

A comparison of integrated transport and spatial planning Instruments: a case study of the Eden District Municipality, Hermanus Local Municipality and Cape Town Metropolitan areas.

Ms J.H. Page

20392958

Dissertation research submitted for a Masters degree of City and Regional planning at Potchefstroom Campus of the North-West University

September 2012

Study leader: Professor Dr C.B Schoeman

Foreword

O Lord, You are the portion of my inheritance and my cup – You maintain my lot.
The lines have fallen to me in pleasant places; I will bless the Lord who has given me counsel.
I have set the Lord always before me, because He is at my right hand – I shall not be moved.

Ps 16:5-8

I can do all things through Christ who strengthens me
Philippians 4:13

I will say of the Lord “He is my refuge and my fortress – my God in Him will I trust”

Ps 91:2

It is with deep gratitude towards my heavenly Father for His infinite grace and love that I dedicate this dissertation. I want to thank my beloved lord Jesus for His faithfulness that is new every morning. Without Him my goal would have been unreachable!

I want to thank my parents for the privilege and opportunity to further my studies. I know about the sacrifices you made – it will never be forgotten.

Dad, thanks for your financial support even when things were difficult you found a way. Thank you for all the hugs and for just being there. Mom- you never gave up! Never stopped praying, never stopped trusting in an unfailing God to see me through. Thank you for moral support, strong encouragement, tears and laughter – somehow you were just always on my side. Thank you!

Edwin –my twin brother, you always let me know that you are proud of me even when you had doubts. Thanks “hoor”

Thanks to my wonderful family who constantly enquired about my progress and for your words of encouragement and giving me a place to stay and my travels. I also want to thank the people of Stilbaai who prayed for me and who took part in my upbringing in this beautiful little jewel of a town by the sea; here I have many fathers, mothers, grannies and grandpas. To Anandi, my best friend in the whole world, thank you for your undying encouragement and friendship through thick and thin.

And last but not least to Prof Schoeman, thank you for all your advice and encouragement and for believing in me when I had my doubts. All your words of affirmation that build me up when I was down will be kept in my heart forever.

Abstract

In the field of city planning, a growing need exists for the integration of spatial development with transportation planning instruments. This study identifies issues related to the definition, evaluation and implementation of the integration of sustainable development and sustainable transportation within three types of municipalities.

Significant issues that are explored include the various definitions of integration; the range of issues considered under notions of integration; the diverse perspectives on, and criticism of development and transportation integration analysis, as well as approaches to evaluating integration and transportation impacts on development. Furthermore, the study reports on the goals of each municipality, specifically with reference to sustainable public transportation decision-making; approaches to sustainable transportation, automobile dependency; land use; and finally, on sustainable transportation and development integration solutions.

Approaches to spatial development used to focus on the organisation of land use issues, but this field is increasingly defined more broadly to include economic and social welfare, quality of human health/life and environmental integrity. From a sustainability perspective, a narrow definition of sustainable transportation tends to favour individual technological solutions, while a broader definition tends to favour more integrated solutions, including improved travel choices, economic incentives, institutional reforms, land use changes as well as technological innovation. Integration focuses on the teamwork required between the relevant departments as well as between levels or spheres of government, and often entails the implementation of nodal-corridor approaches. Sustainability planning may require changing the way people think about solutions to transportation problems in the future.

The literature survey (Chapter 2) addresses a number of salient concepts, namely transportation and spatial development integration, public transportation and its orientated development, nodal-corridor development, as well as environmental and development relationships. Furthermore, an investigation into the legislative frameworks and policies is presented with emphasis on spatial development, transportation plans and node-and-corridors development (Chapter 3).

This is followed in Chapter 4 by a report on an investigation into, and interviews held with representatives from the three municipalities (Hermanus local municipality, Cape Town metropolitan municipality and Eden district municipality) with reference to the integrated transportation plans (ITP) and spatial development frameworks (SDF) of these municipalities. This section reflects the opinions of relevant role-players regarding the central aspects of this study. Chapter 5 presents a summary of the study as well as a number of conclusions. In this chapter, planning recommendations are provided with the aim of advising municipalities on possibilities for the integration of sustainable transportation plans and spatial planning / development instruments.

