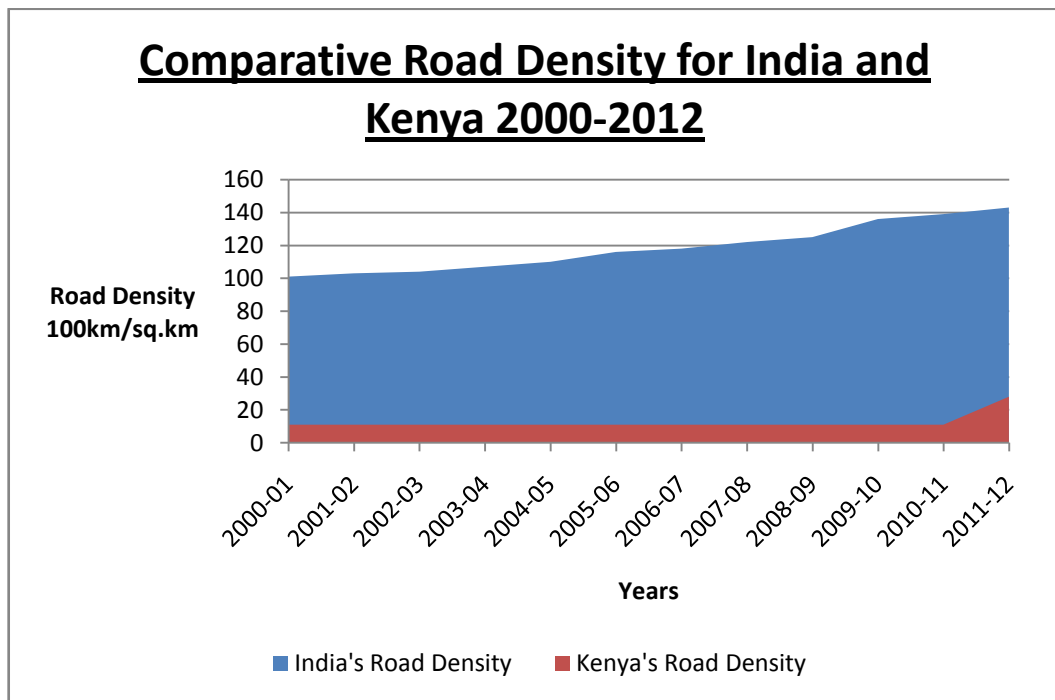
Year	India's Road Density	Kenya's Road Density	% Difference
2000-01	101	11	818.18%
2001-02	103	11	836.36%
2002-03	104	11	845.45%
2003-04	107	11	872.73%
2004-05	110	11	900.00%
2005-06	116	11	954.55%
2006-07	118	11	972.73%
2007-08	122	11	1009.09%
2008-09	125	11	1036.36%
2009-10	136	11	1136.36%
2010-11	139	11	1163.64%
2011-12	143	28	410.71%

Source: Researcher's Compilation.

The Table 4.23 presents a head to head comparison of India's road density to that of Kenya. As it can be observed, the comparison is unmatched. While India's road

density gradually rose from 101km/100sq.km in 2000-01 to 143km/100sq.km in 2011-12, Kenya's road density was static most of the period up till the 2011-12 when there was a sudden 154.55% increase in road density growth to close at 28km/100sq.km. This phenomenon can only be accounted by the road programs in the home countries i.e. it might seem that while India's NHDP under the NHAI was active in the construction of new roads, Kenya's road program under the KRB was on a maintenance and rehabilitation mode for the existing road network as opposed to the construction of new headways. The Area Chart 4.13 presents the comparative road density for India and Kenya.

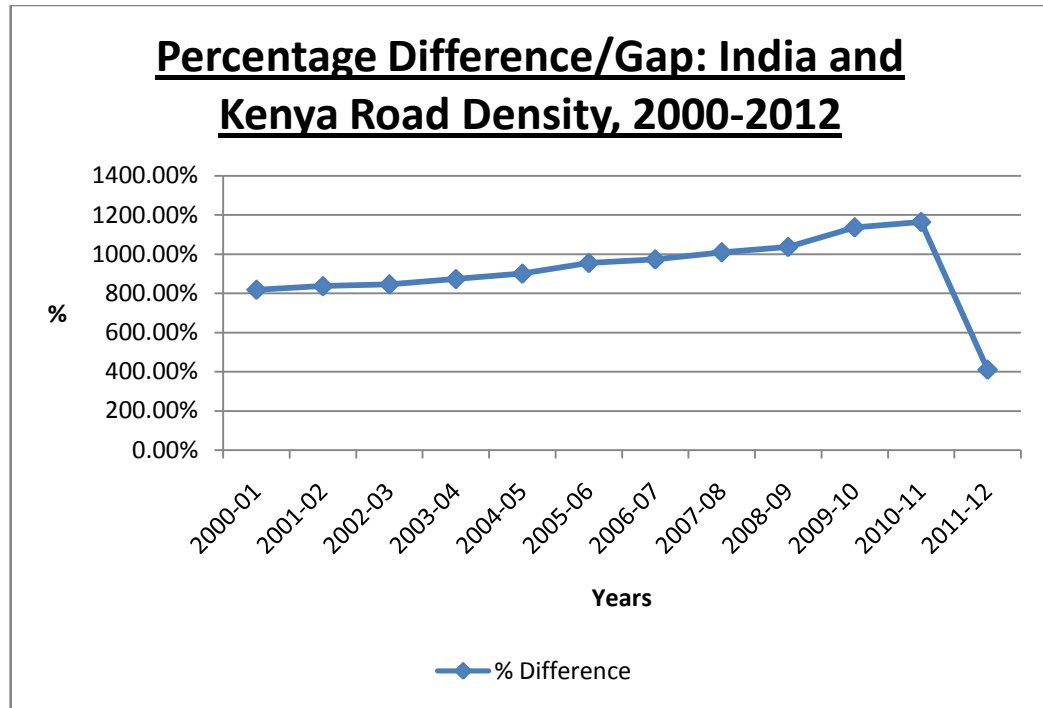
Chart 4.13: Comparative Road Density for India and Kenya, 2000-2012



A closer look at the percentage difference between the two indexes shows an increasing gap in road density from 818.18% in 2000-01 to 1,163.64% in 2010-11 which

suddenly is cut back to 410.71% lower than the initial gap. This reflects tremendous growth in the part of Kenya’s road program. The Line Graph 4.7 below presents the same analysis.

Line Graph 4.7: Percentage Difference/Gap between India and Kenya Road Density, 2000-2012



4.3.8 Road Density of India and Kenya compared with other Countries

In this section, the road density of India and Kenya is compared head to head with the road density for other countries with the objective of understanding how are these two developing nations are fairing in terms of road constructions programs on a more global outlook. To determine the objective, the countries selected for this analysis comprise a representative group such as the top 3 countries with the highest road density, the bottom 3 with the lowest road density, those that are considered as first world countries, those

considered as peers in terms of Economy i.e. BRICS and EAC and lastly the World. These categories form the parameters for analysis as illustrated in Table 4.24 below.

Table 4.24: Comparison of India and Kenya to Other Countries on Road Density Index

Category	Country	World Ranking	Road Density (km/100sq.km)	Date	
Top 3	Monaco	1	3850	2010	
	Macao	2	1486	2011	
	Malta	3	968	2008	
1st World	France	18	192	2011	
	Germany	21	180	2011	
	United Kingdom	24	172	2011	
	Japan	45	90	2011	
	USA	55	67	2011	
	BRICS	China	74	43	2011
		S Africa	88	30	2001
Brazil		117	19	2011	
Russia		160	6	2011	
India		30	143	2011	
Kenya		93	28	2011	
East Africa Community	Rwanda	62	53	2004	
	Burundi	72	44	2004	
	Uganda	90	29	2003	
	Tanzania	152	9	2011	
	Bottom 3	Niger	187	2	2010
Mauritiana		188	1	2011	
Sudan		189	0	2000	
World			33	2011	

Source: World Bank.

Observations from Table 4.24 above indicate that the countries Monaco and Macao are home to the highest road dense areas i.e. ranking 1 and 2 with

3,850km/100sq.km and 1,486km/100sq.km respectively. In the 1st World countries category, France leads the pack ranked at 18 with 192km/100sq.km while the USA follows at a distant ranked 55 with 67km/100sq.km. Further on, at considering the bottom 3, Mauritiana spots 1km/100sq.km while the average for the whole world is 33km/100sq.km.

As regards to India in comparison to the 1stWorld countries, India outpaces Japan and USA with a significant margin ranked 30 with 143km/sq.km. This is to suggest that France, Germany and the UK are the only countries of the 1st World in the above table that are ahead of India. But when one compares India to her peers in the BRICs, it is surprising that India out performs all of them and with a significant margin i.e. the closest is China ranked at 74 with 43km/100sq.km. This is to suggest that India has the potential and capability of contributing significantly to the global economy.

As pertains to Kenya, observations from Table 4.24 above point out that in terms of road density, Kenya outperforms Tanzania with a wide margin i.e. ranked 93 with 28km/100sq.km while Tanzania is at 9km/100sq.km. In comparison with the other members of the East African Community, for the time being no conclusion can be drawn since their respective road density indexes are out dated. But it is of particular to note that by 2004, Rwanda, Burundi and Uganda had moderately good road density indexes as compared to that of Kenya. This is for the reason that Kenya's road density was static at 11km/100sq.km from 2000 to 2010, and in 2011 it improved to 28km/100sq.km.

In conclusion, observations from the above Table 4.24 point out that in the case of India, her road density is somewhat healthy as compared to those in the BRICS where she outperforms all her peers, but more importantly India surpasses many of the 1st World

countries and not just those recorded in the given table in terms of road density. However, in light of the road density in countries such as Monaco and Macao as well as the circumstances on the ground as regards to the plight of Indian roads i.e. quality and quantity, it is clear that India must push ahead and in a vibrant manner its programs for road development activities.

As regards to Kenya, observations from Table 4.24 above indicate that, at the moment, Kenya cannot measure up with the 1st World countries for they are clearly ahead. Rather Kenya can borrow a leaf and therefore place itself at a position of opportunity to compete so as to improve the quality and quantity of roads in Kenya. It is pointed out in the above table that Kenya has a higher road density than countries such as Brazil and Russia. This is to suggest that it is possible to scale up and better the quality and quantity of roads in Kenya. However, the place for Kenya to begin is from India since she has demonstrated that the road programs especially post 2000 under the NHAI are advancing the road development agenda of India.

4.4 HYPOTHESIS TESTING WITH INFERENTIAL STATISTICAL ANALYSIS

The current research study employed inferential statistical analysis as quantitative statistical data to add depth into analysis by substantiating the theoretical information in hypothesis testing. The statistical tools employed for analysis include Correlation, Regression and Chi-Square Test used for the measurement of significance of correlation, significance of association as well as significance of differences among the various relevant variables in the study. The current research study stated two hypotheses with the objective of studying the various variables in the study. The results for hypotheses testing are as follows:

4.4.1 Hypothesis 1

For testing Hypothesis 1 which stated, “The pressure for the need for development of road transport system in terms of quality and quantity leads to the Government to increase the percentage of budget expenditure for Road Transport Development”, the researcher employed the Inferential Statistical test of Regression Analysis on Per Capita Expenditure on Road transport and Per Capita Availability of Roads. At micro levels, the Per Capita Expenditure represents the Government budget allocation on road transport per person while Per Capita Availability of roads represents the population pressure as well as the total road network per person.

In the case of India, the p value of the regression analysis is more than 0.05, thus the Null Hypothesis was accepted since it is found that there is significant association between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India. See Tables 4.29. Therefore, the stated above Hypothesis 1 is accepted, to imply that the Government of India increased RT&H budget allocation due to the pressure for the need for development of road transport system in terms of quality and quantity. However, in the case of Kenya, since the Per Capita Availability of Roads remained constant for the period under study, regression analysis for testing significance of association could not be carried out.

4.4.2 Hypothesis 2

For testing Hypothesis 2 which stated, “There is a similarity in the trends of budget allocations for Road Transport Development between India and Kenya during 2000 and 2010”, the researcher employed inferential statistical test of Chi-Square Test for assessing the consistency in the rate of increase in budget allocation for RT&H budget

(India) and R&PW budget (Kenya). Since the p value was greater than 0.05, the null hypothesis was accepted and it was found that there is no significant difference in the rate of budget allocation in RT&H and that of R&PW during the period under study. Therefore, this is to state that there is similarity in the trends of budget allocation for Road Transport Development between India and Kenya. See Table 4.28.

4.4.3 Significance of Correlation between GoI Budget, RT&H Budget, Per Capita RT&H, and Road Density in India was Tested.

It is expected that one will not find a significant difference among the GoI Budget, RT&H Budget, Per Capita Expenditure RT&H, and Road Density/100sq.km in India. Therefore, a significant correlation exists among these factors.

H₀: There is significant correlation among GoI Budget, RT&H Budget, Per Capita Expenditure RT&H, and Road Density/100sq.km in India.

H₁: There is no significant correlation among GoI Budget, RT&H Budget, Per Capita Expenditure RT&H, and Road Density/100sq.km in India.

One tail test gave the following results.

Table 4.25: Analysis of Correlation between RT&H Budget, GoI Budget, Per Capita RT&H and Road Density in India

		RT&H Budget	GoI Budget	Per CapitaExpenditure RT&H	Road Density/100 sq.km
RT&H Budget	Pearson Correlation	1	0.24	1.00	0.98
	Sig. (1-tailed)		0.241	0.00	0.00
GoI Budget	Pearson Correlation	0.24	1	0.37	0.09
	Sig. (1-tailed)	0.241		0.146	0.398
Per Capita Expenditure	Pearson Correlation	1	0.37	1	0.96

RT&H					
	Sig. (1-tailed)	0.00	0.146		0.00
Road Density/100 sq.km India	Pearson Correlation	0.98	0.09	0.96	1
	Sig. (1-tailed)	0.00	0.398	0.00	

As the p values are found to be greater than 0.05, the Null Hypothesis is accepted and significant correlation exists among the following variables:

- i. RT&H Budget and GoI Budget,
- ii. GoI Budget and Per Capita Expenditure RT&H,
- iii. GoI Budget and Road Density/100sq.km in India.

However, as the p values are found to be less than 0.05, the Null Hypothesis is rejected and no significant correlation exists among the following factors:

- i. RT&H Budget and Per Capita Expenditure RT&H,
- ii. RT&H Budget and Road Density/100sq.km in India,
- iii. Per Capita Expenditure RT&H and Road Density/100sq.km in India.

The correlation analysis on Table 4.25 presents two sets of analysis as shown above. It is observed that there exists significant correlation between the RT&H Budget with GoI Budget, GoI Budget with Per Capita Expenditure RT&H, as well as GoI Budget with Road density/100sq.km in India. However, for the purposes of the current study, the second set of analysis is of more importance and thus calls for more emphasis since it has been observed that there exists no significant correlation in the variables i.e. RT&H budget and Per Capita Expenditure RT&H, RT&H Budget and Road Density/100sq.km as well as Per Capita Expenditure RT&H and Road Density/100sq.km.

From the analysis in Table 4.25 with a focus on the second set of observations, it is clearly seen that these are interesting observations and hence arouses curiosity for the same. For no significant correlation to exist between the above named variables, the rationale for this could be attributed to the practice of flawed basic budgeting principles that ignore to take into account the multi-dimensional nature of budgeting and the fact that it requires a simultaneous approach to bring effectiveness and efficiency in public expenditure.¹⁴This further suggests that, the policy makers in the Department of Road Transport & Highways of the Indian Government do not take into consideration the importance of the input from the variables (i.e. budget allocations for RT&H, Per Capita Expenditure RT&H and Road Density/100sq.km) considered in the above analysis so as to ensure a consistent implication of the budget allocations on road transport development.

Further observations drawn from the above analysis suggest that the Department of RT&H does not implement the principles of Performance-based Budgeting which employs the systematic use of ‘performance information’ i.e. the information (objectives and outcomes) harnessed from the linkage between public expenditure and the actual results supplied.¹⁵ The systematic use of this information has the prospective of enhancing expenditure precedence as well as encouraging prudence in the use of the resource allocated for road transport development.

4.4.4 Significance of Correlation between GoK Budget, R&PW Budget, Per Capita R&PW, and Road Density in Kenya was Tested

¹⁴Adrain Fozzard, *Basic Budgeting Problem: Approaches to Resource Allocation in the Public Sector and their Implications for Pro-Poor Budgeting* (London: Overseas Development Institute, 2001), 6.

¹⁵Marc Robinson and Duncan Last, *A Basic Model of Performance-based Budgeting* (Washington DC.: IMF, 2009), 2.

It is expected that one will not find a significant difference among the GoK Budget, R&PW Budget, Per Capita Expenditure R&PW, and Road Density/100sq.km in Kenya. Therefore, a significant correlation exists among these factors.

H₀: There is significant correlation among GoK Budget, R&PW Budget, Per Capita Expenditure R&PW, and Road Density/100sq.km in Kenya.

H₁: There is no significant correlation among GoK Budget, R&PW Budget, Per Capita Expenditure R&PW, and Road Density/100sq.km in Kenya.

One tail test gave the following results.

Table 4.26: Analysis of Correlation between R&PW Budget, GoK Budget, Per Capita R&PW and Road Density in Kenya

		R&PW Budget	GoK Budget	Per Capita Expenditure R&PW	Road Density/100 sq.km
R&PW Budget	Pearson Correlation	1.00	.98	.98	NaN
	Sig. (1-tailed)		.000	.000	NaN
GoK Budget	Pearson Correlation	.98	1.00	.97	NaN
	Sig. (1-tailed)	.000		.000	NaN
Per Capita Expenditure R&PW	Pearson Correlation	.98	.97	1.00	NaN
	Sig. (1-tailed)	.000	.000		NaN
Road Density/100 sq.km	Pearson Correlation	NaN	NaN	NaN	1.00
	Sig. (1-tailed)	NaN	NaN	NaN	

*The road density has remained constant over the period of time and correlation cannot be calculated.

As the p values are less than 0.05, the Null Hypothesis is rejected and it is found that there is no significant correlation among GoK Budget, R&PW Budget, Per Capita Expenditure R&PW, and Road Density/100sq.km in Kenya.

