DISASTER PLANNING AND PREPAREDNESS:

THE CASE OF PROTEA-SOUTH, JOHANNESBURG.

Theophilus Nji Tebid

A dissertation submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in fulfillment of the requirement for the degree of Master of Science in Development Planning.

Department of Town, Regional and Development Planning
University of the Witwatersrand, Johannesburg
South Africa.

October 2006
DECLARATION:

1. **I Theophilus Nji Tebid** (student Number: **0315495D**) am a student registered for the dissertation in the year 2006. I hereby declare the following:

   - I am aware that plagiarism is wrong.
   - I confirm that the work presented for the assessment of the above course is my own unaided work, except where I have explicitly indicated otherwise.
   - I have followed the required conventions in referring the thoughts, ideas, and visual materials of others.
   - I understand that the University of Witwatersrand may take disciplinary action against me if there is a believe that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.

Signed--------------------------------------Day of----------------------Year---------
ABSTRACT

Despite increasing philosophical knowledge of disaster planning and preparedness, disasters still remain a challenge in many communities. As a result, communities, environment and economies remain considerably vulnerable and at the risk of disaster destruction hence, sustainable development is undermined.

The purpose of this study is to review and assess the state of community readiness in order to prevent and mitigate common hazards in the City of Johannesburg, especially in previously disadvantaged communities such as Protea-South. A survey and interviews was conducted with the local community members.

Results show that, this community like many others, is at high risk, due to their living circumstances. e.g. the presence of densely built shacks on a flood plain; poor hygiene and sanitation, pollution, poverty etc. There is therefore a need for a paradigm shift by institutions from emergency response and the provision of hard infrastructure to disaster prevention, preparedness and soft infrastructure provision by means of an approach encompassing collaborative planning.
DEDICATION:

I dedicate this dissertation to the following persons:

• My wife who has always been there for me in prayers and in spirit
• To Mr. Thomas Jaffason who gave me “kick off”
• To my late parents particularly my grand mother
• To my auntie in Tiko for her motherly support throughout my childhood
• To Esther Malebo who gave me all the support here in South Africa at a time I needed most
ACKNOWLEDGEMENTS

I would like to thank the following for their immeasurable technical and moral support:

1. Dr Aly Karam, our programme coordinator
2. Mr. Brian Boshoff, my supervisor
3. Dr Daniel Irurah
4. Prof. Marie Huchzermeyer
5. Mr. James Maluleke (Manager, JOSHCO)
7. Mr. Daniel, k. Protea-South CDF. Acting chair person
8. The entire TRPL staff for their support.

Particular thanks to Mr Alfred Mabaso who offered me accommodation in Protea-South and treated me all along more than just a friend. Thanks to all the community members who gave up their useful time to tell me about the history of their settlement.

“ALL YOUR SUPPORT LAID A BRIDGE FOR ME TO CROSS OVER!!”
1  CHAPTER ONE: GENERAL INTRODUCTION

1.1 Background to Subject Matter ..................................................1
1.2 Reviewing the Problem ...............................................................6
1.3 Problem Statement .................................................................11
1.4 Research Question .................................................................15
1.5 Conceptual Framework ..............................................................17
1.6 Methodology ...........................................................................18
1.7 Data Collection .......................................................................20

2.  CHAPTER TWO: LITERATURE REVIEW ON DISASATERS

2.1 Introduction. ..............................................................................21
2.2 Definition of Disaster ...............................................................24
2.2.1 Classifications of Disasters ....................................................24
2.2.2 Hazards and Disasters ..........................................................26
2.2.3 Disasters and Unfamiliarity .....................................................26
2.3 Disasters and Risk ....................................................................27
2.4 Disasters Myths and Realities ....................................................29
2.4.1 Epidemics ............................................................................30
2.4.2 Disasters and Vulnerability ....................................................33
2.4.3 Disasters and Susceptibility ....................................................34
CHAPTER THREE: THE CONCEPT OF DISASTER RELIEF AID