Keywords: *Transportation and development integration; Sustainable public transportation; Transport planning; Comprehensive planning; Automobile dependency; Node-corridor approach, Environmental development relationship, Transportation orientated development, Governmental sphere integration.*

Samevating:

In die veld van stadsbeplanning bestaan daar 'n toenemende behoefte aan die integrasie van ruimtelike ontwikkeling en vervoerbeplanningsinstrumente. Hierdie studie identifiseer 'n aantal kwessies wat verband hou met die definiëring, evaluering en implementering van die integrasie van volhoubare ontwikkeling en volhoubare vervoer binne drie tipes munisipaliteite.

Beduidende kwessies behels verskillende definisies van integrasie; 'n aantal aspekte ten opsigte van beskouings oor integrasie; uiteenlopende perspektiewe op, en kritiek jeens die ontleding van integrasie van ontwikkeling en vervoer, sowel as benaderings tot die evaluering van integrasie en die impak van vervoer op ontwikkeling. Die studie bied verder 'n oorsig van die doelwitte van elke munisipaliteit, met spesifieke verwysing na besluitneming ten opsigte van volhoubare openbare vervoer; benaderings tot volhoubare vervoer; afhanklikheid van motorvoertuigvervoer; grondgebruik en uiteindelik ook van oplossings vir volhoubare vervoer en ontwikkelingsintegrasie.

Benaderings tot ruimtelike ontwikkeling het aanvanklik gefokus op die organisering van grondgebruiksake, maar hierdie veld word toenemend in 'n breër sin gedefinieer om ook ekonomiese en sosiale welsyn, menslike gesondheids- en lewenskwaliteit en omgewingsintegriteit in te sluit. Vanuit die perspektief van volhoubaarheid is dit so dat 'n eng definisie vir volhoubare vervoer neig om die individuele tegnologiese oplossings te bevoordeel, terwyl 'n breër definisie neig om eerder geïntegreerde oplossings, wat verbeterde reiskeuses, ekonomiese aansporings, institusionele hervormings, grondgebruikveranderinge as ook tegnologiese innovasie insluit, te bevoordeel. Integrasie is gerig op die samewerking tussen die tersaaklike departemente en ook tussen die verskillende vlakke van regering; dit behels dikwels die implementering van nodus-korridorontwikkelingsbenadering. Volhoubaarheidsbeplanning mag wel vereis dat 'n verandering teweeggebring word ten opsigte van denkwyses oor oplossings van vervoerprobleme vir die toekoms.

In die literatuuroorsig (Hoofstuk 2) word 'n aantal sentrale konsepte bespreek, naamlik die integrasie van vervoer en ruimtelike ontwikkeling; openbare vervoer en die gerigte ontwikkeling daarvan; nodus-korridorontwikkeling, en die verhouding tussen die omgewing- en ontwikkeling.

Hierna volg 'n ondersoek na die wetlike raamwerke en beleidsbenaderings ten opsigte van ruimtelike ontwikkeling, vervoer planne en nodus-en-korridorontwikkeling (Hoofstuk 3).

Hierna, in Hoofstuk 4, volg 'n oorsig van onderhoude met verteenwoordigers van die drie munisipaliteite (Hermanus se plaaslike munisipaliteit, Kaapstadse metropolitaanse- en, en Eden se distrikmunisipaliteite) met verwysing na diegeïntegreerde vervoerplanne (GVP) en ruimtelike ontwikkelingsraamwerke (ROR) van hierdie munisipaliteite.

Hoofstuk 5 bied 'n opsomming van die studie sowel as 'n aantal gevolgetrekkings. In hierdie hoofstuk word beplanningsaanbevelings gebied met die doel om munisipaliteite te adviseer ten opsigte van die integrasie van volhoubare vervoerplanne en ruimtelike ontwikkelingsinstrumente.

Sleutel woorde: *Vervoer en ontwikkelingsintegrasie; Volhoubare openbare vervoer; Vervoerbeplanning; Omvattende beplanning; Afhanklikheid van motorvervoer; Nodus-Korridorbenadering; Verhouding tussen omgewing en ontwikkeling; Vervoergeöriënteerde ontwikkeling, Regeringsvlakintegrasie.*