The correlation analysis on Table 4.26 is evident that analysis could not be calculated because the Road Density in Kenya remained constant all through the period under study. This is attributed to the fact that Government of Kenya during the period under study projected a capital predisposition of road expenditure and investment in road maintenance,¹⁶ rehabilitation and upgrades as opposed to new road constructions. It is further provided that the foremost constituent of the Roads 2000 programme was “spot improvements, partial rehabilitation, and routine maintenance” of different roads.¹⁷ Therefore, with no new added road networks, the road density was bound to be constant.

However, correlation analysis was done considering the remaining variables and it was concluded that there was no relationship association between the same. As previously argued in this section, it seems that Kenya’s policy makers, just like their counterparts in India practice the flawed basic budgeting principles as well as ignore the use of ‘performance information’ so as to improve the efficiency and effectiveness of the budget allocations for road transport development. This behavior on both countries could be attributed to the reality that India and Kenya are yet to fully comply with ‘the best practices’ of Public Expenditure Management Policy Systems of the IMF and World Bank which when in place will track budget execution and monitor the outcomes.¹⁸

¹⁶ Vivien Foster and Cecilia Briceno-Garmendia, eds., *Africa’s Infrastructure: A Time for Transformation* (Washington DC.: The World Bank, 2010), 215.

¹⁷ Ministry of State for Planning, National Development and Vision 2030, *Kenya Vision 2030: Sector Plan for Roads 2008-2012* (GoK: Nairobi, 2008), 12.

¹⁸ Charles C. Griffen, et al, *Lives in the Balance: Improving Accountability for Public Spending in Developing Countries* (Washington DC.: Results for Development Institute, 2010), 63.

4.4.5 Significance of Association between Per Capita Expenditure RT&H and Road Density/100sq.km in India Tested by Regression Analysis

It is expected that one will not find a significant difference among Per Capita Expenditure RT&H and Road Density/100sq.km in India. Therefore, a significant association exists among these factors.

H₀: There is significance of association between Per Capita Expenditure RT&H and Road Density/100sq.km in India.

H₁: There is no significance of association between Per Capita Expenditure RT&H and Road Density/100sq.km in India.

The results are given below.

Table 4.27: Regression Analysis between Per Capita RT&H and Road Density in India

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.96	0.93	0.92	3.23

ANOVA (Road Density in India)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1060.07	1	1060.07	101.53	0.00
Residual	83.53	8	10.44		
Total	1143.6	9			

As the p value is less than 0.05, the Null Hypothesis is rejected and it is found that there is no significant association between Per Capita Expenditure RT&H and the Road Density/100sq.km in India.

From the above analysis considering the relationship between Per Capita Expenditure RT&H and Road Density/100sq.km of India, it is evident that population density which in turn affects Per Capita Expenditure RT&H has a positive impact but

however, in this case, it is negligible to the point that when correlated with Road density/100sq.km there is no association. This effect is comparable to the findings of a research by Susan Randolph et al, which states that “population density positively influences per capita central budget infrastructure expenditures, but the effect is nonlinear.”¹⁹ This is to state with regards to the current study that, the impact of the consolidated budget allocations on road transport in India i.e. Per Capita Expenditure RT&H for the period under study was negligible due to the rise in population density of India evident during the same period.

4.4.6 Significance of Association between Per Capita Expenditure R&PW and Road Density/100sq.km in Kenya Tested by Regression Analysis

As the Road Density/100sq.km in Kenya over the period under study remained constant, the regression analysis for testing significance of association between Per Capita Expenditure R&PW and Road Density/100sq.km could not be carried out.

4.4.7 Testing Consistency in RT&H Budget of India and R&PW Budget of Kenya by Chi-Square Test

It is expected that one will find a significant difference in the trends of budget allocation for Road Transport Development between India and Kenya. Therefore, no significant correlation exists among these factors.

H₀: There is no significant difference in the rate of budget allocation on road transportation over the period under study in both the countries.

H₁: There is significant difference in the rate of budget allocation on road transportation over the period under study in both the countries.

¹⁹ Susan Randolph, et al, *Determinants of Public Expenditure on Infrastructure: Transport and Communication* (Washington DC.: IMF, 1996), 25.

Table 4.28: Chi-Square Analysis for Rate of Budget Allocation between R&PW and RT&H

NPAR TEST.KOLOGOROV-SMIRNOV(NORMAL) = krate irate. One-Sample Kolomogorov-Smirnov Test			
		Rate of Budget Allocation for R&PW in Kenya	Rate of Budget Allocation for RT&H in India
N		10	11
Normal Parameters	Mean	12.43	2.2
	Std. Deviation	3.88	0.28
Most Extreme Differences	Absolute	0.18	0.11
	Positive	0.18	0.09
	Negative	-0.16	-0.11
Kolmogorov-Smirnov Z		0.55	0.37
Asymp. Sig. (2- tailed)		0.919	0.999

As the p values are greater than 0.05, the Null Hypothesis is accepted and it is found that there is no significant difference in the rate of budget allocation on road transport development over the period under study in both the countries i.e. rate of budget allocation for RT&H and R&PW.

It appears from the Table 4.28 above that there is a similarity in the trends of budget allocations for road transport development in India and Kenya. This similarity could be attributed to the budget practices that have been predisposed to follow an incremental and cumulative format or style.²⁰ This is to suggest that the policy makers and bureaucrats in both the Indian and Kenyan governments followed in a general manner the principle of increasing the capital expenditure and investment from one year to another during the period under study. It will be important to note that this perception,

²⁰Adrain Fozzard, *Basic Budgeting Problem: Approaches to Resource Allocation in the Public Sector and their Implications for Pro-Poor Budgeting* (London: Overseas Development Institute, 2001), 5.

in the separate governments, could be motivated by the politicians and bureaucrats for private gain by manipulating the budgetary process.²¹ For example, it is pointed out by Wilkinson that infrastructure projects in India have the prospective of generating kickbacks through which elected politicians raise funds for their political agendas. He further indicates that infrastructure spending is allotted in a clientelistic fashion with the fundamental objective being that of acquiring political clout and endorsements.²²

Consequently, the current study recognizes that in as much as the process of budget allocation for road transport development and public expenditure at large should be one that involves a methodological analysis as well as coherent concept structures to collaborate the resource allocation mechanisms, this process is basically a political process and that technical considerations can only be advisory input.²³

4.4.8 Significance of Association between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India Tested by Regression Analysis

It is expected that one will not find a significant difference among the Per Capita Expenditure RT&H and Per Capita Availability of Roads in India. Therefore, a significant association exists among these factors.

H₀: There is significance of association between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India.

H₁: There is no significance of association between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India.

The results are given below.

²¹ Marc Robinson and Duncan Last, *A Basic Model of Performance-based Budgeting* (Washington DC.: IMF, 2009), 6.

²² Steven I. Wilkinson, *The Politics of Infrastructural Spending in India* (Chicago: University of Chicago, 2006), 5.

²³ Adrain Fozzard, 29.

Table 4.29: Analysis of Correlation between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.57	0.33	0.24	0.00

ANOVA (Per-Capita availability of road in India)

	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.00	1.00	0.00	3.90	0.08
Residual	0.00	8.00	0.00		
Total	0.00	9.00			

As the p value is more than 0.05, the Null Hypothesis is accepted and it is found that there is significant association between Per Capita Expenditure RT&H and Per Capita Availability of Roads in India.

It appears evident from Table 4.29 above that Per Capita Expenditure RT&H and Per Capita Availability of Roads in India have significant association because there exists no much difference between the two variables. The rationale for this is such that the high population of India has a direct impact on the Per Capita Expenditure RT&H hence it is of low value in terms of impact and secondly India has a very large land mass area of 3,287,260sq.km. When considering the impact of the RT&H budget for road transport development, it is found to be insufficient to create a significant effect on availability of Roads in India. As a matter of fact, it is pointed out by Valan Arasu that 50% of the roads in India are still unpaved.²⁴ This is evident that the budget allocation for road transport

²⁴ J.G. Valan Arasu, *Globalization and Infrastructural Development in India* (New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008), 156.

development in India is insufficient to increase the availability of roads over the years but more specifically, at least when considered during the period under study. Therefore, even though there is significant association between Per Capita Expenditure RT&H and Per Capita Availability of roads, it is of low significant impact.

4.4.9 Significance of Association between Per Capita Expenditure R&PW and Per Capita Availability of Roads in Kenya Tested by Regression Analysis

As the Per Capita Availability of Roads in Kenya over the period under study has remained constant, the regression analysis for testing significance of association could not be carried out.

4.5 FINDINGS OF THE STUDY BASED ON STUDY OBJECTIVES

4.5.1 The first objective of the study aimed at assessing the role of government in Transport Development System. It is to be noted that findings for this objective are not limited only to the analytical exercise of the government budgets for road transport development but also constitute the observations drawn up from the other divisions of this current research exercise. To begin with, in Chapter 1, the study recognized that there is a place and role for road transport in the economic development in any government as it is for India and Kenya. Transport networks and especially road networks contribute significantly to regional and economic development by way of facilitating relational and integration of economic activities i.e. linking agricultural and industrial sectors, movement of inputs and transportation of produce, as well as in efficiency of distribution of population, industry and income. Therefore, and in this context, the government as leader of economic development has a direct linkage in responsibility for transport development at large and road transport development in particular.

Secondly, and by way of examining other studies on road transport focused in the first world countries i.e. in Europe and USA, the study found out that the role of government includes the provision of a regulatory framework that is mandated in addressing the economic and social problems of the road transport sectors in India and Kenya. These problems may include salary/wage compensation, working conditions and benefits given, over time, holidays, how much pension and the pensionable age, working conditions and benefits specific to women, work permits and subcontracting of work, among others.

Third, the study found out that the governments of India and Kenya have a role to play by embracing road transport technology and R&D with the objective of striking a balance between promoting economic growth, serving the aspiration of the people and as well as improving environmental sustainability. This is a key issue since India and Kenya are strong emerging economies i.e. India is an emerging economy in Asian continent as well as a global player whereas Kenya is an emerging economy in the East African context and in the Sub-Saharan African region. With this background that presents high competition, embracing green technology and facilitating innovative technologies into road transport and by supplying R&D facilities to develop indigenous technology solutions is a key role of the government in addressing the road transport problems. Further on the scope of government's role in this case will include robust budget fund allocations for R&D facilities.

Fourth, the question of road safety begs of attention and in this case, the government's response. The current study found out that the Indian and Kenyan governments can no longer treat this matter lightly as lives of people are at stake.

Therefore, the governments in question must address road safety issues by insisting on planning and building safer roads and highways, by promoting enhanced harmonization in terms of capabilities and resources to advance road safety, by encouraging scientific precision in supervision and understanding safety needs for road safety and also develop, implement, and appraise solutions that work together to improve road safety in India and Kenya.

In the matter of FDI and road transport development, the study established first that the governments of India and Kenya have a role to play in attracting FDI for infrastructure development and that FDI is a significant source of funding for infrastructure development in road transport. Secondly, the study pointed out that infrastructure bottlenecks in India and Kenya was a drag on the development and this could be addressed through the FDI avenue. Further on, the FDI climate in India was appraised and it was established that the FDI regime in India had been reviewed to be modestly attractive but with more to be done. For example, the present policy on FDI in road development provides that the FDI equity limit permissible is 100% by way of the Automatic Route and many other incentives as pointed out in Chapter 1 of this study. However, the study established that the FDI climate in Kenya was unhealthy and that recently it had dwindled and was sluggish. The study also found out that there was a worrying trend of foreign investor flight out of the country to point out that Kenya is performing badly in its FDI competitiveness. It is therefore upon the government of Kenya to draw up policies in the highlighted areas so as to promote a healthier FDI regime.

As regards to the problems and challenges facing the process of budget allocations for road transport, the study found out a number of these setbacks. They are such as: the process of budget allocations is hampered when government policy is politicized by the politicians who are supposed to implement policies on road development; prevalence of insufficient and unsteady flow of funds; ambiguity on how and when should budget allocations be executed to reflect progressive results; and the question of Asset Management Systems (AMS) of road infrastructure. All these problems and challenges must be addressed by the governments of India and Kenya in respect to their context by way of formulating progressive policies so as to promote a healthier road transport development program.

In the matter of land acquisition for road infrastructure development, the study recognized that this was a serious challenge and one that deserves serious attention so that the time involved in land acquisition can be reduced significantly to improve the gestation period of the development projects. Additionally, the study emphasizes on the role of government to be that one of introducing reforms that facilitate land acquisition in a fashion that attracts no opposition from the relevant parties by use of modalities and instruments available to promote the welfare of the land owners as well as secure the development of road infrastructure projects.

Findings in Chapter 2 of this study under objective number one point out the role of governments of India and Kenya in transport development as to be the owner, custodian as well as facilitator; regulating and supplying of transport infrastructure; facilitating smooth process of decision making i.e. especially in liberating the local authorities from the clutches of Central government's dictate in an effort to encourage

them establish their own solutions customized to their needs and priorities for their local transport problems; to streamline the government's policy structure to permit the public transport to operate as expected; effective implementation of bilateral agreements between governments of India and Kenya with other governments to facilitate trade and transport development; to be accountable in planning, financial outlays, pricing, and assessment of transport and telematics infrastructure; to monitor safety measures for new transport systems and provision of mechanisms for legislation and implementation where applicable; promoting sustainable development of transport systems by maintaining, operating, improving the transport networks. In summary, Fig. 2.3 in Chapter 2 provides the various aspects of role of government as can be applied to road transport development.

4.5.2 The second objective of the study aimed at studying the need of road transport development in relation to the population and the area of the country and the gap in between the need and the actual reality. It is of particular note to indicate that this subject is undertaken in depth in Chapter 4 where data presentation and analysis is handled. It is of importance to keep in mind that the question of need for transport development has always existed by the fact that there has always been a Transport Problem that comes with its negative externalities. This section is extensively addressed in Chapter 2 of the Review of Literature.

India:

In the case of India, the need for road transport development is highlighted by several indicators as discussed in the current study. First, the problems and externalities of road transport development in India present the first need for road transport

development. This is discussed in Chapter 3 and a summary of the problems and externalities of road transport in India are pointed out to be road safety and road accidents, low road capacity and congestion, mixed traffic, pollution, unstable road policy, poor highway amenities, shortage of funds and multiple road check posts. See Table 3.20.

The current road density of India index is also a pointer to the existing need for road transport development. With a road density of 143km/100sq.km, world ranking for India is number 30 and hence falls behind the developed countries such as France, Germany and United Kingdom with road densities 192/100sq.km, 180km/100sq.km, and 172km/100sq.km respectively. This clearly points out the gap that is existent when the developed countries are taken to be the benchmark for measurement. See Tables 3.12 and Table 4.24.

In terms of quality and quantity of the road network of India to reflect the actual reality, India's total road network was 4,690,000km by 2010-11. Further on, NHs and Expressways constitute of 79,116km, the SHs comprise of 155,716km while the Other Roads make up 4,455,010km. In addition to that, considering the NHs in terms of width, it is as follows: Single lane/Intermediate lane comprises of 19,330km (24%), the Double lane covers 40,658km (52%) while the Four lane/Six lane and Eight lane hold 19,128km (24%). See Chart 3.1.

Kenya:

In the case of Kenya, the need for road transport development is highlighted by several indicators as discussed in the current study. First, the problems and externalities of road transport development in Kenya present the first need for road transport development. This is discussed in Chapter 3 and a summary of the problems and

externalities of road transport in Kenya are pointed out to be road accidents, congestion, poor funding, a lack of comprehensive and integrated transport policy framework, taxes, among others. See Table 3.35.

The current road density index of Kenya index is also a pointer to the existing need and gap in road transport development. With a road density of 28km/100sq.km, world ranking for Kenya is at number 93 and hence falls behind all the developed countries such as France, Germany and United Kingdom, Japan and USA with road densities 192km/100sq.km, 180km/100sq.km, and 172km/100sq.km, 90km/100sq.km and 67km/100sq.km respectively as well as the BRICS member countries and India in particular. This clearly points out the gap that is existent when the developed countries are taken to be the benchmark for measurement. See Table 3.28 and Table 4.24.

In terms of quality and quantity of the road network of Kenya to reflect the actual reality, Kenya's total road network stood at 160,886km. Further on, the National Highways of Kenya i.e. Class A,B,C have a length of 13,687km of which 6,783km (49.56%) are paved while the rural roads i.e. Class D,E,SPR,U constitute 130,067km of which 2,268km (1.74%) are paved. The other classification of roads is Urban Roads i.e. Class B,C,D,E,SPR,U which comprise of 12,549km of which 2,140km (17.05%) are paved. See Table 3.27. Additionally, considering the roads in terms of width it is only the Thika Superhighway that is a standard 8 lane and that too for only 50km while the rest are be double lane and single lane.

4.5.3 In the third objective of the research study, the researcher aimed at studying the history of Transport Development System in India and Kenya till 2011. It is of particular note to point out that this subject is tackled out in Chapter 3 of this research exercise

where the question of country profile for India and Kenya is addressed, but more in particular the aspects of the history of transport development as well as the current status of road development are highlighted.

India

In the case of India, findings from the study show that India's transport system had already development since the pre-historic and ancient India. However, for the purpose of the current research study, the time considered was the colonial, post-colonial and modern India. Under colonial India, the transport network system was developed especially in the administrative cities such as Calcutta, Bombay, Ahmedabad, Agar, Jaipur, Lucknow, Amristar, Madras, Hyderabad, Bangalore, Madurai and Tiruchalapati. Railway development started in 1844 and at present the total railway route is approximately 63,000km with a total network of 7,100 railway stations across India. Table 3.6 presents the railway zones of India and their corresponding headquarters.

As regards to the road transport system, the study established that road development was significantly neglected by the British since it was only meant for administrative and strategic purposes. Road development begun in the year 1855 but rigorous development plans for the same picked up speed under the Indian governance which had its roots in the Nagpur Plan of 1943, Bombay Plan i.e.1961-1981, Lucknow Plan i.e. 1981-2000 and now currently under the National Highway Development Plan (NHDP) i.e. 2000-2020.

Considering water transport in India, the study found out that the water transport of India consists of river systems, canals, backwaters, creeks and tidal inlets that have a total length of 14,500km with mechanized navigation accounting for 5,200km in the

major rivers, 485km in the canals and non-mechanized accounting for 7,800km. Table 3.7 presents the classification, route and the length of India's Inland Waterways while Table 3.8 presents the 12 major ports of India and where they are located in the country.