3.1 Introduction

3.2 Why Disaster Response and Relief

3.3 Disaster Response and Relief debates

3.3.1 National government vs. NGOs

3.3.2 Distribution Issues

3.3.3 Quantity and quality of goods distributed

3.3.4 Cost of relief aid Vs beneficiary’s satisfaction

3.3.5 Disaster relief Vs self reliance

3.3.6 Disaster aid Vs production capacity

3.3.7 Disaster Relief and Cost

3.4 Conclusion

CHAPTER FOUR: ASSESSING DISASTER PREPAREDNESS AND VULNERABILITY IN GREATER JOHANNESBURG

4.1 Introduction

4.2 Background of the City of Johannesburg

4.3 Johannesburg in the context of Gauteng

4.4 Conditions that influence vulnerability in JHB

4.4.1 Migration

4.4.2 Spatial Location

4.4.3 Population size of Greater Johannesburg

4.5 Environmental inequalities in Johannesburg

4.5.1 Water Pollution and Scarcity in Johannesburg

4.5.2 Waste Production in Johannesburg

4.6 Conclusion
CHAPTER FIVE: PROTEA-SOUTH CASE STUDY

5.1 Introduction.................................................................71

5.2 Why Protea-South?.........................................................71

5.3 Geographical location of Protea-South..............................72

5.4 Brief History of Protea-South..........................................73

5.5 Characteristics of Protea-South.........................................74

5.6 Conditions influencing Vulnerability in Protea-South..............76

5.6.1 Energy Usage in Protea-South........................................76

5.6.2 Population Density in Protea-South....................................78

5.6.3 The presence of dolomite in Protea-South..........................81

5.7 Conclusion.................................................................89

CHAPTER SIX: PLANNING APPROACH FOR PROTEA-SOUTH

6.1 Introduction.................................................................90

6.2 Collaborative planning...................................................91

6.3 Strategic choice as a method of planning..............................94

6.4 Collaborative planning and Disaster preparedness?....................95

6.4.1 What is disaster preparedness?........................................95

6.4.2 Conditions that necessitate preparedness in Protea-South...........96

6.5 How Collaborative Planning can help disaster preparedness.........97

6.5.1 Through Housing development in Protea-South......................97

6.5.2 Through representative democracy in Protea-South..................99

6.5.3 Through changes in institutional frameworks........................99

6.5.4 Through systems of governance at local level.........................100

6.5.5 By limiting the privatisation of public goods.........................102

6.5.6 By encouraging public/private partnerships........................103

6.5.7 Effective waste water management....................................104

7 Conclusion...........................................................................105

7.1 Appendix A, Questionnaire...............................................107

7.2 References.......................................................................112
LIST OF FIGURES

1.1 Disaster impacts on human worldwide...........................................09
1.2 A collaborative approach to mitigate disasters................................16
4.1 Location of Johannesburg in the context of Gauteng ......................57
4.2 Courses of the Jukskei and Klip rivers...........................................60
4.3 The map showing SMLC located on the mining belt....................60
4.4 Map showing vulnerable areas in Johannesburg.........................65
4.5 Conceptual Development pattern in Johannesburg.......................69
5.1 Location of Protea-South in Johannesburg.................................72
5.2 Site map of Protea-South............................................................75
5.3 Major sources of fuel in Protea-South..........................................77
5.4 Aerial photograph of Protea-South.............................................79
5.5 Proposed land use plan for Protea-South.....................................80
5.6 Map showing the Geology of Protea-South...................................81
5.7 The Geology of Protea-South in the context of Johannesburg........82
5.8 Poor infrastructure development and health risk in Protea-South......83
5.9 Unprotected sewerage drain hole in Protea-South.......................84
5.10 Environmental management in Protea-South..............................85
5.11 Health and Sanitation in Protea-South........................................86
5.12 Housing inequality in Protea-South............................................87
5.13 A temporarily transit camp for Protea-South residents...............88
6.1 Housing Inequality in Protea-South.............................................98
LIST OF TABLES

1.1 Common disasters around the world.............................................08
1.2 Current disaster trends in the world..........................................10
3.1 How disaster relief funds were distributed to victims in Johannesburg…46
4.1 The Population distribution per MLC in 1996-2001 .......................61
4.2 Rainfall, evaporation and temperature change in Johannesburg........62
4.3 Map showing vulnerable areas in Johannesburg............................63
6.1 A placard showing housing development in Protea-South..............98
<table>
<thead>
<tr>
<th>ACRONYMS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC</td>
<td>African National Congress</td>
</tr>
<tr>
<td>CoJ</td>
<td>City of Johannesburg</td>
</tr>
<tr>
<td>CDC</td>
<td>Centre for Disease Control and Prevention</td>
</tr>
<tr>
<td>CRED</td>
<td>Centre for Research on the Epidemiology of Disasters</td>
</tr>
<tr>
<td>DRFAR</td>
<td>Disaster Relief Fund Annual Report</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development</td>
</tr>
<tr>
<td>EMPs</td>
<td>Environmental Management Programmes</td>
</tr>
<tr>
<td>EMS</td>
<td>Emergency Medical Services</td>
</tr>
<tr>
<td>GEAR</td>
<td>Growth Employment and Redistribution</td>
</tr>
<tr>
<td>GJMC</td>
<td>Greater Johannesburg Metropolitan Council</td>
</tr>
<tr>
<td>IDP</td>
<td>Integrated Development Plan</td>
</tr>
<tr>
<td>JOSHCO</td>
<td>Johannesburg Social Housing Co-operation</td>
</tr>
<tr>
<td>LED</td>
<td>Local Economic Development</td>
</tr>
<tr>
<td>MLC</td>
<td>Metropolitan Local Council</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organisations</td>
</tr>
<tr>
<td>PIZ</td>
<td>Priority Intervention Zones</td>
</tr>
<tr>
<td>RDP</td>
<td>Reconstruction and Development Programmes</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programmes</td>
</tr>
<tr>
<td>UNCHS</td>
<td>United Nations Centre for Human Settlements</td>
</tr>
<tr>
<td>UN/ISDR</td>
<td>United Nations International Strategy for Disaster Reduction</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
<tr>
<td>WSSD</td>
<td>World Summit for Sustainable Development (WSSD)</td>
</tr>
</tbody>
</table>