Table of Contents

1. Introduction	12
1.1 Problem statement.....	12
1.2 Research methodology	14
1.3 Case study	14
1.4 Outcomes/conclusions	15
2. Literature study.....	16
2.1 Introduction.....	16
2.2 Transportation and spatial development integration	16
2.2.1 International examples.....	18
2.2.2 Sustainability factors	21
2.2.2.1 Underlying factors to sustainability	22
2.3 Public transportation and its orientated development	24
2.3.1 Strategies of “no-regret growth” and “smart shrinking”	26
2.3.2 Examples of highly successful interventions and developments in other cities ...	29
2.3.3 Transportation modes and systems	30
2.3.3.1 Privatisation and deregulation	36
2.3.3.2 Transportation’s environmental externalities and sustainability	36
2.4 Environmental and development relationship	37
2.4.1 Environmental instruments from international standards and perspectives	39
2.4.2 Environmental assessments and spatial planning	40
2.4.3 Public transportation and the environment	41
2.4.4 Integration	41
2.5 Nodal and corridor development	41
2.5.1 The starting point	41
2.5.2 Nodal development patterns (structures)	43
2.5.3 Corridor development patterns (structures)	43
2.5.4 Planning urbanisation	44
2.5.5 Strengthening the development of prominent nodes.....	45
2.5.6 Corridor challenges	46
2.6 Conclusion	47
3. Legislative frameworks and policies.....	50
3.1 Introduction.....	50
3.1.1 Integrated transportation planning and development	50
Legislative Frameworks and Policies	50
3.2 Integrated transportation plans.....	59
3.2.1 Guidelines	59
3.2.2 White Paper on National Transportation Policy	60
3.2.3 The National Land Transport Act, 5 of 2009.....	63

3.2.4	National Transportation Master Plan (NATMAP).....	70
3.2.5	Strategic public transportation networks strategy	72
3.2.6	Minimum requirements of a DITP	73
3.2.7	Western Cape provincial land transportation framework 2004	76
	3.2.7.1 Sources of funding	77
	3.2.7.2 Public participation	77
3.2.8	Transportation and frameworks	78
3.3	Spatial development instruments	86
3.3.1	The Land Use Management Bill	88
3.3.2	National spatial development perspective	89
3.3.3	Western Cape Planning and Development Act, No 7 of 1999	91
3.3.4	Guide plans and structure plans	93
	3.3.4.1 Land Use Planning Ordinance, 1985	93
3.3.5	The Provincial Growth and Development Strategy	94
3.3.6	Spatial development principles	95
3.3.7	Strategic spatial elements	96
3.3.8	Provincial issues pertaining to spatial planning	98
3.4	Nodal and corridor development	98
3.4.1	Municipal: plans/frameworks	103
3.4.2	Nodal development.....	103
3.4.3	Implications for this study	104
3.5	Conclusion	104
3.5.1	Main results of the legislation and policy review process	104
3.5.2	Discussion of the conclusions	107
4.	Empirical study	108
4.1	Introduction.....	108
4.1.1	Integration in South Africa	109
4.1.2	Node and corridor approach.....	112
	4.1.2.1 Advantages of corridors	118
4.1.3	Environmental integration	119
4.2	Background to study areas.....	121
4.2.1	South African transportation orientation	121
4.2.2	The Western Cape in context of the rest of South Africa.....	122
4.2.3	Relationship with surrounding provinces	123
4.2.4	Hermanus	124
	4.2.4.1 Location.....	125
	4.2.4.2 Economic profile	125
	4.2.4.3 Demographic profile	126
	4.2.4.4 Employment	126

4.2.4.5	Unemployment	126
4.2.4.6	Tourism profile	126
4.2.5	Cape Town.....	128
4.2.5.1	Spatial synthesis	129
4.2.5.2	conomic growth.....	133
4.2.5.3	Municipal services	133
4.2.5.4	Good governance	133
4.2.5.5	Public transportation	134
4.2.5.6	Integrated human settlements	134
4.2.5.7	Safety and security.....	134
4.2.5.8	Health and social development.....	134
4.2.5.9	Major projects for the five-year plan	135
4.2.6	Eden District	137
4.2.6.1	Economy	139
4.2.6.2	Environment	140
4.2.6.3	Government	140
4.2.6.4	Strategic development in Eden	141
4.3	Overstrand ITP and SDF with relevance to Hermanus	143
4.3.6	Sub-sections or suburbs of Hermanus	144
4.4	Hermanus' integrated transportation plans.....	146
4.4.6	Transportation	146
4.4.7	Needs assessment	147
4.4.8	Improvement proposals	148
4.5	Hermanus spatial development framework	149
4.5.1	Vision.....	150
4.5.2	Planning principles	151
4.5.3	Goals and objectives.....	153
4.5.4	Transportation policy.....	155
4.5.5	Objectives of transportation.....	155
4.5.7	Local spatial development principles	157
4.5.8	Rural development areas.....	159
4.5.9	Nodal pattern.....	159
4.5.10	Nodal development in Hermanus	160
4.6	Cape Town integrated transportation plans	161
4.6.1	Transportation vision for Cape Town.....	161
4.6.2	Goals.....	161
4.6.3	Sustainable transportation.....	162
4.6.4	Transportation strategies.....	163
4.7	Cape Town spatial development framework	166