As pertaining to India's Air Transport, the study found out that development of this sector dates back to 1920 and by 1953 there were 9 private airlines. In the same year, all private airlines were nationalized by an act of Parliament i.e. Air Transport Corporation Act, 1953. However, by 1994, the Air Transport Corporation Act of 1953 was repealed which ended government monopoly bringing back private players into the aviation industry. The study also found out that in India there are more than 334 civilian airports. Table 3.9 presents the 12 major International Airports of India.

Kenya:

In the case of Kenya, the study found out that even though Kenya did not have clearly defined transport routes of commercial significance before the occupation of the European settlers, the Coastal region of Kenya had organized trade centers of which the Arabs and Indian traders used for the movement of goods from the interiors to the ports. By the 19th century, the development of Kenya's transport system picked up speed with the formation of the IBEAC of the British which had been tasked to make Uganda a British protectorate. This resulted to trade routes from Uganda through to the Kenyan coast.

The study established that the development of Kenya's road transport begun in the late 1800s under the IBEAC such that by 1940s, Kenya had its original road and rail network blue prints drawn up. Road construction in Kenya begun from the Coastal region heading into the inlands i.e. Eastern, Rift Valley, Central, Western, South Nyanza, etc.

Some of the constructed roads included the Mackinnon Road, Machakos Road Station, Sclater Road and others. Table 3.22 presents the historical development of Kenya's road transport system.

As regards Kenya's rail network, the study found out that construction of the railway begun in 1896 in the name of "The Uganda Railway" which was set up along the Mombasa, Nairobi, Nakuru, Kisumu and Eldoret trade centers leading to Uganda. Table 3.23 presents the historical development of Kenya's railway route and the year of construction completion i.e. starting with the Mombasa-Nairobi Line in 1896 to the Butere Rail Line in 1930.

Considering air transport in Kenya, the study established that this sector was poorly developed during the early colonial days as compared to road and rail networks. However, the study found out that by 1930, the air transport had limited operations in Lake Victoria and at the Coast. The East African Airways was also commissioned in the same year from Wilson airport with a route network in East Africa. By 1949 and 1954 further expansion included a route to London. It is of particular note to point out that Kenya had four custom airports i.e. Embakasi, Wilson, Mombasa and Kisumu, and 21 secondary and minor fields and 19 emergency and private airstrips. Table 3.24 provides the current list of airports international or local and their locations in Kenya.

With reference to the development of water transport in Kenya, the study found out that Kenya does not have navigable rivers to which water transport may flourish. The main rivers such Galana and Tana empty to the Indian Ocean but sadly, they run through falls and cataracts whereas the inland rivers have complicated river courses. It should be noted though that Lake Victoria played a significant role by commercially linking

Kisumu to Uganda and Tanzania. The other bays that service Lake Victoria include Port Victoria, Asembo bay, Homa bay, Kadima bay, and Karungu bay. It is to be noted however, that the lack of water transport systems due to non-navigable rivers in Kenya stresses the need for road development.

4.5.4 The fourth objective sought to study the status of road transport of India and Kenya from Independence till 2011. For this objective, the research study had to establish the original status of road transport and map it out to the current status with the aim of outlining the development trajectory.

India:

In the case of India, the study established that the road development activities before Independence and those that occurred during the period between 1950 and 1990 accounted for 70% in the total length of national highways as well as a 544% increase in the total length of the other classified roads. Surprisingly, with this growth there is still a deficit of over 50% of the roads that are still unpaved. Table 3.10 presents the road Development Plans i.e. Nagpur Plan, Bombay Plan and Lucknow Plan/Road Development Program that were undertaken since 1943 and the respective government policy for each plan that necessitated road development activities.

It is of importance to note that the findings of the study point out that the NHAI was established in 1988 with a mandate of implementing the new highway reforms through the NHDP. Table 3.11 presents the 7 different phases of the NHDP with their corresponding road length in kilometers. Further on, the study established that the NHAI runs other programs apart from the NHDP for the North East Regions road construction of 4,798km of NHs and 5,343km of State roads and Left Wing Extreme areas i.e.

SARDP-NE and LWE for road construction of NH 1,126km and 4,351km of State roads. Table 3.13 presents some of the major NHs of India such as NH 1- New Dehli, Ambala, Jalandar, and Amristar.

With reference to the total road length of India, the study established India's road network has a density of 143km/100sq.km (see Table 3.12) and that as of 2011 the total road length was 4,690,000km while the total surfaced road length accounted for 2,525,000km. The Chart 3.1 presents India's total road length from 1951 to 2011. Further findings from the study pointed out that the distribution pattern of India's road network was as follows: NHs and Expressways account for 79,116km, SHs comprise of 155,716km, and Other Roads accounted for 4,455,010km. Single lane/Intermediate lane comprised of 19,330km (24%), Double lane account for 40,658km (52%) and Four/Six/Eight lane comprise of 19,128km (24%). Table 3.14 presents a history of the NHs expansion during the Five Year Plans as from 1947 to 11th Year Plan (2007-12).

As pertaining to India's road classification, the study found out that the classification of Indian roads was done in 1943 under the Nagpur Plan and the format followed was of National Highways (NHs), State Highways(SHs), District Roads, Village Roads and Border Roads which is under the Border Road Organization. Table 3.15 presents the various Acts of Parliament for Road development that form the structure of the evolutionary reforms for Indian roads.

Kenya:

In the case of Kenya, findings from the study state that originally the Kenyan roads had been designed and developed to support the railway network but by the time of Independence, most of Kenya's roads were gravel and earth roads. Kenya had a

classified road network of 41,800km with 1,811km marked as tarmacked. Table 3.25 provides the Development Plans i.e. DP 1963-70, DP 1970-74, DP 1974-78, and DP 1979-83 with the corresponding road programs and the government policy behind the Plans. The study further highlights that during the 1990s, road development was adversely hampered due to the fund freeze by the development partners and negative impact of the El Nino rains in 1997-98.

With reference to the total length of roads in Kenya, the study established that the total length of roads in Kenya was 160,886km with the paved roads accounting for 11,197km and the unpaved roads accounting for 149,689km (see Table 3.27). This translates to a road network density of 28km/100sq.km as indicated in Table 3.28.

With regards to Kenya's road classification, the research study established that the findings pointed to a conclusion of road classification by 1970. The classification in brief comprises of: A- International Trunk Roads, B- National Trunk Roads, C- Primary Roads, D- Secondary Roads, E- Minor Roads, F- Special Purpose Roads. It is of importance to add that the study also identified the reforms that the government of Kenya implemented so as to promote the road infrastructure development. These are such as: The Road Maintenance Levy Fund (RMLF), Kenya Roads Board Act, 1999, Kenya Roads Act, 2007 as indicated in Table 3.26.

The study also made findings on the agencies for road funding in Kenya. These agencies have the mandate of development, maintenance, and rehabilitation of the various classified roads in the country. These road agencies are: KeNHA, KURA, KeRRA, KWS and District Committee Roads. Table 3.29 presents the agencies, the classification of roads with respect to the agency as well as the source of funds.

The current study also made findings into the process of road development fund allocation in Kenya. The study established that road development process in Kenya is structured in a two-tier format i.e. the Ministry of Roads and Public Works (R&PW) and Kenya Roads Board (KRB). The R&PW acquires its funding from the central government budget of which was core to this study while the KRB acquires its funding from RMLF and Transit Toll. Table 3.30 presents the allocation principle followed by the KRB for the maintenance, rehabilitation and development of the various classified roads.

4.5.5 The fifth objective sought to study the budget allocations for Road Transport Development with special reference to India and Kenya. This objective forms the main study of the research exercise. It entailed the survey of the budget format followed by India and Kenya and appraised the budget of the road development yearly as well as in its totality for the period under study. The study also evaluated the budget outlay for the ministry to that of the central government, a Head-wise survey for the same as well as it considered the road development budget outlays as percentage of the country's GDP and per capita.

India

In the case of India, the study found out that the civil budget for the ministry of RT&H were divided into 3 main sections namely: Budget Allocations for Net Recoveries; Investment in Public Enterprise and Plan Outlay. In addition to the 3 named sections, the civil budget document for RT&H also contains a brief but rather detailed explanation for numbered items/allocations in the budget. This provides further insight as to the purpose of the allocations considering that objectives for allocations are dynamic in nature through the 5 Year Plans. It is also important to note that the RT&H budget relies

on this format for the various demands for grants allocations as presented in Table 4.4 and Table 4.16.

In the matter pertaining to the RT&H budget outlays, the study found out that the total outlay for the period under study was ₹14,8409.88Cr with a yearly average of ₹13,491.81Cr along with a yearly average growth rate of 13.60%. It is of particular note to point out that the year 2005-06 had the highest growth rate of 55.19%. See Table 4.1, Chart 4.1.

As regards to the RT&H budget in relation to the GDP, the study found out that the RT&H budget had a percentage to GDP that was below 0.50% for the whole period under study. See Table 4.5 and Chart 4.4.

As regard the RT&H budget in terms of Per Capita expenditure, the study found out that Per Capita RT&H expenditure increased from ₹75.00 to ₹212.00 during the period under study. It must be noted that from the year 2005-06 onwards, the growth rate was higher i.e. 42.06% as compared to 2000-01 to 2004-05. See Table 4.7 and Line Graph 4.2.

Kenya

In the case of Kenya, the study found out that the civil budget for the ministry of R&PW was divided into 4 main sections namely: General Administration and Planning, Building and Works, Other Services, and Roads. It is important to note that the R&PW budget relies on this format for the various demands for grants allocations as presented in Table 4.11 and Table 4.16.

In the matter pertaining to the R&PW budget outlays, the study found out that the total outlay for the period under study was Kshs.140,305,451,383 billion with a yearly

average of Kshs.14,030,545,138.30 billion and a yearly average growth rate of 49.80%. It is of importance to note that the year 2005-06 had the highest growth rate of 181.09%. See Table 4.9 and Chart 4.5.

As regards to the R&PW budget in relation to the GDP, the study found out that the R&PW budget had a percentage to GDP that increased from 0.08% to 1.19% of the GDP through the whole period under study. See Table 4.12 and Chart 4.8.

As regard to the R&PW budget in terms of Per Capita expenditure, the study found out that Per Capita R&PW expenditure increased from a little more than Kshs.50.00 to Kshs.903.57 by 2010-11 reflecting a growth rate of 1,674.16%. It must be noted that from the year 2005-06 onwards, the Per Capita R&PW was of an increased rate as compared to the years 2000-01 to 2003-04. See Table 4.14 and Line Graph 4.3.

Comparative

Findings from the study revealed that between the RT&H budget and R&PW budget formats, there exists singular uniqueness that marks out the difference from one budget to the other. For example, Table 4.17 presents a list of Item Heads in the budgets in question which marks out the individual uniqueness. To begin with, the R&PW budget features an '*Institute of Highway & Building Technology*' which confirms that the R&PW budget allocates funds that are directed this institution with the aim of improving the road conditions in Kenya.

The other prominent difference between the RT&H budget and R&PW budget is what defines and outlines the disparities of the RT&H budget over and above the R&PW budget format. To bring this into perspective, the RT&H budget features elements such as '*BRDB Secretariat, NH Tribunals and Highway Administration, Schemes financed from*

CRF, Investments in Public Enterprises and Plan outlay for the North East Areas, Brief Explanation for the Budget Allocations Entries'. Therefore, this is to suggest that the R&PW budget format would be in good standing to consider budget components such as Border Road construction as a different entity, Highway Administration and Tribunals, and ventures into Public Enterprises among others.

Findings related to the yearly budget allocations for both RT&H and R&PW point out that for the Indian's RT&H budget had a total allocation of ₹6,679,968.66Cr and grew at an average rate of 13.60% whereas the Kenya's R&PW budget had a total allocation of KShs.140,305,451,383billion and grew at an average of 49.80% for the period under study. Therefore it is concluded that Kenya's R&PW budget grew at faster rate than the RT&H budget. See Table 4.18, Line Graph 4.4 and Chart 4.9.

Considering the budget allocation for road transport development in relation to the GDP, the study found out that the RT&H as percentage of GDP was between 0.26% and 0.48% where as R&PW has between 0.07% and 1.19% of GDP for the period under study. This is to suggest that R&PW budget had a superior allocation as opposed to the RT&H budget in terms of its percentage to the GDP. See Table 4.20 and Line Graph 4.5.

Considering the budget allocation for road transport development as Per Capita expenditure, the study found out that the Per Capita RT&H expenditure was between US\$1.54 and US\$4.55 whereas Per Capita R&PW expenditure was between US\$0.59 and US\$10.16 for the period under study. See Table 4.22 and Line Graph 4.6.

4.5.6 The sixth objective sought to evaluate the various heads of the Road Transport Development budget in India and Kenya and appraise their performance. These are the

different categories that the respective departments for Road development follow in the process of allocating funds for road development activities.

India:

In the case of India with respect to the current study, the RT&H budgets have major heads as Plan and Non-Plan formats which comprise of the Revenue and Capital heads for allocations. Findings from the current study show that the process of budget allocation seemed to follow a “80/20 Rule” i.e. the Plan budget comprised of 80% while the Non-Plan budget was at 20% of the total yearly allocations of the Revenue and Capital budgets. Further findings point out that the relationship between the Plan and Non-Plan allocation was inversely proportional i.e. considering the years 2005-06 to 2009-10 the Plan allocations exceeded the 80% mark while the Non-Plan allocations reflected inverse behavior e.g. 2005-06 showed a ratio of 85:15, 2008-09 posted a ratio of 88:12. See Table 4.4 and Chart 4.3.

Kenya:

In the case of Kenya, the budget heads for R&PW were comprised of General Administration and Planning (GA&P), Building and Works (B&W), Other Services (OS) and Roads. Findings from the study reveal that the head GA&P did not get allocations for the period 2000-01 to 2006-07 while B&W was not allocated for the period 2007-08 to 2010-11. But as for the heads OS and Roads, fund allocation was for the whole period under study with exception of 2004-05 that data was not available. Of the four heads, Roads got most of the chunk allocation to reflect a proportion of and KShs.134,954,823,494 (96%) of the total allocations for the period under study. See Table 4.11 and Chart 4.7.

4.5.7 The seventh objective sought to study the changes in percentage of budget allocations in Road Transport in regards to the total central Government budget. By this, the research study was in a position to determine the size of budget allocation for road development activities in relation to the central government budget. The findings are as follows.

India:

In the case of India, the study found out that the percentage proportion of the RT&H budget in the central GoI budget was between 1.79% (2004-05) of the central GoI budget as the least proportion and 2.66% (2006-07) of the central GoI budget as the highest. Cumulatively, the study found out that the total central GoI budget was ₹6,679,968.66Cr while that of the RT&H budget stood at ₹148,409.88Cr to give an average percentage proportion of 2.22% of RT&H budget in the Central budget. See Table 4.2 and Chart 4.2.

Kenya:

In the case of Kenya, the study found out that the percentage proportion of the R&PW budget in the central GoK budget was between 7.82% (2003-04) of the central GoK budget as the least proportion and 17.72% (2010-11) of the central GoK budget as the highest proportion. Cumulatively, the study found out that the total central GoK budget was to Kshs.941,344,633,794.00 billion while that of the R&PW budget stood at Kshs.140,305,451,383.00 billion to give an average percentage proportion of 14.90% for the R&PW budget in the Central budget. See Table 4.10 and Chart 4.6.

Comparative:

Findings from the study revealed that the yearly proportion of the RT&H budget against R&PW budget ranged between a minimum of 1.79% in 2004-05 and a maximum of 2.66% (2006-07) where as in the R&PW budget, it ranged between 7.82% (2003-04) of the central outlay and a maximum of 17.72% (2010-11). Further on, the RT&H budget proportion margin was of single digit figures for the period under study posting marginal growth in terms of percentage proportion while in the R&PW budget there were 7 years of double digit figures ranging from 11.14% (2001-02) and 17.72% (2010-11). This is to suggest that the R&PW budget experienced a vibrant and consistent growth in terms of outlay allocations as opposed to the trends revealed in the RT&H budget. See Table 4.19 and Chart 4.10.

4.5.8 The eighth objective sought to study the problems of Road Transport Development and suggest or prescribe solutions to resolve them. It is hereby noted that the problems of road transport development i.e. the negative externalities of road transport considered in this research work in regards to the comparative nature, that there are some which are common to both India and Kenya while there are those that are unique to the specific countries. The findings are as follows:

India:

In the case of India, the study found out that common problems of road transport development in India that had an emphasis and unique interest to the current research included: road safety and road accidents, low road capacity and congestion, mixed traffic, pollution, unstable road policy, poor highway amenities, shortage of funds, and multiple check posts for toll tax and octroi collection. Other featured problems of road transport in

India are listed on Table 3.20. The current research suggested solutions for the same problems and these are indicated on Table 3.21 such as: increased resource allocation to construct wider NHs, SHs, improved road infrastructure design to promote road safety, setting up of National Asset Administration System (NAAS) to evaluate road infrastructure assets, etc.

Kenya:

In the case of Kenya, the study identified the common problems of road transport development in Kenya and these possessed a unique interest to the current study. They included: road accidents, congestion, poor funding, lack of comprehensive and integrated transport policy framework, and taxes. Table 3.35 presents added problems of road transport development in Kenya whilst indicating the nature of these problems. It is to be noted that in meeting this objective, the current study prescribed solutions to the existing problems in the process of road development in Kenya. Some of the suggested recommendations include: setting up an Integrated Framework for Coordination and Cooperation between Road Agencies, Government ministries and stakeholders, raise investment capital from the financial markets, Government to promote R&D activities for road infrastructure, etc as indicated in Table 3.36.

References

1. Arasu, J.G. Valan. *Globalization and Infrastructural Development in India*. New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008.
2. Foster, Vivien and Cecilia Briceno-Garmendia. eds. *Africa's Infrastructure: A Time for Transformation*. Washington DC.: The World Bank, 2010.
3. Fozzard, Adrain. *Basic Budgeting Problem: Approaches to Resource Allocation in the Public Sector and their Implications for Pro-Poor Budgeting*. London: Overseas Development Institute, 2001.
4. Griffen, Charles C. et al. *Lives in the Balance: Improving Accountability for Public Spending in Developing Countries*. Washington DC.: Results for Development Institute, 2010.
5. Government of Kenya. *2008/2009 Estimates: Development Expenditure*. Nairobi: Government Printer, 2008.
6. Imas, Linda G. M. and Ray C. Rist. *The Road to Results: Designing and Conducting Effective Development Evaluations*. Washington D.C.: The World Bank, 2009.
7. Ministry of Finance (GoI). *India Budget 2008-2009: Expenditure Budget 2008-09 Vol. 1*. New Delhi: Ministry of Finance [GoI], 2008.
8. Randolph, Susan et al. *Determinants of Public Expenditure on Infrastructure: Transport and Communication*. Washington DC.: IMF, 1996.
9. Robinson, Marc and Duncan Last. *A Basic Model of Performance-based Budgeting*. Washington DC.: IMF, 2009.
10. Singh, Harendar M. "Revenue from Road Transport in India". *Journal of Business Management & Social Sciences Research*. " Vol. 3, No.4, April 2014, [17-24].
11. Wilkinson, Steven I. *The Politics of Infrastructural Spending in India*. Chicago: University of Chicago, 2006.

Websites

1. CBK, "Exchange Rates", [report online]; Internet; Available from <https://www.centralbank.go.ke/index.php/rate-and-statistics/exchange-rates-2>.Internet; Accessed on March 05, 2015.

2. Heggei, Ian G., “Management and Financing of Roads: An Agenda for Reform,” [article on-line]; Internet; Available from <http://www.ssatp.org/sites/ssatp/files/publications/WorldBank-TechnicalPapers/TP275/TP275.pdf>;Internet; Accessed December 05, 2014.
3. RBI, “Exchange Rates”, [report online]; Internet, Available from <http://dbie.rbi.org.in/DBIE/dbie.rbi?site=home-> ;Internet; Accessed on March 05, 2015.
4. World DataBank, “India”, [report online]; Internet; Available from <http://databank/worldbank.org/data/views/reports/tableview.aspx#> ; Internet; Accessed on March 05, 2015.
5. World DataBank, “India Population”,Internet; Available from <http://databank.worldbank.org/data/views/reports/tableview.aspx> ;Internet; Accessed on March 05, 2015.
6. World DataBank, “Kenya Population”,Internet;Available from <http://databank.worldbank.org/data/views/reports/tableview.aspx> ;Internet; Accessed on March 05, 2015.

CHAPTER 5

SUMMARY OF THE RESEARCH FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary, conclusions, and recommendations on a study that set out to assess the role of government in road transport development with respect to India and Kenya from 2000 to 2010. The study further aimed at exploring ways that could initiate better changes in the budget allocation process with appropriate allocation of the public expenditure on the State Road Transport Development Programs with the view of developing and benefiting the Geo-Economics of the respective countries. The study encompassed department budgets i.e. Road Transport & Highways (RT&H) for India as well as Road & Public Works (R&PW) for Kenya of the civil budgets from 2000 to 2010 selected as the area of research.

From analyzed data, research findings and the study objectives are discussed and interpretations on implications made. Conclusions and recommendations that are pertinent to this study are made based on analyzed data.

5.1. Summary of the Whole Study

This study analyzed the role of government in respect to budget allocations for RT&H (India) as well as R&PW (Kenya) of the civil budgets from 2000 to 2010. The study underscored the crucial role played by the government in various programs in place for Road Transport Development that are aimed at generating employment opportunities resulting to the increased levels of productivity, foster wealth accumulation and improved local environment among other things.

Chapter one of the research sets the background by highlighting the role of road transport in economic development i.e. road transport development: promotes regional development in the country; advances agricultural and industrial development; it is central to commercial activities through the movement of people, goods and services; that the welfare of the automobile industry depends on a robust road transport network; road transport contributes significantly to the development of rural areas and the backward regions thus reducing regional disparities; and directly or indirectly impacts the economic development through provision of employment, market facilitation, etc. Additionally, it further compared the role of governments in road transport development in the Europe as well as the USA in regards to economic and social problems, technology, research and development in road transport, and road safety. In the same chapter, a consideration was made into the role of FDI in road transport development as well as the problems and challenges facing the budget allocation process of road transport as well as emphasizing on the role of government in addressing the challenges faced by governments on land acquisition process to secure land for road development projects. Further on, chapter one presents the research design which outlines the methodology adopted for this research study. The research area covered the civil budgets for road transport development i.e. RT&H (India) and R&PW (Kenya) from 2000 to 2010. By use of purposive sampling method, the budgets for RT&H and R&PW in the concerned government Ministries were sampled for this study. The study used secondary data as it was a library-based research.

Chapter two considered the review of literature in which several topics were highlighted with the objective of constructing an appropriate ideology as to the role of

government in road transport development besides adding value to the current study. The topics covered included: transport problem, transport economics, the impact of transport development, the externalities of road transport, the role of government in transport development, resource allocation for transport development, and transport policy development.

Chapter three explored the appraisal of the countries under study i.e. India and Kenya. This chapter covered the history, location, agricultural performance, topography, population, irrigation, industrial development among many other areas. However, subjects of emphasis in country appraisal included such as the history of transport development system, the original and current status of road transport, road density, road development fund allocation, the externalities and problems of road transport development in the respective countries and also considered a host of recommended solutions for the same problems.

Chapter four critically evaluated the role of government through the civil budgets of the departments of road transport development in India and Kenya i.e. Road Transport & Highways (RT&H) and Roads & Public Works (R&PW) for the period of 10 years starting 2000 to 2010. Finally the findings of the study were discussed in light of the objectives and pertinent conclusion and recommendations drawn with respect to the available data.

The significance of this study was underscored as suggesting the best solutions in respect to the role of government in road transport development in India and Kenya with the objective of streamlining and furthering the effectiveness and efficiency of the process of resources allocation to achieve the laid aims and objectives of the Ministries of

Road Transport Development in India and Kenya as per the national development objectives.

5.2. Discussions and Interpretations of Major Findings from the Study Objectives

This study formulated objectives to consider the role of government in road transport development in India and Kenya from 2000 to 2010. The study further sought to understand the scope of transport development in general and road transport in particular considering that India and Kenya have a somewhat similar background in terms of history i.e. India and Kenya gained their independence from the same colonial masters and have similar geo-politics and socio-economics. The highlight of the study was focused on understanding the paths taken by the respective governments on the process of budget allocation for road transport development and therefore showcasing the role of government in the same process. The essence of the government playing a vital role in coordinating and facilitating the process of road transport development activities through a rationalized, efficient and effective process of budget allocation is of the need of the hour to spur rapid economic development. In a nutshell, the following were the spotlight of the study in terms of the study objectives:

1. To study the Role of the Government in Transport Development System.
2. To study the need of road transport development in relation to the population and the area of the country and the gap in between the need and the actual reality.
3. To study the history of Transport Development System in India and Kenya till 2011.

4. To study the status of Road Transport of India and Kenya from Independence till date.
5. To study the budget allocations for Road Transport Development with special reference to India and Kenya.
6. To evaluate the various heads of the Road Transport Development budget in India and Kenya and appraise their performance.
7. To study the changes in percentage of budget allocations in Road Transport in regards to the total central Government budget.
8. To study the problems of Road Transport Development and suggest or prescribe solutions to resolve them.

The research on “role of government in road transport development with respect to India and Kenya from 2000 to 2010” was based on two main research hypothesis which were supported by the computation of items in the study. These were:

1. The pressure for the need for development of road transport system in terms of quality and quantity leads the Government to increase the percentage of budget expenditure for Road Transport Development.
2. There is a similarity in the trends of budget allocations for Road Transport Development between India and Kenya during 2000 and 2010.

It is important to note that the researcher formulated supplementary hypotheses that were critical in the inferential statistical analysis. This was done with the purpose of integrating clarity in the process of analysis so as to achieve the desired results.

5.3. Findings Out of the Research Study

With the objective of arriving at a high quality outcome from the research exercise, the researcher partitioned the study into three main segments. In the first segment, the researcher did a total survey of road transport budget of India from 2000 to 2011. The areas of focus in the survey included a highlight of the civil budget document for the department of RT&H, survey of the total budget of the department of RT&H from 2000-2011. This was followed by a critical analysis of the RT&H budget in the GoI Central Budget from 2000-2011, further on an overview of the Head Wise survey of the RT&H budgets from 2000-2011 which focused on the Revenue and Capital allocations with reference to the Plan and Non-Plan formats. Further investigations considered the RT&H budget 2000-2011 as a percentage of GDP, GoI Central Budget 2000-2011 as a percentage of GDP, and lastly Per Capita RT&H of India for the years 2000-2011.

The second segment examined the budget as a total survey of road transport budgets for Kenya from 2000-2011. This also considered the greater outlines of the civil budget document for the Ministry of Roads and Public Works (R&PW), the survey of total budget for the Ministry of R&PW 2000-2011, a crucial analysis of the R&PW budget in the GoK Central budget from 2000-2011. Further on, the researcher explored an overview Head Wise Survey of the R&PW budgets from 2000-2011 in reference to GA&P, B&W, OS and Roads. The researcher also considered the R&PW budget 2000-2011 as a percentage of GDP, GoK Central Budget 2000-2011 as a percentage of GDP, and lastly Per Capita R&PW of Kenya for the years 2000-2011.

The third segment of the research exercise centered on the main objective of the study i.e. a comparative analysis of resource allocation process for road transport

development in India and Kenya. To begin with, the investigations considered the comparative aspects in the budget documents for the respective departments of road transport i.e. RT&H for India and R&PW for Kenya. Secondly, this was followed by an analysis on the comparison on the budget yearly percentages and incremental percentages of RT&H and R&PW for the years 2000-2011. Thirdly, the study further considered a comparison of the respective Departmental budgets to the Central budgets with an effort to study the proportionate percentages i.e. RT&H budget to GoI budget and R&PW budget to GoK budget for the period 2000-2011.

The fourth consideration compared the RT&H budget and R&PW budget as a percentage of GDP while the fifth comparison took into account of the central budgets i.e. GoI budget and GoK budget as a percentage of GDP to give an aerial view of the same. The sixth deliberation was on the comparison of Per Capita RT&H and Per Capita R&PW for the period 2000-2011 with respect to local currency unit and in dollar terms. In addition to that, the seventh point of comparison centered on Road Density Index of India and Kenya as well as a comparative analysis of Road Density of India and Kenya in relation to other countries such as 1st World countries, BRICS, East Africa Community, etc. Last but not least, inferential statistical analysis was done considering the variables: department budgets RT&H and R&PW, GoI central budget and GoK central budget, Per Capita RT&H and Per Capita R&PW, Road Density for India and Kenya and Per Capita Availability of Roads in India and Kenya.

5.3.1 The Major Findings Out of the Research Study are hereby observed:

1. A comparison of the civil budget documents for India and Kenya in regards to road transport development found out that the RT&H budget

document was much superior in terms of structure and design when compared to R&PW budget document i.e. the RT&H budget document is more comprehensive in meeting the needs for road development. The highlights in this respect are:

- i. Border Road Development Board.
 - ii. National Highway Tribunals & Highway Administration.
 - iii. Schemes financed from CRF/RMLF and Central government.
 - iv. Investments in Public Enterprises.
 - v. Dedicated Plan Outlays for North and North Eastern Region.
 - vi. Brief Explanation/Account for the Budget Allocation Entries.
2. A comparative consideration of the yearly budget percentages and growth rates revealed that RT&H budget allocation increased at an average rate of 13.60% while R&PW budget allocation increased at an average of 49.80% for the period 2000-2011.
 3. A comparative investigation into the proportionate percentage of the road transport budget to the Central budget revealed that RT&H had an average proportion of 2.22% to GoI central budget while R&WP had an average of 14.90% to the GoK central budget.
 4. The study found out that RT&H as a percentage to GDP increased from 0.26% to 0.47% to reflect a growth rate of 85.62% while R&PW as a percentage to GDP increased from 0.07% to 1.19% to reflect a growth rate of 1,600% for the period 2000-2011. Further findings state that RT&H as

a percentage to GDP held an average of 0.35% while R&PW as a percentage to GDP had an average of 0.50% during the same period.

5. The study found out that during the period 2000-2011, the GoI central budget as a percentage to GDP increased from 13.22% to 21.31% to reflect a growth rate of 61.20% while the GoK central budget as a percentage to GDP increased from 0.64% to 6.72% to reflect a growth rate of 950.00%. Further findings show that the percentage difference between the GoI central budget and GoK central budget reduced from 1,248% in 2000-01 to 212.35% in 2010-11.
6. The study found out that RT&H Per Capita increased from `73.55 to `212.03 to reflect a growth rate of 188.28% for the period under study while R&PW Per Capita increased from KShs.46.68 to KShs.903.57 reflecting a growth rate of 1,835.67% for the period under study.
7. The study found out that India's Road Density in 2000-01 increased from 101km/100sq.km to 143km/100sq.km in 2011-12 while Kenya's Road Density was static at 11km/100sq.km from 2000-11 only to increase to 28km/100sq.km in 2011-12.
8. The study found out that India's Per Capita Availability of Roads increased from 0.003km/person in the year 2000 to 0.004km/person in the year 2011 while Kenya's Per Capita Availability of Roads was constant at 0.002km/person in 2000 through to the year 2010 only to increase to 0.004km/person in 2011.

5.3.2 Findings out of the Inferential Statistical Analysis

For the purpose of improving the quality of the current research exercise, the researcher assessed the various variables considered in the data analysis of road transport development in India and Kenya by way of inferential statistical analysis. A summary of the findings is as follows:

1. No significant correlation existed among the variables RT&H Budget and Per Capita RT&H, RT&H Budget and Road Density in India, and Per Capita RT&H and Road Density in India as the p values were found to be less than 0.05. See Table 4.25.
2. No significant correlation existed among the variables GoK Budget, R&PW Budget, Per Capita R&PW, and Road Density in Kenya as the p values were found to be less than 0.05. See Table 4.26.
3. No significant association was found between Per Capita RT&H and the Road Density in India as the p values were found to be less than 0.05. See Table 4.27.
4. As the Road Density in Kenya over the period under study remained constant, the regression analysis for testing significance of association could not be carried out.
5. No significant difference was found in the rate of budget allocation for road transport development over the period under study in both the countries i.e. rate of budget allocation for RT&H and R&PW, as the p values were found to be greater than 0.05. See Table 4.28.
6. Significant association exists between Per Capita RT&H and Per Capita Availability of Roads in India as the p value was found to be more than 0.05. (See Table 4.29). However, it is noted that this association is of less significant impact.

7. As the Per Capita Availability of Roads in Kenya over the period under study remained constant, the regression analysis for testing significance of association could not be carried out.

5.4. Hypothesis Testing

Hypothesis testing was carried out and the summary is as follows. As regards to Hypothesis 1, the researcher employed Regression Analysis on Per Capita Expenditure on Road transport and Per Capita Availability of Roads. In the case of India, the p values of Regression Analysis was more than 0.05 thus the Null Hypothesis was accepted since it was found that there was significant association between the two tested variables as seen on Table 4.29. Consequently, the implication is such as that Government of India increased RT&H budget allocation due to the pressure for the need for development of road transport system in terms of quality and quantity. However, in the case of Kenya, since the Per Capita Availability of Roads remained constant for the period under study, regression analysis for testing significance of association could not be carried out.

As regards to Hypothesis 2, the researcher employed Chi-Square Test for similarity in the rate of increase for budget allocation for road transport in RT&H and R&PW. Since the p values were greater than 0.05, the null hypothesis was accepted and it was found that there was no significant difference in the rate of budget allocation in RT&H and R&PW during the period under study. For that reason, the implication is such that there is similarity in the trends of budget allocation for Road Transport Development between India and Kenya. See Table 4.28.

5.5. Conclusions

The research study has drawn the following conclusions:-

1. From this study, it was established that the first role of government in road transport development involves designing comprehensive budget documents for road transport development activities so that all the elements involved in road development process are catered for in an effort to provide depth. Therefore the study concludes that the budget document for R&PW is in dire need for attention in terms of defining a comprehensive structure and design so that it can match up with the RT&H budget document at the least.
2. From the study findings, it was established that in proportion to the Central budget, the R&PW budget was higher as compared to the RT&H budget. This was evident in that RT&H budget had an average proportion of 2.22% while R&PW budget stood at an average of 14.90% for the period under study. The study therefore concludes that this high performance of R&PW budget significantly contributed to the sharp rise of Road Density from 11km/100sq.km to 28km/100sq.km. Further, the study also concludes that the consistent yearly increase in India's Road Density from 101km/100sq.km to 143km/100sq.km is largely consequent to the stable RT&H budget allocations that gave an average of 2.22% in terms of RT&H and GoI central budget.
3. From the findings of the study, it was established that RT&H budget had an average of 0.35% as percentage to GDP while R&PW budget stood at an average of 0.50% as percentage to GDP for the period under study. The study therefore concludes that the performance of both budgets i.e.

RT&H and R&PW in terms of budget allocation (expenditure) was below 2% of GDP which should be the recommended minimum benchmark for any developing country with an interest in developing their road sector.

4. From the findings of the study, it was determined that the Per Capita RT&H and Per Capita R&PW was insufficient to have a significant impact on road development activities in India and Kenya over the period under study. It is to be noted that the calculation of the Per Capita Index is significantly determined by the size of the population as it was evident in the case of Per Capita RT&H (India's large population) when compared to Per Capita R&PW (Kenya). However, the study underscores to conclude that the same was inadequate to propel the agenda of road development activities in both countries and therefore the role of the government is to guarantee that Per Capita RT&H and Per Capita R&PW be significantly increased as pointed out in conclusion number 3 above so as to realize the desired road development ecosystem in India and Kenya.
5. From the findings of the study, it was revealed that Road Density for Kenya was static at 11km/100sq.km from 2000 to 2011 only to increase to 28km/100sq.km in 2011-12 and yet the R&PW budget increased at a yearly average of 49.80% during the same time while on the other hand, Road Density for India progressively increased from 101km/100sq.km to 143km/100sq.km on a RT&H budget that increased on a yearly average of 13.60%. The study therefore concludes that there must have been other factors at play that significantly influenced this behavior especially in the

case of Kenya which were not covered in the scope of this present study. It is also the conclusion of this study that the same shall be recommended for further research.