4.7.1	Purpose of the SDF.....	166
4.7.2	Goal	166
4.7.3	Principles	166
4.7.5	Strategies and policies	167
4.8	Eden District municipality integrated transportation plan (ITP)	169
4.8.1	Transportation vision.....	169
4.8.2	Current modal split of local municipalities within the district municipality	170
4.8.3	Public transportation supply	171
4.8.4	Roads and traffic	174
4.8.5	Non-motorised transportation	175
4.8.6	OLS implementation strategies	175
4.8.7	Key issues and concerns related to transportation	177
4.8.8	Summary of local integrated transportation plans in the case of DM	177
4.8.9	The ITP concerning the SDF	179
4.8.9.1	Bitou local municipality	179
4.8.9.2	Knysna local municipality.....	180
4.8.9.3	Mossel Bay municipality.....	180
4.8.9.4	Hessequa municipality	181
4.8.9.5	Oudtshoorn Municipality	181
4.9	Spatial development framework of the Eden district municipality	182
4.9.1	Spatial vision.....	182
4.9.2	Objectives	183
4.9.3	Policy for development along river corridors	183
4.9.4	SDF conceptual framework	184
4.9.5	Settlements and citizens framework.....	184
4.9.6	Summary of policies and strategies related to the settlement and citizens framework	185
4.9.7	Transportation	186
4.10	Results of interviews	187
4.10.1	Introduction.....	187
4.10.2	Results	188
4.11	Conclusion	190
4.11.1	Main results of empirical review process	190
4.11.2	Discussion of the empirical review process.....	192
5	Conclusions and recommendations.....	195
5.1	Introduction	195
5.2	Discussion of study results	195
5.3	Integration planning recommendations and proposals.....	196
6	Bibliography	202

Tables and figures

Figure 1: Graphic representation of the structure of the study	11
Figure 2: Delineation of the study	13
Figure 3: Graphic representation of the study departure points in terms of the central hypothesis	15
Figure 4: Literature review outline	16
Figure 5: Transportation planning process	25
Figure 6: Casualties of detonation in transportation-related environment	28
Figure 7: Relationship between transportation, urban activities and land use and its implications	29
Figure 8: Planning & environmental linkages	38
Figure 9: A schematic illustration of design elements for urban development corridors	46
Figure 10: Literature review matrix	48
Figure 11: Graphic outline of legislative frameworks and policies chapter	50
Figure 12: Policy life-cycle	52
Figure 13: Collaborative practice in plan and framework integration	57
Figure 14: Intergovernmental relations as outlined in the NTLA, 2009	66
Figure 15: Duties of planning authorities as outlined in the NLTA, 2009	67
Figure 16: Land transportation advisory boards as outlined in the NTLA, 2009	67
Figure 17: Functions of National Public Transportation Regulator as outlined in the NLTA, 2009	68
Figure 18: Required plans by the NLTA, 2009	69
Figure 19: Structure and outputs and subsequent phases	72
Figure 20: Minimum contents of a district integrated transportation plan	74
Figure 21: Western Cape provincial transportation vision, mission and objectives	76
Figure 22: ITP Feedback process	78
Figure 23: Inter-relationship of transportation plans and frameworks	79
Figure 24: The spatial plan	87
Figure 25: Objective outline as in the LUMB, 2008	88
Figure 26: Alignment of land use schemes as outlined in the LUMB, 2008	89
Figure 27: Graphic outline of the empirical study chapter	109
Figure 28: Ideal development corridor figuration	112
Figure 29: Corridor road options	113
Figure 30: Possible evolution of corridors	114
Figure 31: The Western Cape within of South Africa	122
Figure 32: Indication of Greater Hermanus within the Overstrand Local Municipality	125
Figure 33: Cape Town metropolitan area	128
Figure 34: Spatial Synthesis of Cape Town	130
Figure 35: Income distribution	131
Figure 36: Unemployment, dependency ration and ultra poverty levels	132
Figure 37: Economic patterns of the city of Cape Town	132
Figure 38: Access to basic services in South Africa metros	135
Figure 39: Swot analysis of the Cape Town five-year plan projects	137
Figure 40: Spider representation of the Eden District Municipality and its local municipalities	138
Figure 41: Boundaries of the seven local municipalities in EDM	138
Figure 42: Environmental concerns for EDM	140
Figure 43: SWOT analysis of the EDM strategic development	143
Figure 44: Greater Hermanus	144
Figure 45: Location of Overstrand Municipality in Relation to the District Municipality	146
Figure 46: Three global imperatives towards achieving development	150
Figure 47: Greater Hermanus shown in the SDF	156
Figure 48: Hemel-en-Aarde Valley	159