Table 5.1: Comparative Country Profile Summary

ITEM	INDIA		KENYA	
	2000-01	2010-11	2000-01	2010-11
Population (in Millions)	1,042,261,758	1,221,156,319	31,285,059	42,027,891
Area of Country	3,287,260 sq.km		582,646 sq.km	
Road Expenditure Allocation	7,844.36Cr	25562.77Cr	KShs. 1,593,331,376	KShs. 36,964,420,000
% of Total Road Exp. Allocation	5.29%	17.22%	1.14%	26.35%
Average Growth Rate for Road Expenditure Allocation	13.60%		49.80%	
% Proportion of Road Exp. Allocation in Central Budget	2.32%	2.31%	7.96%	17.72%
Average % Proportion of Road Exp. to Central Budget Allocation	2.22%		14.90%	
Road Expenditure Growth Rate as % to GDP	0.31%	0.48%	0.08%	1.19%
Road Exp. Average % GDP	0.35%		0.50%	
Central Budget Allocation	338,486.66Cr	1,108,749Cr	Kshs. 20,013,616,740	KShs. 208,623,477,194
Yearly % of Total Central Budge Allocation	5.07%	16.60%	2.13%	22.16%
Central Budget Growth Rate as % to GDP	13.22%	20.99%	0.98%	6.72%
Per Capita Road Expenditure	Rs.75.26	Rs. 212.03	KShs. 50.93	KShs. 905.57
Per Capita Road Exp. (US\$)	1.6	4.55	-	10.16
Per Capita Availability of Roads (km/person)	0.003	0.004	0.002	0.004
Road Density km/100sq.km	101	143	11	28
Road Length (in km)	3,325,765	4,690,342	63,942	160,886
Road Density World Ranking (2011)	30		93	
No of Road Accidents	407,497*	497,686*	13,407**	8,193**
No of Persons Killed	84,674*	142,485*	2,790**	3,302**
No of Persons Injured	408,711*	511,394*	26,618**	15,791**
No of Vehicles Registered	48,857 [@]	141,866 [@]	20,236	205,841

Key:*2002-11 **2001-11

@ Figs in 000s

5.6. Contribution of the Study

Out of this research study, the following are the contributions thereof:

- a) Out of the research findings, it has been highlighted that the budget documents for road transport development must be configured in a manner that the structure and design provides depth in terms of addressing the problems as well as the externalities of road transport in a comprehensive methodical approach. Therefore, the contribution hereby is that the policy makers for R&PW budget will be informed to propose and implement reforms in the following areas:
 - i. Border Road Development Programs.
 - ii. National Management System for Highway Administration.
 - iii. Supplementary Financial Programs for Road Transport outside the regular Road Transport budget.
 - iv. Venture into Investment in Public Enterprises for road transport development.
 - v. Separate Road Program through KRB for the development of roads in the North and North Eastern Regions of Kenya.
 - vi. Adding a brief Account/Explanation for Budget Allocations to the budget document to enhance transparency.
- b) Re-affirmation of the role of government in coordinating and facilitating of effective and efficient working systems, and frameworks between the Government, the Public, Private Financial Institutions to create a growth

impulse in the Economy through a vibrant infrastructure development program i.e. road transport infrastructure and transport in general.

- c) Out of the findings from this study the policy makers especially in the Kenyan government, not limited to Road Transport but also Transport Development in general i.e. rail, water, and air, significantly benefit from the comparative analysis of the two structural systems of resource allocation which showcases their strengths and distinctive attributes e.g. the distinctive attributes of the RT&H budget document.
- d) Considering the findings on the problems and negative externalities of Road Transport in Kenya and India, the study suggests unique recommendations which are core in the contributions of the study. These unique recommendations will significantly contribute to the development of Road Transport ecosystem e.g. the setting up of an Integrated Framework for coordination between road agencies and government departments, and the establishment of National Asset Administration Systems (NAAS).
- e) The current study is a first of the analytical and yet comparative investigation on the role of government with respect to resource allocation for road transport. This is a contribution in that it is from this point that further research can be done on various aspects of the role of governance in light to resource allocation to transport infrastructure development in general.

5.7. Researcher's Plan

Having concluded the research study and considering the findings and the recommendations for practice and future research, the researcher anticipates the following:

- 1.** To engage with the policy makers of the County government of Kisii in Kenya with the objective of showcasing the findings and recommendations of the study so that reforms can be instituted wherever applicable through the appropriate channels of the County government to further propel the agenda of road infrastructure development in the County government. Areas of emphasis will include while not limited to: budget document preparation, structure for coordination and integration of Road agencies with County and Central government, capital-raising capabilities, prudence in use of road funds, performance based budgeting, road safety, etc.
- 2.** To engage with the policy makers of the Central government of Kenya in the Ministry of Transport with the intention of highlighting the findings and recommendations of this study whilst aligning them closely to the National Development needs and Vision 2030 and also consider implementing the listed recommendations of the current study. The areas of emphasis at national level include and are not limited to: recalibration of the budget document for road transport, reforms on increased capital raising capabilities for road transport development, R&D activities and

technology transfer in transport, promoting FDI climate, intensified implementation of the National Transport policy, among others.

3. The researcher anticipates advancing academic research both at individual and institutional level in transport infrastructure development. This can be achieved through collaboration with higher technical institutions of learning in Kenya in conjunction the researchers, economists, policy makers of the government departments, NGOs, and other International development partners and institutions as well as governments.

5.8. Recommendations

A number of recommendations are made based on the findings of this study. They are hereby classified into recommendations for Practice, collaboration and Future Research. They are:

5.8.1. Recommendations for Practice

i). Kenya

1. Policy makers in the Department of Transport to design an enhanced budget document for road transport borrowing a leaf from the Indian counterparts and other developed countries. This will be an effort to increase the depth for service delivery in addressing the problems of road transport in Kenya in a comprehensive, innovative manner to reflect a sound mid-term outlook of the nation's development objectives as well as a long term outlook in Kenya's Vision 2030.
2. Develop a consistent, uniform system of resource allocation in the R&PW budget document in regards to budget heads i.e. GA&P, B&W, OS and

Roads, so as to avoid skewness in allocation as well as effect a departure from the series of blank entries which can be exploited for corruption.

3. The County Government and Central Government of Kenya to play the role of facilitating and coordinating in improving the FDI climate in Kenya with the objective of attracting FDI for Road Infrastructure Development in particular and for economic development in general.
4. The Central government of Kenya and County governments to plug up corruption among the politicians and bureaucracy in core and line ministries related to Road Development as well as in road infrastructure development projects so as the funds will be utilized effectively and efficiently.
5. Strict implementation of the 18 recommendations in Table 3.36 with respect to solutions for problems in road transport development in Kenya.
6. The Central and County governments of Kenya to observe global standards in collection, recording, storage and standardization of all relevant government statistics by use of technology so as to readily avail it for research purposes to academic institutions, NGOs, research institutions, governments, etc.

ii). India

1. Policy makers for RT&H to bring about budget allocations that are consistent and vibrant in terms of size of allocation which will spur increased growth rates in resource allocation and thus translate to real growth in road development.

2. The Central government of India as well as the State governments to significantly create an enabling environment for a thriving FDI climate to encourage and sustain more road infrastructure development through FDI.
3. A rigorous achievement of the 18 recommendations in Table 3.21 in regards to the suggested solutions for problems in road transport development in India.

iii). Kenya and India

1. The central governments of State/Country governments of Indian and Kenya to implement the best practices of budget preparation and execution to promote efficiency and effectiveness in public expenditure on road transport development as per the IMF and World Bank standards and recommendations.
2. Policymakers to factor the population density index in regards to resource allocation for road transport development so as to take into account its impact on road density and road transport development in general.
3. Policymakers and bureaucrats in the ministries of RT&H and R&PW to desist from the dysfunctional system of incremental budgeting which encourages inefficiency and waste of public finance.
4. The Central governments and State/County governments of India and Kenya to significantly increase the budget allocation for road transport development to a minimum of 2% of GDP with the objective of addressing the chronic systemic issues of unsteady and insufficient flow

resource thus eventually work towards increased road network development.

5. The Central governments and State/County governments of India and Kenya to effectively play the role of facilitating and integrating the road transport network in a seamless manner with the objective of improving the distribution people, industries and incomes.
6. The governments of Kenya and India to institute a regulatory framework that focuses on tackling the socio-economic problems of the road transport sector.
7. The governments of Kenya and India to develop State-Of-The-Art R&D facilities to develop indigenous yet innovative green technology solutions that can be employed in the road transport sector with respect to road safety and sustainability in road structure and engineering.
8. Further address the question of road safety by ensuring that the processes of planning and building of road infrastructure is of high scientific standards whilst developing solutions to the existing problems.
9. Establish an enabling environment to guarantee that government policies on road transport development are not dragged into politics and/or bureaucracy thus impeding the process of road infrastructure development but rather institute mechanisms that take into consideration the technical and systematic aspects in budget preparation and execution.
10. The Central governments of India and Kenya to encourage the State/County governments to create and implement their own customized

solutions unique to the prevailing problems on the ground in regards to road transport problems i.e. design of budget document and its policies, road infrastructure administration, etc.

11. The India and Kenya governments invest on capacity building in terms of role execution to advocate good governance and provide an enabling environment for sound resource mobilization in public finance administration.

iv). Collaborations

The following are recommendations for collaborations between the governments of India and Kenya in respect to Road Transport Development. These are:

1. Policy makers for Road Transport in India and Kenya governments to collaborate in structural design of road transport budget documents with the aim of improving the effectiveness and efficiency of the process to bring about the desired results keeping in mind that the budget policies address the local needs specific to the country.
2. The National Highway Authority of India (NHAI) and Kenya Roads Board (KRB) to collaborate together with the objective of sharing ideas, information and best practices on road engineering to improve the road transport ecosystem in Kenya and India.
3. Transfer of Road Transport Technology from India to Kenya since India leads in the manufacture of indigenous and innovative hardware i.e. machinery and software that can be applied to solve the externalities of road transport in Kenya.

4. Establish an over-arching bilateral framework that supports Road transport development in particular and also in transport development in general to facilitate creativity, efficiency and productivity in economic growth.

5.8.2. Recommendations for Future Research

1. Findings from the research show that R&PW had a better budget allocation i.e. yearly average allocation increase of 49.80% compared to RT&H at 13.60%. However, according to the Road Density Index by the World Bank, the Road Density of Kenya was static at 11km/100sq.km for 10 years only to sharply increase to 28km/100sq.km in 2011 while that of India grew gradually from 101km/100sq.km to 143km/100sq.km over the same period of time. It is hereby recommended that further research be conducted to investigate as to how the policies of RT&H are more effective in translating resource into real growth in terms of road length while the policies for R&PW are not as effective.
2. The research findings showed that there were similarities in the trends of budget allocations for RT&H and R&PW in the year 2005-06 i.e. highest growth rate of budget allocations for RT&H (55.19%) while R&PW (181.09%). Further study is highly encouraged in this respect to understand what factors (either specific to country or collectively or global in nature) that determined this similarity in increased growth rates during the same year.
3. The study was confined to the role of government in road transport development with an underlying emphasis on resource allocation whilst highlighting the comparative perspective of India and Kenya. It is consequently recommended that the study be simulated on an expansive sample of more variables and various

elements in economic governance and their impact on the macroeconomics of the country.

4. Further research is recommended to determine how the government can effectively and efficiently allocate public finance through road transport development with an emphasis on need-based budgeting for removal of regional disparities to promote even development activities in both in India and Kenya.

BIBLIOGRAPHY

Books

1. Ahmed, Raisuddin and Cynthia Donovan. *Issues of Infrastructure Development: A Synthesis of the Literature*. Washington D.C.: International Food Policy Research Institute, 1992.
2. Amarasinghe, Upali A. et al. eds. *Strategic Analysis of National River Linking Project (NRLP) of India Series 1: India's Water Future-Scenarios and Issues*. New Delhi: International Water Management Institute, 2009.
3. Arasu, J.G. Valan. *Globalization and Infrastructural Development in India*. New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008.
4. Ayaga, George. et al. *Policy Dialogue in Kenya: Urban and Pre-Urban Agriculture Policy Prospects in Kenya*. Lima: Urban Harvest-International Potato Center, 2005.
5. Bailey, Jim. *Kenya: The National Epic*. Nairobi: Kenway Publication Ltd., 1993.
6. Bajpal, Peeyush., L. Bandhari and A. Sinha. *Social and Economic Profile of India*. New Delhi: Indicus Analytics, 2005.
7. Bamford, Colin G. *Transport Economics*. 2nd ed. Oxford: Heinemann Educational Publishers, 1998.
8. Banister, David. ed. *Transport and Urban Development*. London: E&FN Spon, 2005.
9. Bansil, P.C. *Water Management in India*. New Delhi: Concept Publishing Company, 2004.
10. Batta, Ravinder N. *Economics of Road Transport*. Delhi: Kalpaz Publications, 2008.
11. Beenhakker, Henri L., S. Carapetis, L. Crowther and S. Hertel. *Rural Transport Services: A Guide to their Planning and Implementation*. London: Intermediate Technology Publications, 1987.
12. Bhaduri, Sukla. *Transport and Regional Development: A Case Study of Road Transport of West Bengal*. New Delhi: Concept Publishing Company, 1992.
13. Bhardwaj, A.P. *Study Packet for CLAT and LLB Entrance Examinations*. New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2010.

14. Bhushan, Kul. *Kenya Fact Book 2000-2001*. 16th ed. Nairobi: Newsread International, 2000.
15. Black, Alan. *Urban Mass Transportation Planning*. New York: McGraw-Hill, Inc., 1995.
16. Blackwell, Fritz. *India: A Global Studies Handbook*. California: ABC-CLIO, 2004.
17. Blank, Herbert G. Clifford M. Meturo & H. Murray-Rust. eds. *The Changing Face of Irrigation in Kenya: Opportunities for Anticipating Change in Eastern and Southern Africa*. Colombo: International Water Management Institute, 2002.
18. Blarcom, Bonni van. et al. *The Reform of Public Expenditures for Agriculture*. Washington D.C., The World Bank, 1993.
19. Borger, Bruno De and Steef Proost. ed. *Reforming Transport Pricing in the European Union: A Modeling Approach*. United Kingdom: Edward Elgar Publishing Limited, 2001.
20. Bowden, Rob. *Countries of the World: Kenya*. London: Evans Brothers Ltd., 2007.
21. Bunting, Mark. *Making Public Transport Work*. Quebec: McGill-Queen's University Press, 2004.
22. Button, Kenneth and Aura Reggianni. *Transportation and Economic Development Challenges*. United Kingdom: Edward Elgar Publishing Limited, 2011.
23. Central Bureau of Statics. *Statistical Abstract 2003*. Nairobi: CBS, 2003.
24. Chalifour, Nathalie J. et al. eds. *Land Use Law for Sustainable Development*. London: Cambridge University Press, 2007.
25. Chaturvedi, M.C. *India's Waters: Environment, Economy and Development*. Florida: CRC Press, 2012.
26. Chopra, P.N. et al. *A Comprehensive History of Modern India*. New Delhi: Sterling Publishers Pvt. Ltd., 2003.
27. Cook, Cynthia C. ed. *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction*. Philippines: Asia Development Bank, 2005.
28. _____. *Involuntary Resettlement in Africa: Selected Papers from a Conference on Environment and Settlement Issues in Africa*. Washington D.C.: The World Bank, 1994.

29. Cowie, Jonathan. et al. *The Economics of Transport: A Theoretical and Applied Perspective*. Abingdon: Routledge, 2010.
30. Crafter, S.A, S.G. Njuguna & G.H. Howard. eds. *Wetlands of Kenya*. Switzerland: IUCN, 1992.
31. Daniels, Steve. *Making Do: Innovation in Kenya's Informal Sector*. USA: Creative Common Attribution, 2010.
32. Das, Sachita Basu. ed., *Enhancing Asean's Connectivity*. Singapore: Institute of Southeast Asian Studies, 2013.
33. Dell, Ronald M. et al. *Towards Sustainable Road Transport*. United Kingdom: Elsevier Inc., 2014.
34. Department of Transport, UK Government. *Strategic Framework for Road Safety*. London: UK Government, May 2011.
35. Donaldson, David J. et al. *Foreign Direct Investment in Infrastructure: The Challenges of Southern and Eastern Africa*. Washington D.C.: The World Bank, 1997.
36. ECMT. 15th International Symposium on Theory and Practice in Transport Economics, "Key Issues for Transport Beyond 2000". Thessaloniki: ECMT, 2000.
37. _____. *Fifty Years of Transport Policy: Success, Failures & New Challenges*. Paris: OECD Publication Services, 2003.
38. _____. *Reforming Transport Taxes*. Paris: OECD Publishing Services, 2003.
39. _____. *Road Safety Performance: National Peer Review-Lithuania*. France: OECD Publication Service, 2004.
40. _____. *Social Aspects of Road Transport*. France: OECD Publications Services, 1999.
41. _____. *Transport and Economic Development: Round Table 119*. Paris: OECD Publishing Services, 2002.
42. _____. *Transport Services: The Limits of (De)Regulation*. Paris: OECD Publishing Services, 2006.
43. Focas, Caralamopo. ed. *Transport Issues and Problems in Southeastern Europe*. England: Ashgate Publishing Ltd., 2004.

44. Foster, Vivien and Cecilia Briceno-Garmendia. eds. *Africa's Infrastructure: A Time for Transformation*. Washington DC.: The World Bank, 2010.
45. Fozzard, Adrain. *Basic Budgeting Problem: Approaches to Resource Allocation in the Public Sector and their Implications for Pro-Poor Budgeting*. London: Overseas Development Institute, 2001.
46. Ganguly, S., L Diamond and M.F. Platter. eds. *The State of India's Democracy*. USA: The John Hopkins University Press, 2007.
47. Gopal, Lallanji and V.C. Srivastava. *History of Agriculture in India, Upto C. 1200AD*. New Delhi: Concept Publishing Company, 2008.
48. Government of Kenya. *2001/2002 Estimates-Development Expenditure*. Nairobi: Government Printer, 2001.
49. _____. *2008/2009 Estimates: Development Expenditure*. Nairobi: Government Printer, 2008.
50. _____. *2009 Kenya Population & Housing Census Vol.1A*. Nairobi: Kenya National Bureau of Statistics, 2010.
51. Gregory, Robert G. *Quest for Equality: Asian Politics in East Africa, 1900-1967*. New Delhi: Oriental Longman Ltd., 1993.
52. Griffen, Charles C. et al. *Lives in the Balance: Improving Accountability for Public Spending in Developing Countries*. Washington DC.: Results for Development Institute, 2010.
53. Gunti, Ajaat. *Liberalization of Indian Economy: Issues Involving Scope of Foreign Direct Investment and Its Impact on the Indian Economy*. Hamburg: Institute for International Management, 2002.
54. Hashim, S.R. et al. eds. *Indian Industrial Development and Globalization: Essays in Honor of Prof S.K. Goyal*. New Delhi: Academic Foundation & ISID, 2009.
55. Headicar, Peter. *Transport Policy and Planning in Great Britain*. Abingdon: Routledge, 2009.
56. Hope, Nicholas C. et al. eds. *Economic Reforms in India: Challenges, Prospects and Lessons*. Cambridge: Cambridge University Press, 2013.
57. Hornsby, Charles. *Kenya: A History Since Independence*. New York: I.B. Tauri & Company Ltd., 2012.