Figure 49: Nodal and settlement development patterns in Hermanus	160
Figure 50: Comprehensive sustainability	163
Figure 51: Transportation fact file of Cape Town Metropolitan Municipality	165
Figure 52: Western Cape bus service routes	172
Figure 53: The location of train stations in the Eden district	173
Figure 54: Eden district municipality	182
Figure 55: Vertical and horizontal alignment processes	192
Figure 56: Relationship with road classification (as per mobility policy)	199
Table 1: Research methodology	14
Table 2: Typology of transportation hierarchy	31
Table 3: Model profiles	31
Table 4: Transit modes compared	33
Table 5: Auto dependency and multi-modal transportation compared	34
Table 6: Core policy frameworks and guidelines guiding the interface between urban planning, environmental management and Transportation planning	53
Table 7: Core legislative frameworks guiding the interface between urban planning, environmental management and Transportation planning	55
Table 8: Guiding principles for spatial planning and development within municipalities	58
Table 9: Responsibilities of the three spheres of government	64
Table 10: Summary of South African and selected international policy's and guideline documents on transportation planning	79
Table 11: Movement systems	97
Table 12: Summary of legislative competence of the three spheres of government with regards to the planning, financing and development of corridors	99
Table 13: Summary of natural laws, policies and strategies that propose regulate and/or support corridor initiatives	101
Table 14: Summary of policy and legislative implications for this study	104
Table 15 : Summary table of typologies and types	114
Table 16: Strategic objectives, development and focus areas	141
Table 17: Analysis of <i>status quo</i>	148
Table 18: Overstrand Local Municipality transportation projects	148
Table 19: Planning principles	151
Table 20: Overstrand goals and objectives	153
Table 21: Land use proposal for the Greater Hermanus	157
Table 22: Comparison Matrix for Hermanus	161
Table 23: Comparison matrix of Cape Town	168
Table 24: Eden District municipality ITP Goals and Objectives	169
Table 25: Population distribution by mode in the Eden District Municipality Area	171
Table 26: Scholar transportation information in Eden District Municipality	172
Table 27: Summary of OLS implementations strategies	175
Table 28: Generic transportation strategy and projects matrix	179
Table 30: Interpretation of interview results	189
Table 31: Matrix summary of ITPs and SDFs relating to departure points	191
Table 32: Positive argument, issues/guidelines	193
Table 33: Planning Recommendations	196

Acronyms

• BRT	-	Bus Rapid Transportation
• CBD	-	Central business district
• CITP	-	Comprehensive integrated transportation plan
• CPTR	-	Current public transportation record
• CSS	-	Context-sensitive solutions
• CT	-	Cape Town
• DFA	-	Development Facilitation Act
• DITP	-	District integrated transportation plan
• DM	-	District municipality
• DMA	-	District municipality area
• DOT	-	Department of Transportation
• EDM	-	Eden district municipality
• GDP	-	Ground development plans/strategies
• GGP	-	Gross geographic product
• GRP	-	Gross regional product
• HRD	-	Human resource development
• I&AP's	-	Interested and affected parties
• IDP	-	Integrated development plans
• ITP	-	Integrated transportation plan
• LITP	-	Local integrated transportation plan
• LPL	-	Local planning level
• LM	-	Local municipality
• LUMS	-	Land use management system
• LUP	-	Land use planning
• LUPO	-	Land Use Planning Ordinance
• MEC	-	Members of the Executive Council
• MIG	-	Municipal infrastructure grant
• MTEF	-	Medium-term economic framework
• NLTTA	-	National Land Transportation Transition Act
• NLTB	-	Draft National Land Transportation Bill
• NMT	-	Non-motorised transportation
• NSDP	-	National spatial development perspective
• OLM	-	Overstrand local municipality
• OLS	-	Operating licensing strategy
• OSDF	-	Overberg spatial development framework
• PA	-	Planning authorities
• PDA	-	Planning and Development Act
• PT	-	Public transportation
• PLTF	-	Provincial land transportation framework
• PTP	-	Public transportation plan
• PAWC	-	Provincial Administration of the Western Cape
• PGWC	-	Provincial Government of the Western Cape
• QoL	-	Quality of life
• RDP	-	Reconstruction and Development Programme
• RSDF	-	Regional spatial development framework
• SDF	-	Spatial development framework

- SDP - Spatial development plans
- SPTN - Strategic public transportation networks strategy
- TDA - Transportation development area
- TOD - Transport-orientated development
- TP - Transportation planning
- WP - White Paper

Definitions:

- **Integrated transportation plan –**

This is a comprehensive and integrated process aimed at generating a plan relating to the regulation, provision and management of transportation infrastructure (roads, rail, stations, terminals and public transportation facilities) and for regulating public transportation operations/services and the use of infrastructure by both operators of public transportation and private travellers.

Because of the spatial relationship that exists between residential and economic activities and which results in the demand for travel, it is essential that an integrated transportation plan should be developed in the context of a land use plan which supports efficient public transportation. Details that must be contained in a transportation plan include public transportation operations, circulation or movement and mobility needs, vehicles and rolling stock, depots/equipment and human resources (Department of Transportation^a, 2009:iv).

- **Spatial development framework –**

Taking into account the current pattern of land use and the nature of development in municipal areas, a spatial development framework is required to describe in words and illustrations how the municipality sees desirable future patterns of land use and development in its area of jurisdiction.

The spatial development framework is a legally enforceable component of the IDP, which indicates both to the municipality (councillors and officials) and to the public (developers, land owners and the like) where certain types of land use and associated developments are permissible, and where certain activities are unlikely to be permitted. As such, it forms the basis for land use management and serves as a guideline

(Buffalo City IDP, 2002:141).

Structure of the research:

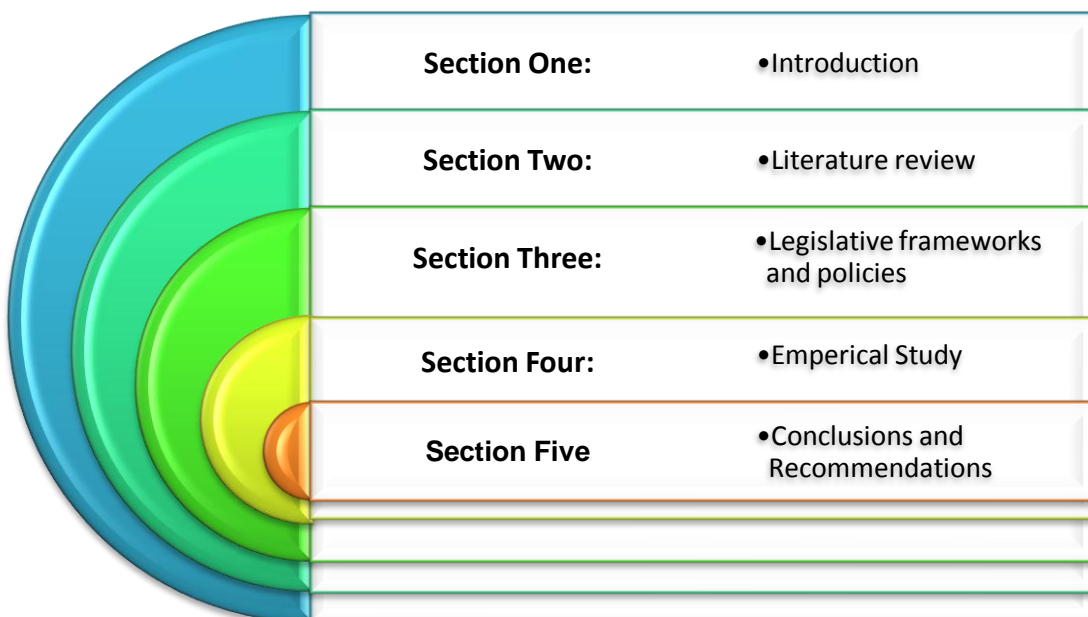


Figure 1: Graphic representation of the structure of the study
 Source: Own construction, 2011