58. Hull, Angela. *Transport Matters: Integrated Approaches to Planning City-Regions*. Abingdon: Routledge, 2011.
59. Hulten, Charles R. *Transportation, Infrastructure, Productivity and Externalities*. USA: National Bureau of Economic Research, 2005.
60. Husain, Majid. *Geography of India*. New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2009.
61. _____. *Geography of India*. 3rd ed. New Delhi: Tata McGraw-Hill Education Pvt. Ltd., 2012.
62. ILCA Bulletin. *Economic Trends: Dairy Products*. Addis Ababa: ILCA, 1979.
63. ILRI. *Kenya Adaptation to Climate Change in the Arid Lands: Anticipating, Adapting to and Coping with Climate Risks in Kenya – Operational Recommendations for KACCAL*. Nairobi: ILRI, 2007.
64. Imas, Linda G.M. and Ray C. Rist. *The Road to Results: Designing and Conducting Effective Development Evaluations*. Washington D.C.: The World Bank, 2009.
65. Jain, S.K., P.K. Agarwal and V.P. Singh. *Hydrology and Water Resources of India*. Netherlands: Springer, 2007.
66. Jain, T.R. et al. *Microeconomics and Indian Economy*. New Delhi: V.K. Publications, 2009-10.
67. Jegandishi, P. and G. John Gunaseelan. eds. *Indian Transport System: An Appraisal of Nationalized Bus Service*. New Delhi: Mittal Publications, 1994.
68. Jha, L.K. and P.K. Sen-Sarma. eds. *Forest Entomology*. New Delhi: A.P.H Publishing Corporation, 2008.
69. Johari, J.C. *The Constitution of India: A Politico-Legal Study*. 4th ed. New Delhi: Sterling Publishers Pvt. Ltd., 2007.
70. Jonson, G. and E. Tengstrom. eds. *Urban Transport Development: A Complex Issue*. Germany: Springer, 2005.
71. Kanafani, Adib. *Transportation Demand Analysis*. New York: McGraw-Hill Book Company, 1983.
72. Kapila, Uma. ed. *India's Economic Development Since 1947*. 3rd ed. New Delhi: Academic Foundation, 2008.

73. Kenya National Bureau of Statistics. *Economic Survey 2013*. Nairobi: KNBS, 2013.
74. Kenya Roads Board. *Change Ahead: Kenya Roads Board Strategic Plan 2008-2012*. Nairobi: KRB, 2007.
75. Kessides, Christine. *The Contributions of Infrastructure to Economic Development: A Review of Experience and Policy Implications*. Washington D.C: World Bank Publications, 1993.
76. Kiringai, Jane and Wolfgang Fengler. *Kenya Economic Update*. Nairobi: World Bank, 2010.
77. Krishna, K.R. *Agroecosystems of South India: Nutrient Dynamics, Ecology and Productivity*. Florida: Brown Walker Press, 2010.
78. Kumar, Rajiv and Abhijit Sen Gupta. eds. *India and the Global Economy*. New Delhi: Academic Foundation, 2008.
79. Kunaka, Charles. et al. *Quantitative Analysis of Road Transport Agreements – QuARTA*. Washington D.C.: The World Bank, 2013.
80. Lafargue, Jerome. ed. *The General Elections in Kenya, 2007*. Nairobi: IFRA, May-August 2008.
81. Lee, Der-Horng. ed. *Urban and Regional Transportation Modeling*. United Kingdom: Edward Elgar Publishing Limited, 2004.
82. Lemieux, Fredrick. et al. eds. *Economic Development, Crime and Policing: Global Perspectives*. Florida: CRC Press, 2015.
83. Litman, Todd. *Evaluating Transportation Economic Development Impacts*. USA: Victoria Transport Policy Institute, 2010.
84. Lok Sabha Secretariat (GoI). *National Highway Development Project: An Overview*. New Delhi: LARRDIS, August 2013.
85. Martin, Paul. et al. eds. *Environmental Governance and Sustainability*. United Kingdom: Edward Elgar Publishing Ltd., 2012.
86. Masundu, S.J.W. *Kenya: An Official Handbook*. Nairobi: Ministry of Information and Broadcasting, (GoK), 1988.
87. Mathur, B.L. *Towards Economic Development*. New Delhi: Discovery Publishing House, 2001.

88. Mehta, Udai S. *Research Study of the Road Transport Sector in India*. New Delhi: Ministry of Corporate Affairs, (GoI), 2012.
89. Menzies, Nicholas K. *Our Forest, Your Ecosystem, Their Timber: Communities, Conservation, and the State in Community-Based Forest Management*. New York: Columbia University Press, 2007.
90. Michael, A.M. *Irrigation: Theory and Practice*. New Delhi: Vikas Publishing House Pvt. Ltd., 2008.
91. Ministry of Finance. *Economic Survey of India 2013-14*. New Delhi: Government of India, 2014.
92. Ministry of Finance (GoI). *India Budget 2008-2009: Expenditure Budget 2008-09 Vol 1*. New Delhi: Ministry of Finance (GoI), 2008.
93. Ministry of Roads. *Policy On Aligning The Roads Sub-Sector With The Constitution*. Nairobi: GoK, 2012.
94. _____. *Roads 2000 Strategic Plan 2013-2017*. Nairobi: Ministry of Roads, 2012.
95. Ministry of Roads Transport & Highways (Transport Research Wing). *Road Accidents in India 2011*. New Delhi: MoRTH, 2011.
96. Moran, Theodore H. *Foreign Direct Investment and Development: Launching a Second Generation Policy Research*. Washington D.C.: Peterson Institute for International Economics, 2011.
97. Morichi, Shigeru and Surya R. Acharya. eds. *Transport Development in Asian Megacities: A New Perspective*. Berlin: Springer-Verlag, 2013.
98. MoSRTTH. *Guidelines for Investment in Road Sector*. New Delhi: Government of India, 2009.
99. Nag, Prithvish and Smita Sengupta. *Geography of India*. New Delhi: Concept Publishing Company, 2002.
100. Nilsson, Mans. et al. eds. *Paving the Road to Sustainable Transport: Governance and Innovation in Low-Carbon Vehicles*. New York: Routledge, 2012.
101. Njogu, Kimani. ed. *Defining Moments: Reflections on Citizenship, Violence and the 2007 General Elections in Kenya*. Nairobi: Twaweza Communication Ltd., 2011.

102. Nyoro, J.K. and H.K. Muiruri. *Policies for Agricultural Sustainability in Kenya*. London: International Institute for Environment and Development, 2001.
103. Obudho, R.A. and J.B. Ojwang'. eds. *Issues in Resource Management and Development in Kenya: Essays in Memory of Prof. Simon H. Ominde*. Nairobi: East African Educational Publishers Ltd., 2000.
104. Ochieng', W.R. and R.M. Maxon. eds. *An Economic History of Kenya*. Nairobi: East African Educational Publishers Ltd., 1992.
105. Ochieng', William. ed. *Historical Studies and Social Change in Western Kenya: Essays in Memory of Professor Gideon S. Were*. Nairobi: East African Educational Publishers Ltd., 2002.
106. OECD. *Asset Management for Roads Sector: Transport*. France: OECD Publication Services, 2001.
107. _____. *Decoupling the Environmental Impacts of Transport from Economic Growth*. Paris: OECD Publishing Services, 2006.
108. _____. *Impact of Transport Infrastructure Investment on Regional Development*. Paris: OECD Publishing Services, 2002.
109. _____. *Infrastructure to 2030 (Vol. 2): Mapping Policy for Electricity, Water and Transport*. Paris: OECD Publishing, 2007.
110. _____. *Intermodal Freight Transport: Institutional Aspects*. France: OECD Publication Services, 2001.
111. Okoth, A. and A. Ndaloh. *Social Studies*. Nairobi: East African Educational Publishers Ltd., 2008.
112. O'Sullivan, Patrick. *Transport Policy: An Interdisciplinary Approach*. New Jersey: Barnes & Noble Books, 1980.
113. Palma, Andre De. et al. eds. *A Handbook of Transport Economics*. United Kingdom: Edward Elgar Publishing Limited, 2011.
114. Planning Commission (GoI) 2008. *Eleventh Five Year Plan 2007-2012: Inclusive Growth Vol. II* New Delhi: Oxford University Press, 2008.
115. Planning Commission (GoI) 2013. *Twelfth Five Year Plan 2012-2017: Faster, More Inclusive and Sustainable Growth*. New Delhi: Sage Publications Pvt. Ltd., 2013.

116. Pletcher, Kenneth. ed. *The Geography of India: Sacred and Historic Places*. New York: Britannica Educational Publishing, 2011.
117. Prakash, B.A. ed. *The Indian Economy Since 1991: Economic Reforms and Performance*. India: Pearson Education, 2009.
118. Public Works Department, Government of Kerala. *Kerala Road Development Policy 2009-21*. Thiruvananthapuram: Government of Kerala, 2009.
119. Qazi, S.A and N.S. Qazi. *Natural Resource Conservation*. New Delhi: A.P.H. Publishing Corporation, 2007.
120. Queiroz, Ceaser and Surhid Gautam. *Road Infrastructure and Economic Development: Some Diagnostic Indicators*. Washington D.C.: World Bank, 1992.
121. Quinet, Emile and Roger Vickerman. *Principles of Transport Economics*. Massachusetts: Edward Elgar Publishing, Inc., 2004.
122. Ramani, Shyma V. ed. *Innovation in India: Combining Economic Growth and Inclusive Development*. United Kingdom: Cambridge University Press, 2014.
123. Ranade, Prabha S. *Infrastructure Development and Its Environmental Impact: Study of Konkan Railway*. New Delhi: Concept Publishing Company, 2009.
124. Randolph, Susan et al. *Determinants of Public Expenditure on Infrastructure: Transport and Communication*. Washington DC.: IMF, 1996.
125. Razi, M. and A. Aggarwal. *Transport Geography of India: Commodity Flows and Regional Structure of Indian Economy*. New Delhi: Concept Publishing Company, 1999.
126. Reddy, K.K. *History: General Studies*. New Delhi: Tata McGraw-Hill Publishing Company Ltd., 2006.
127. Reitveld, Piet and Richard Stough. eds. *Barriers to Sustainable Transport: Institutions, Regulation and Sustainability*. Abingdon: Spon Press, 2005.
128. Robinson, Marc and Duncan Last. *A Basic Model of Performance-based Budgeting*. Washington DC.: IMF, 2009.
129. Rodrigue, Jean-Paul. et al. *The Geography of Transport Systems*. 3rd ed. New York: Routledge, 2013.

130. Rottengatter, Werner. et al. eds. *Transport Moving to Climate Intelligence: New Chances for Controlling Climate Impacts of Transport after the Economic Crisis*. New York: Springer, 2011.
131. Rubin, Irene S. ed. *New Direction in Budget Theory*. USA: State University of New York Press, 1988.
132. Samantha, P.K. and A.K. Mohanty. *Port Infrastructure and Economic Development*. Delhi: Kalpaz Publication, 2005.
133. Schmidtchen, Dieter. et al. *Transport, Welfare and Externalities: Replacing the Polluter Pay Principle with the Cheapest Cost Avoidance Principle*. United Kingdom: Edward Elgar Publishing Limited, 2009.
134. Shah, Anwar. ed. *Public Sector Governance and Accountability Series: Budgeting and Budgetary Institutions*. Washington D.C: The World Bank, 2007.
135. Sharma, M.D. *Paramilitary Forces of India*. Delhi: Kalpaz Publications, 2008.
136. Shira, Dezan. et al. *Doing Business in India*. New York: Asia Briefing Ltd., 2012.
137. Shree, Deepa. *Indian Economy: Performance and Policies*. New Delhi: Tata McGraw-Hill Publishing Company, 2008.
138. Shringare, Alaknanda. *Party Politics and Democratic Governance in India*. New Delhi: Concept Publishing Company, 2009.
139. Smith, Andrian J. *Privatized Infrastructure: The Role of Government*. London: Thomas Telford Publishing, 1999.
140. Sinha, Kumares C. and Samuel Labi. *Transportation Decision Making: Principles of Project Evaluation and Programming*. New Jersey: John Wiley & Sons, 2007.
141. Sobania, Neal. *Culture and Customs of Kenya*. USA: Greenwood Press, 2003.
142. Soja, Edward W. *The Geography of Modernization in Kenya: A Spatial Analysis of Social, Economic and Political Change*. New York: Syracuse University Press, 1968.
143. Spurling, David J. *Introduction to Transport Economics: Demand, Cost, Pricing and Adoption*. Florida: Universal Publishers, 2010.
144. Staff Research. *Competitive Conditions for Foreign Direct Investment in India*. USA: Office of Industries, US International Trade Commission, 2007.

145. Stover, Vergil G. and Frank J. Loepke. *Transportation and Land Development*. New Jersey: Prentice Hall, 1988.
146. Thorpe, Edgar and Showick Thorpe. *General Studies Manual*. New Delhi: Dorling Kindersley, 2009.
147. Throup, David and Charles Hornsby. *Multi-Party Politics in Kenya: The Kenyatta and Moi States and the Triumph of System in 1992 Elections*. Nairobi: East African Education Publishers, 1998.
148. Transport Research Board. *Building the Road Safety Profession in the Public Sector: Special Report 289*. USA: National Academy of Science, 2007.
149. United Nations Environmental Programme. *Sustainable Trade and Poverty Reduction*. Nairobi: UNEP, 2003.
150. Vaidaya, Balkrishna C. ed. *Geography of Transport Development in India*. New Delhi: Concept Publishing Pvt. Ltd., 2003.
151. Vajpeyi, Dharendra K. *Deforestation, Environment, and Sustainable Development: A Comparative Analysis*. USA: Greenwood Publishing Group, 2001.
152. Varghese, Alexander P. *India: History, Religion, Vision and Contribution to the World*. New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008.
153. Victor, D. Johnson and S. Ponnuswamy. *Urban Transportation: Planning, Operation and Management*. New Delhi: Tata McGraw-Hill, 2012.
154. Wasike, Wilson S.K. *Road Infrastructure Policies in Kenya: Historical Trends and Current Challenges*. Nairobi: KIPPRA, 2001.
155. Wandiba, Simiyu and Joseph Turanira. *Social Studies for Primary Schools*. Nairobi: East African Education Publishers Ltd., 2005.
156. Wilkinson, Steven I. *The Politics of Infrastructural Spending in India*. Chicago: University of Chicago, 2006.
157. Yadav, Hridai R. *Agro-Afforestation Management on Wastelands*. New Delhi: Concept Publishing Company Pvt. Ltd., 2011.

Articles

1. Abala, Daniel O. "Foreign Direct Investment and Economic Growth: An Empirical Analysis of Kenyan Data," *DBA African Management Review*, Vol. 4, No.1 (2014): 62-83.
2. Blum, Ulrich. "Positive Externalities and Public Provision of Transportation Infrastructure: An Evolutionary Perspective" *Journal of Transportation and Statistics*, (1998):87-88.
3. Kawakami, Tetsu. et al. "Economic Impacts of Intelligent Transportation System: Innovations and Case Studies" *Research in Transportation Economics*, Vol. 8, (2004), 525-547.
4. Mumpipila, Christopher. "Internalizing the Externalities of Public Transport in Botswana". *Botswana Journal of Economics*, Vol. 5. NO. 7, (2008): 48-50.
5. OECD. "Developing International Expertise Through Research Co-operation". *Road Transport Research Outlook 2000* (1997): 52-54.
6. _____. "Road Transport Research Outlook 2000". *Road Transport Research* (1997): 46.
7. Rao, Amudapuram M. and Kalaga R. Rao, "Measuring Urban Traffic Congestion." *International Journal for Traffic and Engineering*, (2012) 2(4): 286-305.
8. Riha, Zdenek and Marek Honcu. "Transport, Energy, Externalities and their Relation to Economic Output." *International Journal of Energy*, Issue 3, Vol. 6, (2012): 89-95.
9. Santos, Georgina. et al. "Externalities and Economic Policies in Road Transport (part 1)." *Research in Transportation Economics* 28 (2010):2-45.
10. Singh, Harendar M. "Revenue from Road Transport in India." *Journal of Business Management & Social Sciences Research*. Vol 3, No.4, April 2014.[17-24].
11. The World Bank. "Sustainable Transport: Priorities for Policy Reform." *Development in Practice*. Washington D.C.: World Bank Publications, 1996:108.

Thesis

1. Athiawala, Sanhita S. "Resource Allocation for Defense in India: An Analysis of Threat Perception, Decision Making and Economics of Defense in the 1980s", (Ph.D Dissertation), University of Pune, 1996.

2. Bwibo, Zipporah. "Planning for Bicycle Public Transport in Rural Areas: A Case of Butala Division, Busia District."(Thesis for M.A Planning), University of Nairobi, 2001.
3. George, Sheena. "The Urban Transport Problem: A Select Review of Literature"(M.Phil Dissertation), University of Pune, 1994.
4. Nyamwange, Matthew. "Foreign Direct Investment in Kenya" (Master's Thesis), University of Nairobi, 2007.

Reports

1. Chaudhary, Ajeet K. et al. "*A Report on Road Sector in India*". Ahmedabad: India Institute of Management, 2001.
2. Department of Animal Husbandry, Dairying & Fisheries. *Annual Report 2012-13*. New Delhi: Ministry of Agriculture, 2013.
3. Department of Industrial Policy and Promotion, Ministry of Commerce and Industry. *Annual Report 2010-11*. New Delhi: GoI, 2011.
4. Kenya Roads Board. *Kenya Roads Board Annual Report & Financial Statements for the Year Ended 30th June 2012*. Nairobi: KRB, 2012.
5. Ministry of Road Transport & Highways (GoI). *Annual Report 2011-12*. New Delhi: GoI, 2012.
6. Ministry of Transport. *A Brief on Road Transport Sector in Kenya*. Nairobi: Ministry of Transport, 2013.
7. Pedel, Magic, Richard Scurfield. et al. eds. *World Report on Road Traffic Injury Prevention*. Geneva: World Health Organization, 2004.
8. Stares, Stephen & Liu Zhi. *China's Transport Development Strategy: Proceeding of a Symposium in Beijing*. Washington D.C.: The World Bank, 1996.
9. Weisbrod, Glen. *Current Practices for Assessing Economic Development Impacts Transportation Investments: A Synthesis of Highway Practice*. Washington D.C.: Transportation Research Board, 2000.

Websites

1. Asia Development Bank. "Facilitating Infrastructure Development in India," [article online]; Internet; Available from http://finmin.nic.in/the_ministry/dept_eco_affairs/MI/FID_India_publication.pdf; Internet; Accessed December 10, 2012.

2. Baruch, Feigenbaum. “Risks and Rewards of Public-Private Partnerships for Highways,” [article on-line]; Internet; Available from http://reason.org/files/public_private_partnerships_for_highways.pdf; Internet; Accessed October 31, 2012.
3. CBK, “Exchange Rates” [report online]; Internet; Available from <https://www.centralbank.go.ke/index.php/rate-and-statistics/exchange-rates-2>. Internet; Accessed on March 05, 2015.
4. FactFish, “Kenya’s Road Density.” [report online]; Internet; Available from <http://www.factfish.com/statistic-country/kenya/road%20density> ; Internet; Accessed on March 05, 2015.
5. Government of India, “*Census of India 2011: Provisional Population Totals*” Internet; Available from http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf ; Internet; Accessed October 20, 2014.
6. Government of India, “*Census*” Internet; Available from http://www.censusindia.gov.in/vital_statistics/SRS_Report/9Chap%20%20-%202011.pdf ;Internet; Accessed October 20, 2014.
7. Government of India, “Total Number of Registered Motor Vehicles in India during 1951-2012” Internet; Available from; <https://data.gov.in/catalog/total-number-registered-motor-vehicles-india>; Internet; Accessed on January 15, 2016.
8. Gwilliam, K. “A Review of Issues in Transit Economics,” [article online]; Internet; available from [http://www.ideas.repec.org/a/eee/retrec/V23Y2008ilp\\$-22.htmln](http://www.ideas.repec.org/a/eee/retrec/V23Y2008ilp$-22.htmln) ;Internet; Accessed November 05, 2012.
9. Heggei, Ian G. “Management and Financing of Roads: An Agenda for Reform,” [article on-line]; page 3; available from <http://www.ssatp.org/sites/ssatp/files/publications/WorldBank-TechnicalPapers/TP275/TP275.pdf>; Internet; accessed December 05, 2014.
10. Hinduism Today. “India as a Colony 1850 to 1947” April/May/June 2010 [article online]; Internet; Available from http://www.hinduismtoday.com/education/Hinduism_History_1850-1947.pdf; Internet; Accessed December 10, 2012.
11. KeHNA, “Nairobi-Thika Superhighway –A Dream Realized” [report online]; Internet; Available from

- [http://www.kenha.co.ke/index.php?option=com_content & view=article&id=75:nairobi-thika-superhighway-a-dream-realised&catid= 20:2014news&Itemid=8](http://www.kenha.co.ke/index.php?option=com_content&view=article&id=75:nairobi-thika-superhighway-a-dream-realised&catid=20:2014news&Itemid=8) ; Internet; Access on March 05, 2015.
12. Kenya Ports Authority, “Ports of Kenya”, Internet; Available from [http://www.kpa.co.ke /About%20Us/Introduction/Pages/OurMandate.aspx](http://www.kpa.co.ke/About%20Us/Introduction/Pages/OurMandate.aspx); Internet; Accessed on March 05, 2015
 13. Library of Congress, “Country Profile Kenya” [article online]; Internet; Available from <http://lcweb2.loc.gov/frd/cs/profiles/Kenya.pdf>; internet; accessed December 10, 2012.
 14. Lucas Karen. “Transport and Social Exclusion: The UK Perspective,” [article online]; Internet; Available from [http://www.ville-en-mouvement.com/telechargement/ transportuk.pdf](http://www.ville-en-mouvement.com/telechargement/transportuk.pdf); [article online]; Internet; Accessed on October 31, 2012.
 15. Ministry of Finance, GoI. “Rationalization of the Functions, Activities and Structure of the Ministry of Road Transport and Highways.” [Article online]; Internet; available from <http://finmin.nic.in/reports/9thReportEMC.pdf>; Internet; Accessed October 17, 2014.
 16. Ousmane, Thiam. “Overview of Public Transport in Sub-Saharan Africa,” (Trans-Africa Consortium, 2008); [article on-line]; Internet; Available from <http://www.uitp.org/knowledge/pics/2009/transafrica.pdf>; Internet; Accessed October 31, 2012.
 17. RBI, “Exchange Rates”, [report online]; Internet; Available from [http://dbie.rbi.org.in/ DBIE/dbie.rbi?site=home-](http://dbie.rbi.org.in/DBIE/dbie.rbi?site=home-) ; Internet; Accessed on March 05, 2015.
 18. Santos, Georgina., Hannah Behrendt. et al. “Policy Instruments for Sustainable Road Transport,” Research In Transportation Economics, May 2010, Vol.28, Issue 1, pg 46-91. [Article on-line]; Internet; Available from [http://www.sciencedirect.com/science/article/B8JHM ... 65fe6ea5cfea62b9b543](http://www.sciencedirect.com/science/article/B8JHM...65fe6ea5cfea62b9b543); Internet; Accessed October 31, 2012.
 19. Walters, Jackie. “Overview of Public Transport Policy Development in South Africa,” [article online]; Internet; Available from [http://ses.library.usyd.edu.au/ bitstream /2123/6040/1/thredbo10-plenary-Walters.pdf](http://ses.library.usyd.edu.au/bitstream/2123/6040/1/thredbo10-plenary-Walters.pdf) ; Internet; Accessed November 05, 2012.
 20. World Bank, “*World Development Indicators.*” Internet; Available from <http://databank.worldbank.org/data/reports.aspx?source=2&country=USA&series=&period=>; Internet; Accessed October 20, 2014.
 21. World DataBank, “India”, [report online]; Internet; Available from

<http://data.baml/worldbank.org/data/views/reports/tableview.aspx#> ; Internet;
Accessed on March 05, 2015.

22. World DataBank, “India Population.” Internet; Available from
<http://databank.worldbank.org/data/views/reports/tableview.aspx> ; Internet;
Accessed on March 05, 2015.

23. World DataBank, “Kenya Population.” Internet; Available from
<http://databank.worldbank.org/data/views/reports/tableview.aspx> ; Internet;
Accessed on March 05, 2015.

Appendix 1(a): Political Map of India



Appendix 2(a): Sample RT&H Budget (India)

Part I - General

The Summary of Expenditure is given in Statement No.1 and the Expenditure by Ministries/Departments is given in Statement No.2.

STATEMENT 1

SUMMARY OF EXPENDITURE

(In crores of rupees)

	Budget 2007-2008			Revised 2007-2008			Budget 2008-2009		
	Revenue	Capital	Total	Revenue	Capital	Total	Revenue	Capital	Total
1. TOTAL EXPENDITURE (2+3)	557899.52	122620.99	680520.51	588586.40	120786.86	709373.26	658119.00	92764.53	750883.53
2. Non Plan Expenditure	383545.83	91874.68	475420.51	412975.06	88874.17	501849.23	448351.79	59146.24	507498.03
3. Plan Expenditure	174353.69	30746.31	205100.00	175611.34	31912.69	207524.03	209767.21	33618.29	243385.50
4. Central Assistance for State & UT Plan	45626.87	4533.81	50160.68	51568.93	7285.82	58854.75	58349.96	5081.54	63431.50
5. BUDGET SUPPORT FOR CENTRAL PLAN (3-4)	128726.82	26212.50	154939.32	124042.41	24626.87	148669.28	151417.25	28536.75	179954.00
6. Resources of Public Enterprises	...	165052.76	165052.76	...	143667.73	143667.73	...	195531.04	195531.04
7. CENTRAL PLAN(5+6)	128726.82	191265.26	319992.08	124042.41	168294.60	292337.01	151417.25	224067.79	375485.04

MINISTRY OF SHIPPING, ROAD TRANSPORT AND HIGHWAYS

DEMAND NO. 87

Department of Road Transport and Highways

A. The Budget allocations, net of recoveries, are given below:

Major Head	(In crores of Rupees)								
	Budget 2007-2008			Revised 2007-2008			Budget 2008-2009		
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
Revenue	8524.99	1739.28	10264.27	8448.35	1977.80	10426.15	9172.85	1926.50	11099.35
Capital	5541.01	388.42	5929.43	5617.65	237.20	5854.85	5948.79	201.50	6150.29
Total	14066.00	2127.70	16193.70	14066.00	2215.00	16281.00	15121.64	2128.00	17249.64
1. Secretariat- Economic services	3451	...	28.83	28.83	...	28.83	28.83	...	30.28
2. BRDB Secretariat	3451	...	24.45	24.45	...	22.00	22.00	...	26.70
Road Transport									
3. Training and Research	3055	60.00	...	60.00	49.00	...	49.00	180.00	...
Total - Road Transport		60.00	...	60.00	49.00	...	49.00	180.00	...
4. <i>Roads and Bridges</i>									
4.1 Maintenance of National Highways	3054	...	815.97	815.97	...	1003.27	1003.27	...	820.43
4.2 Capital outlay on National Highways	5054	3678.81	...	3678.81	3658.65	...	3658.65	3719.79	...
4.3 National Highway Tribunals and Highway Administration	3054	...	2.90	2.90	...	2.90	2.90	...	4.90
Total		3678.81	818.87	4497.68	3658.65	1006.17	4664.82	3719.79	825.33
5. <i>Works executed by BRDB</i>									
5.1 Road Works under BRDB	3601	...	681.26	681.26	...	707.80	707.80	...	858.50
5.2 Works under BRDB	5054	349.76	388.42	738.18	449.76	237.20	686.96	650.00	201.50
5.3 Other Works	3054	...	105.87	105.87	...	133.00	133.00	...	113.30
Total		349.76	1175.55	1525.31	449.76	1078.00	1527.76	650.00	1173.30
6. Grants to States for Strategic Roads	3601	67.00	...	67.00	67.00	...	67.00	78.00	...
7. <i>Schemes financed from Central Road Fund</i>									
7.01 Grants to States	3601	1511.45	...	1511.45	1511.45	...	1511.45	1605.82	...
7.02 Grants to Inter-State & Economically Important Roads Met from Central Road Fund	3601	164.93	...	164.93	164.93	...	164.93	175.74	...
7.03 Grants to UT Governments	3601	-1676.38	...	-1676.38	-1676.38	...	-1676.38	-1781.56	...
7.03.1 National Capital Territory of Delhi	3602	44.69	...	44.69	44.69	...	44.69	48.45	...
7.03.2 Puducherry	3602	3.67	...	3.67	3.67	...	3.67	7.59	...
7.04 Grants to Inter-State & Economically Important Roads Met from Central Road Fund	3602	9.00	...	9.00	9.00	...	9.00	10.00	...
7.05 Grants to UT Govts without Legislature	3602	-57.36	...	-57.36	-57.36	...	-57.36	-66.04	...
7.05.1 Andaman & Nicobar Islands	3054	1.90	...	1.90	1.90	...	1.90	3.27	...
7.05.2 Chandigarh	3054	2.28	...	2.28	2.28	...	2.28	3.51	...
7.05.3 Dadra & Nagar Haveli	3054	1.10	...	1.10	1.10	...	1.10	1.64	...
7.05.4 Lakshadweep	3054	0.12	...	0.12	0.12	...	0.12	...	0.12
7.05.5 Daman & Diu	3054	0.79	...	0.79	0.79	...	0.79	1.24	...
Total		6.19	...	6.19	6.19	...	6.19	9.78	...
Met from Central Road Fund	3054	-6.19	...	-6.19	-6.19	...	-6.19	-9.78	...
Total - Schemes financed from Central Road Fund		...	...	...	...	...	...	...	...
8. Development of State Roads	3601	0.68	...	0.68	0.68	...	0.68	...	...
Other Transport Services									
9. National Highways Authority of India	5054	6541.06	...	6541.06	6541.06	...	6541.06	6972.47	...
Met from Central Road Fund	5054	-6541.06	...	-6541.06	-6541.06	...	-6541.06	-6972.47	...
70.75	70.75	447.20	...	447.20	444.00	...	444.00	379.00	...
Total		447.20	...	447.20	444.00	...	444.00	379.00	...
10. <i>Other Expenditure</i>									
10.01 Development and Planning	3054	10.00	...	10.00	3.36	...	3.36	10.00	...
Total - Other Transport Services		457.20	...	457.20	447.36	...	447.36	389.00	...
11. Central Road Fund - Transfers	3054	8280.31	...	8280.31	8280.31	...	8280.31	8829.85	...
12. Cost of collection of Bridges Fees Fund payable to States	3054	...	0.50	0.50	...	0.50	0.50	...	0.50

(In crores of Rupees)

Major Head	Budget 2007-2008			Revised 2007-2008			Budget 2008-2009			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Deduct - Recoveries	3054	...	-0.50	-0.50	...	-0.50	-0.50	...	-0.50	-0.50
Net	...	...	...	...	...	...	...	...	...	...
13. Schemes financed from National Highway Permanent Bridges Fees Fund	5054	90.00	...	90.00	90.00	...	90.00	90.00	...	90.00
Deduct - Recoveries	5054	-90.00	...	-90.00	-90.00	...	-90.00	-90.00	...	-90.00
Net	...	...	...	...	...	...	...	...	...	...
14. National Highways Permanent Bridges Fees Fund - Transfers	3054	...	80.00	80.00	...	80.00	80.00	...	72.39	72.39
15. Development, Widening and Inter-state connectivity of the roads of Economic Importance	3601	100.00	...	100.00	41.00	...	41.00	75.00	...	75.00
16. Lumpsum provision for projects/schemes for the benefit of the North Eastern Region and Sikkim	2552	7.00	...	7.00	7.00	...	7.00	...	...	...
	4552	1065.24	...	1065.24	1065.24	...	1065.24	1200.00	...	1200.00
Total		1072.24	...	1072.24	1072.24	...	1072.24	1200.00	...	1200.00
Grand Total		14066.00	2127.70	16193.70	14066.00	2215.00	16281.00	15121.64	2128.00	17249.64
B. Investments in Public Enterprises	Head of Dev.	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
9. National Highways Authority of India	13054	6988.26	2090.00	9078.26	6985.06	2090.00	9075.06	7351.47	4100.00	11451.47
C. Plan Outlay										
1. Roads and Bridges	13054	11427.08	2090.00	13517.08	11427.08	2090.00	13517.08	12250.00	4100.00	16350.00
2. North Eastern Areas	22552	1072.24	...	1072.24	1072.24	...	1072.24	1200.00	...	1200.00
State Plan										
1. Roads and Bridges	43601	1512.13	...	1512.13	1512.13	...	1512.13	1605.82	...	1605.82
Union Territory Plans										
Union Territories with Legislature										
1. National Capital Territory of Delhi	43602	44.69	...	44.69	44.69	...	44.69	48.45	...	48.45
2. Puducherry	43602	3.67	...	3.67	3.67	...	3.67	7.59	...	7.59
Union Territories without Legislature	43602	6.19	...	6.19	6.19	...	6.19	9.78	...	9.78
Total- UT Plans		54.55	...	54.55	54.55	...	54.55	65.82	...	65.82
Total		14066.00	2090.00	16156.00	14066.00	2090.00	16156.00	15121.64	4100.00	19221.64

1. The provision is for expenditure on the Secretariat of the Department of Road Transport and Highways.

2. The provision is for expenditure on the Secretariat of the Border Roads Development Board (BRDB).

3. The provision is mainly for research and development, training, studies on transport industry, pollution checking equipments, road safety programmes, setting up of facilities on National Highways for extending relief to victims in case of accidents consisting of provision for first aid to the victims and removal of the damaged vehicles for restoration of the traffic, development of National Database Network, creation of National Road Safety Board, strengthening of Public Transport, etc.

4.1 The provision is mainly for expenditure on maintenance of National Highways. The works are executed by the Public Works Department of the States on an agency basis and also by the General Reserve Engineering Force of the BRDB.

4.2 The provision is for expenditure on development of National Highways, including projects relating to expressways and 6 laning of crowded stretches of Golden Quadrilateral and 2 laning of highways works under National Highway Development Project

(NHDP), Rail-cum-Road Bridge at Munger and Dandi Project in Gujarat. The works are executed by the Public Works Department of the States/UTs on an agency basis and by the National Highways Authority of India (NHAI). This also includes funds for Externally Aided Projects being executed by NHAI.

4.3 This provision is for expenditure on Pay & Allowances of the officers and staff of the National Highway Tribunals as well as the expenditure on running of their offices and for reimbursing the cost of manpower and other incidental costs to the State Government for staffing the Highway Administrations.

5 & 6. These provisions include grant assistance to States for construction of certain strategic roads in the border areas in the States of Gujarat, Rajasthan, Punjab, Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh and West Bengal and the North Eastern States being executed by the BRDB. This also includes expenditure for the development of such stretches of National Highways as are entrusted to BRDB.

7, 9 & 11. The Central Road Fund has been revamped under the Central Road Fund Act, 2000 enacted in December, 2000. The provisions made will be used for financing the approved schemes of road works in various States and UTs as well as for

development of selected roads of Inter-State and economic importance for promoting better communication facilities. The estimates relate to transactions under Central Road Fund in the Public Account of India. This provision is also for investment given to NHAI for the National Highways Development Projects. The expenditure is met out of withdrawals from the Central Road Fund. 20% of the External Loans for various National Highway Development Projects entrusted to the National Highways Authority of India is to be provided to the organisation as loan.

10. This includes the expenditure on Research & Development and Planning studies on Road Development and for trainings, workshops, seminars to be conducted by the Indian Roads Congress and other Institutes.

12, 13 & 14. The estimates relate to transactions under the National Highways Permanent Bridges Fees Fund which is in

the Public Account of India. The Fund is utilised for National Highway works. The provision also includes payments to the States & UTs towards cost of collection of fees levied for use of certain permanent bridges on National Highways by mechanically propelled vehicles.

15. Includes provision for 4 laning of Duburi-Bhramanipal-Harichandanpur-Naranpur-Keonjhar road in Orissa, Mughal Road in the State of Jammu and Kashmir and for Sansari Nalla Killar, Thiroat road in Himachal Pradesh.

16. The provision is for Special Accelerated Road Development Programme including the Trans-Arunachal Highway and Kaladan Multi Modal Transport Project.

Appendix 2(b): Sample R&PW Budget (Kenya)

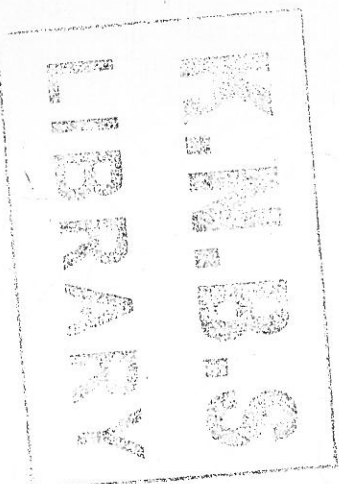
VOTE D13 MINISTRY OF ROADS

I. DEVELOPMENT EXPENDITURE SUMMARY 2008/2009 AND PROJECTED EXPENDITURE ESTIMATES FOR 2009/2010 - 2010/2011

1. ESTIMATE of the amount required in the year ending 30th June, 2009 for the capital expenditure of the Ministry of Roads including general administration and planning, Roads Department, Transport Department and Staff Training.

Twenty four billion, six hundred and eighty nine million, five hundred thousand Kenya Shillings
(KShs. 24,689,500,000)

SUB-VOTE	Net Approved Expenditure 2007/2008	Estimates 2008/2009			Projected Gross Estimates	
		Gross Expenditure	Appropriations in Aid	Net Expenditure	Estimates 2009/2010	Estimates 2010/2011
130 General Administration and Planning	KShs. 30,000,000	KShs. 50,000,000	KShs. -	KShs. 50,000,000	KShs. 65,000,000	KShs. 80,000,000
133 Other Services	KShs. 50,500,000	KShs. 140,000,000	KShs. -	KShs. 140,000,000	KShs. 214,731,420	KShs. 267,781,380
136 Roads	KShs. 19,530,805,000	KShs. 42,162,600,000	KShs. 17,663,100,000	KShs. 24,499,500,000	KShs. 95,175,000,000	KShs. 99,875,000,000
TOTAL EXPENDITURE FOR VOTE D13	KShs. 19,611,305,000	42,352,600,000	17,663,100,000	24,689,500,000	95,454,731,420	100,222,781,380



VOTE D13 MINISTRY OF ROADS

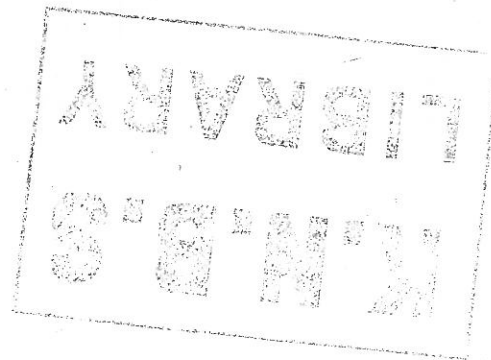
II. DEVELOPMENT EXPENDITURE ESTIMATES 2008/2009 AND PROJECTED ESTIMATES FOR 2009/2010 - 2010/2011

II. Heads and Items under which this Vote will be accounted for by the MINISTRY OF ROADS

HEAD	ITEM	TITLE	Approved Estimates 2007/2008	Estimates 2008/2009	Projected Estimates	
					2009/2010	2010/2011
			KShs.	KShs.	KShs.	KShs.
380		130 General Administration and Planning				
		380 Headquarters Administrative Services				
	3110300	Refurbishment of Buildings	10,000,000	20,000,000	25,000,000	30,000,000
	3110500	Construction and Civil Works	20,000,000	30,000,000	40,000,000	50,000,000
		NET EXPENDITURE HEAD. 380 KShs.	30,000,000	50,000,000	65,000,000	80,000,000
		NET EXPENDITURE SUB-VOTE.130 KShs.	30,000,000	50,000,000	65,000,000	80,000,000
505		133 Other Services				
		505 Mechanical and Transport Department				
	3110300	Refurbishment of Buildings	-	7,000,000	7,500,000	8,000,000
	3111100	Purchase of Specialised Plant, Equipment and Machinery	-	43,000,000	44,600,000	45,200,000
		NET EXPENDITURE HEAD. 505 KShs.	-	50,000,000	52,100,000	53,200,000
506		506 Materials Department				
	2210700	Training Expenses	-	500,000	517,120	534,733
	3110300	Refurbishment of Buildings	-	7,500,000	7,600,000	7,800,000
	3111100	Purchase of Specialised Plant, Equipment and Machinery	-	6,000,000	7,000,000	7,200,000
	3111200	Rehabilitation and Renovation of Plant, Machinery and Equipment	-	2,000,000	1,034,300	1,069,776
	3111400	Research, Feasibility Studies, Project Preparation and Design, Project Supervision	-	14,000,000	14,480,000	14,976,871
		NET EXPENDITURE HEAD. 506 KShs.	-	30,000,000	30,631,420	31,581,380
507		507 Kenya Institute of Highways and Building Technology				
	2220200	Routine Maintenance - Other Assets	15,500,000	14,500,000	46,500,000	68,000,000
	3110300	Refurbishment of Buildings	35,000,000	45,500,000	85,500,000	115,000,000
		NET EXPENDITURE HEAD. 507 KShs.	50,500,000	60,000,000	132,000,000	183,000,000
		NET EXPENDITURE SUB-VOTE.133 KShs.	50,500,000	140,000,000	214,731,420	267,781,380
384		136 Roads				
		384 Major Roads				
	3110400	Construction of Roads	12,320,550,000	13,923,000,000	17,920,000,000	18,650,000,000
	3110600	Overhaul and Refurbishment of Construction and Civil Works	4,214,405,000	6,038,500,000	9,850,000,000	9,540,000,000
	3111400	Research, Feasibility Studies, Project Preparation and Design, Project Supervision	116,717,120	120,110,000	2,135,000,000	2,635,000,000
		Gross Expenditure KShs	16,651,672,120	20,081,610,000	29,905,000,000	30,825,000,000
	1320200	Grants from International Organizations	1,978,717,120	918,100,000	1,978,717,120	1,978,717,120
	5120200	Foreign Borrowing - Direct Payments	8,232,000,000	11,277,000,000	8,232,000,000	8,232,000,000
		Total Appropriations in Aid KShs	10,210,717,120	12,195,100,000	10,210,717,120	10,210,717,120
		NET EXPENDITURE HEAD. 384 KShs.	6,440,955,000	7,886,510,000	19,694,282,880	20,614,282,880

VOTE D13 MINISTRY OF ROADS - (Cont...)

II. DEVELOPMENT EXPENDITURE ESTIMATES 2008/2009 AND PROJECTED ESTIMATES FOR 2009/2010 - 2010/2011						
II. Heads and Items under which this Vote will be accounted for by the MINISTRY OF ROADS						
HEAD	ITEM	TITLE	Approved Estimates 2007/2008	Estimates 2008/2009	Projected Estimates	
					2009/2010	2010/2011
			KShs.	KShs.	KShs.	KShs.
		136 Roads				
		385 Other Roads				
385		<i>Cont...</i>				
	3110100	Purchase of Buildings	-	10,000,000	-	-
	3110400	Construction of Roads	4,246,850,000	7,248,500,000	11,600,000,000	10,100,000,000
	3110500	Construction and Civil Works	200,000,000	324,005,000	1,270,000,000	970,000,000
	3110600	Overhaul and Refurbishment of Construction and Civil Works	9,517,400,000	9,615,445,000	13,520,000,000	14,100,000,000
	3111400	Research, Feasibility Studies, Project Preparation and Design, Project Supervision	687,500,000	1,359,540,000	33,870,000,000	37,850,000,000
		Gross Expenditure KShs	14,651,750,000	18,557,490,000	60,260,000,000	63,020,000,000
	1310100	Grants from Foreign Governments - Cash Through Exchequer	-	200,000,000	-	-
	1320200	Grants from International Organizations	1,410,000,000	1,900,000,000	1,410,000,000	1,410,000,000
	5120200	Foreign Borrowing - Direct Payments	1,890,000,000	2,600,000,000	1,890,000,000	1,890,000,000
		Total Appropriations in Aid KShs	3,300,000,000	4,700,000,000	3,300,000,000	3,300,000,000
		NET EXPENDITURE HEAD 385 KShs.	11,351,750,000	13,857,490,000	56,960,000,000	59,720,000,000
488		488 Extra-ordinary Road Maintenance				
	3111400	Research, Feasibility Studies, Project Preparation and Design, Project Supervision	49,100,000	26,500,000	260,000,000	260,000,000
		NET EXPENDITURE HEAD 488 KShs.	49,100,000	26,500,000	260,000,000	260,000,000
489		489 Miscellaneous (R.A.R.P and G.B.c)				
	3110600	Overhaul and Refurbishment of Construction and Civil Works	2,249,000,000	3,497,000,000	4,750,000,000	5,770,000,000
		Gross Expenditure KShs	2,249,000,000	3,497,000,000	4,750,000,000	5,770,000,000
	1310200	Grants from Foreign Governments - Direct Payments	180,000,000	389,000,000	180,000,000	180,000,000
	1320200	Grants from International Organizations	60,000,000	120,000,000	60,000,000	60,000,000
	5120200	Foreign Borrowing - Direct Payments	320,000,000	259,000,000	320,000,000	320,000,000
		Total Appropriations in Aid KShs	560,000,000	768,000,000	560,000,000	560,000,000
		NET EXPENDITURE HEAD 489 KShs.	1,689,000,000	2,729,000,000	4,190,000,000	5,210,000,000
		NET EXPENDITURE SUB-VOTE. 136 KShs.	19,530,805,000	24,499,500,000	81,104,282,880	85,804,282,880
		TOTAL NET EXPENDITURE VOTE D 13				
		MINISTRY OF ROADS KShs.	19,611,305,000	24,689,500,000	81,384,014,300	86,152,064,260



Appendix 3: World Road Density Index

Country	Rank	Value as Number	Value as Bar(%)	Date
World	33			2011
Monaco	1	3850	105%	2010
Macao	2	1486	50%	2011
Malta	3	968	38%	2008
San Marino	4	584	29%	2011
Bahrain	5	546	28%	2011
Belgium	6	504	27%	2011
Singapore	7	481	26%	2011
Barbados	8	372	24%	2004
Grenada	9	331	23%	2000
Netherlands	10	331	23%	2011
Puerto Rico	11	303	22%	2010
Antigua and Barbuda	12	265	21%	2002
Hungary	13	216	20%	2011
Saint Vincent and the Grenadines	14	213	20%	2003
Luxembourg	15	202	20%	2004
Jamaica	16	201	20%	2011
Slovenia	17	193	19%	2011
France	18	192	19%	2011
Hong Kong	19	191	19%	2011
Cayman Islands	20	184	19%	2011
Germany	21	180	19%	2011
Sri Lanka	22	174	19%	2010
Switzerland	23	173	19%	2011
United Kingdom	24	172	19%	2011

Country	Rank	Value as Number	Value as Bar(%)	Date
Denmark	25	172	19%	2011
Bangladesh	26	166	19%	2003
Czech Republic	27	166	19%	2011
Trinidad and Tobago	28	162	19%	2000
Italy	29	162	19%	2005
India	30	143	18%	2011
Cyprus	31	141	18%	2011
Austria	32	137	18%	2011
Ireland	33	137	18%	2010
Spain	34	132	18%	2011
Poland	35	132	18%	2011
Estonia	36	129	18%	2011
Sweden	37	129	18%	2011
Lithuania	38	127	18%	2011
Dominica	39	121	18%	2010
Seychelles	40	110	18%	2011
Latvia	41	108	18%	2011
Korea, South	42	106	17%	2011
Mauritius	43	102	17%	2010
Tonga	44	91	17%	2000
Japan	45	90	17%	2011
Greece	46	89	17%	2011
Slovakia	47	88	17%	2011
Israel	48	84	17%	2011
Costa Rica	49	83	17%	2011
Kiribati	50	83	17%	2000

Country	Rank	Value as Number	Value as Bar(%)	Date
Samoa	51	82	17%	2001
Qatar	52	79	17%	2011
Palestinian Territory	53	78	17%	2011
Philippines	54	67	17%	2003
United States	55	67	17%	2011
Lebanon	56	67	17%	2005
Albania	57	63	16%	2002
Montenegro	58	57	16%	2011
Cuba	59	55	16%	2000
Macedonia	60	54	16%	2011
Brunei	61	54	16%	2011
Rwanda	62	53	16%	2004
Croatia	63	52	16%	2011
Serbia	64	50	16%	2011
Vietnam	65	48	16%	2007
Comoros	66	47	16%	2000
Turkey	67	47	16%	2011
Malaysia	68	47	16%	2011
Romania	69	47	16%	2011
Ghana	70	46	16%	2009
Bosnia and Herzegovina	71	45	16%	2011
Burundi	72	44	16%	2004
Uruguay	73	44	16%	2004
China	74	43	16%	2011
Belarus	75	42	16%	2011
Kuwait	76	39	16%	2011
Moldova	77	38	16%	2011
Syria	78	38	16%	2010

Country	Rank	Value as Number	Value as Bar(%)	Date
New Zealand	79	35	16%	2011
Thailand	80	35	16%	2006
El Salvador	81	35	16%	2011
Micronesia, Federated States of	82	34	16%	2000
Cape Verde	83	33	16%	2000
São Tomé and Príncipe	84	33	16%	2000
Gambia	85	33	16%	2004
Pakistan	86	33	16%	2011
New Caledonia	87	30	16%	2006
South Africa	88	30	16%	2001
Maldives	89	29	16%	2005
Uganda	90	29	16%	2003
Norway	91	29	16%	2011
Ukraine	92	28	16%	2011
Kenya	93	28	16%	2011
Georgia	94	27	16%	2011
Indonesia	95	26	16%	2011
Armenia	96	26	16%	2011
Dominican Republic	97	26	16%	2000
Côte d'Ivoire	98	25	16%	2007
Zimbabwe	99	25	16%	2002
Portugal	100	24	16%	2011
Finland	101	23	16%	2011
Azerbaijan	102	22	16%	2011
Cambodia	103	22	16%	2009
Bhutan	104	22	15%	2011
Korea, North	105	21	15%	2006

Country	Rank	Value as Number	Value as Bar(%)	Date
Nigeria	106	21	15%	2004
Swaziland	107	21	15%	2002
Togo	108	21	15%	2007
Panama	109	20	15%	2011
Lesotho	110	20	15%	2000
Tajikistan	111	19	15%	2000
Oman	112	19	15%	2011
Bahamas	113	19	15%	2000
Mexico	114	19	15%	2011
Fiji	115	19	15%	2000
Colombia	116	19	15%	2011
Brazil	117	19	15%	2011
Uzbekistan	118	18	15%	2000
Nicaragua	119	18	15%	2011
Guinea	120	18	15%	2011
Bulgaria	121	18	15%	2011
Laos	122	17	15%	2011
Ecuador	123	17	15%	2007
Kyrgyzstan	124	17	15%	2007
Benin	125	17	15%	2004
Sierra Leone	126	16	15%	2002
Haiti	127	15	15%	2000
Guatemala	128	15	15%	2011
Canada	129	14	15%	2009
Egypt	130	14	15%	2010
Yemen	131	14	15%	2005
Nepal	132	14	15%	2008
Djibouti	133	13	15%	2000

Country	Rank	Value as Number	Value as Bar(%)	Date
Morocco	134	13	15%	2011
Iran	135	13	15%	2011
Malawi	136	13	15%	2003
Iceland	137	13	15%	2011
Belize	138	13	15%	2000
Honduras	139	12	15%	2000
Zambia	140	12	15%	2001
Tunisia	141	12	15%	2011
Australia	142	11	15%	2011
Venezuela	143	11	15%	2000
Cameroon	144	10	15%	2010
Saudi Arabia	145	10	15%	2005
Equatorial Guinea	146	10	15%	2000
Chile	147	10	15%	2011
Peru	148	10	15%	2011
Iraq	149	10	15%	2010
Guinea-Bissau	150	10	15%	2002
Liberia	151	10	15%	2000
Tanzania	152	9	15%	2011
Vanuatu	153	9	15%	2000
Argentina	154	9	15%	2011
Jordan	155	8	15%	2011
Paraguay	156	8	15%	2011
Senegal	157	8	15%	2011
Bolivia	158	7	15%	2011
Congo, Democratic Republic of the	159	7	15%	2004
Russia	160	6	15%	2011

Country	Rank	Value as Number	Value as Bar(%)	Date
Madagascar	161	6	15%	2011
Burma	162	6	15%	2011
Burkina Faso	163	6	15%	2011
Namibia	164	6	15%	2011
Congo, Republic of the	165	5	15%	2009
Turkmenistan	166	5	15%	2000
United Arab Emirates	167	5	15%	2008
Solomon Islands	168	5	15%	2000
Algeria	169	5	15%	2010
Libya	170	5	15%	2000
Botswana	171	4	15%	2005
Papua New Guinea	172	4	15%	2000
Angola	173	4	15%	2001
Ethiopia	174	4	15%	2007
Mozambique	175	4	15%	2009

Country	Rank	Value as Number	Value as Bar(%)	Date
Guyana	176	4	15%	2000
Kazakhstan	177	4	15%	2011
Afghanistan	178	4	15%	2010
Somalia	179	3	15%	2000
Gabon	180	3	15%	2007
Eritrea	181	3	15%	2000
Central African Republic	182	3	15%	2010
Mongolia	183	3	15%	2002
Chad	184	3	15%	2006
Suriname	185	3	15%	2003
Mali	186	2	15%	2009
Niger	187	2	15%	2010
Mauritania	188	1	15%	2011
Sudan	189	0	15%	2000

Source: World Bank

