



THE UNIVERSITY  
*of* LIVERPOOL

**PROMOTING SUSTAINABLE URBAN DEVELOPMENT  
UNDER CONDITIONS OF RAPID METROPOLITAN  
GROWTH: THE CASE OF GREATER CAIRO**

Thesis submitted in accordance with the requirements of the  
University of Liverpool for the degree of Doctor in Philosophy

By  
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***For my late father***

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***Promoting sustainable urban development under conditions of rapid metropolitan growth: the case of Greater Cairo***

***By: Mohamed M. Youssef Ibrahim***

**Abstract**

Since sustainable development emerged as a concept in the early 1980s, its focus has been on global environmental issues. Initially, cities and urbanisation received less attention from the sustainable development movement. Then, in the early 1990s, the Istanbul Declaration on Human Settlements placed particular emphasis on the importance of sustainability within the urban context. Since that time, the international community has come to recognise the sort of problems experienced in urban areas and the need to find solutions to achieve sustainable urban development. The pressures of urban growth, leading to the absence of affordable housing, the lack of green and open areas, and severe employment and transportation problems, have made it difficult to contemplate how the principles of sustainability might be adopted in large metropolitan areas.

In Greater Cairo, a chaotic urban context has existed for over 35 years; the urban government handles urban growth management as piecemeal solutions. The absence of any long-term vision for urban growth and urban policies integration has always been the case in the Egyptian urban planning process formula. This chaotic situation has generated complex urban problems, manifested in the form of vast urban growth on agricultural land, daily commuting to the inner city, increased rate of private automobile dependency, and increased rate of air and water pollution. The socio-economic and environmental aspects of integration have been neglected although there is an urgent need for such an approach in chaotic Cairo between land-use planning, transportation and the environment. Since the release of the first urban policy in 1970, followed by updates in 1986 and 1998, the Egyptian urban government has responded to its urban problems without fully taking into account the consequences of current decisions on present and future generations. In addition, the Egyptian urban government envisions sustainable urban development from a very acute perspective, which is summed up into environmental considerations, without fully understanding the strong involvement of the social, economic, built environment and the political aspects embedded within the sustainable urban development framework. The difficulties are accentuated by the fact that, unlike many other large cities, Greater Cairo occupies a sensitive political position as the capital of Egypt and centre of an authoritarian regime that has existed since 1981 and which places undue emphasis on maintaining the status quo in political terms.

This research focuses on providing the critical requirements for achieving sustainable urban development in the case of chaotic Cairo, which is

experiencing rapid metropolitan growth, by analysing the opportunities and constraints in the Greater Cairo Metropolitan Region. This thesis argues that urban government planners in Egypt have ignored sustainable urban development advantages for improving the quality of both nature and built environments. In addition, the urban planning authority needs to be revamped and radical changes must be initiated to address a catastrophic rapid urban growth situation in the GCMR; new strategies are required to address these problems. Consequently, this research proposes critical prerequisites and a guidelines strategy to achieve sustainable urban development in the GCMR context based on current sustainable development theory found in the literature; constructive examples taken from the previous experiences of sustainable communities around the world, and outcomes of interviews with those concerned with the Egyptian urban development process. The thesis examines the Egyptian urban context and the current drawbacks of urban policy in relation to the requirements of sustainable urban development; it identifies urban development stakeholders involved in the process, provides an essential strategic framework to achieve sustainable urban development, and proposes future scenarios for Greater Cairo.

In order to achieve the main objectives of the research, the thesis utilises various methodological approaches, including sustainable urban development contextualisation through a literature review, and fieldwork interviews with various Egyptian government officials, NGOs and academic centres. In addition, the thesis extends the utilisation of a scenario-building method – used in various scientific fields – as an added value to the sustainable urban development field. This scenario-building method enables the identification of critical requirements for sustainability in the GCMR through building three future scenarios that have been developed to inform the proposed strategic framework for chaotic Cairo. The proposed strategy includes institutional, political and cultural prerequisites for top government authorities, urban development stakeholders, and the public. In addition, the proposed strategy provides practical applications for Egyptian urban planning officials including organisational restructuring of the Ministry of Housing, Utilities, and New Communities (MHUNC), and a new urban growth policy for Greater Cairo that takes into account sustainable urban development.

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**List of acronyms and abbreviations**

<b>CSD</b>	: Capital Stock of sustainable Development
<b>GCMR</b>	: Greater Cairo Metropolitan Region
<b>GCPA</b>	: The Greater Cairo planning authority
<b>GOPP</b>	: General Organisation for Physical Planning
<b>GVRD</b>	: Greater Vancouver Regional District
<b>IPPUC</b>	: Urban Planning Institute of Curitiba
<b>ISP</b>	: Ismailia Sustainable Project
<b>IUCN</b>	: International Union for the Conservation of Nature
<b>LRSP</b>	: Liveable Region Strategies Plan
<b>MHUNC</b>	: Ministry of Housing, Utilities and New communities
<b>NGO</b>	: Non-Governmental Organisations
<b>NT</b>	: New Towns
<b>NUO</b>	: National Urban Observatory
<b>SD</b>	: Sustainable Development
<b>SUD</b>	: Sustainable Urban Development
<b>TOD</b>	: Transit Oriented Development
<b>UN</b>	: United Nations
<b>UNDP</b>	: United Nations Development Programme
<b>UNEP</b>	: United Nations Environment Programme
<b>UNESCO</b>	: United Nations Educational, Scientific and Cultural Organisation
<b>USAID</b>	: United State Aid Agency
<b>WCED</b>	: World Commission on Environment and Development
<b>WSSD</b>	: World Summit on sustainable Development



**PART 1:**

**CONTEXTUALISATION OF SUSTAINABLE URBAN  
DEVELOPMENT: THEORETICAL AND PRACTICAL  
FRAMEWORK**

## **Introduction to part 1**

Part 1 presents a literature review of sustainability and sustainable urban development that provides the research theoretical framework to inform the Greater Cairo Metropolitan Region (GCMR) sustainable urban development proposal in later chapters. It discusses sustainability in terms of theory and practice. Why study sustainability in the urban context? The city is a group of interacting systems – socio-economic, environmental and physical – brought together in one place. What makes urban settings especially interesting is that “cities are organised systems of many interacting biophysical and socioeconomic components and that the way they are organised and managed affects the level of environmental pressure that individuals exert” (Alberti and Suskind, 1996 p: 213). That is, a wide range of components make up the city, which, if not managed properly, cause environmental degeneration, as can be seen in the GCMR case study. Most global and regional environmental problems have originated in cities because of the high concentration of people and the resulting human activities, and the process of urbanisation increases the use of energy with consequent deleterious effects on the natural environment. In general, the level of urbanisation influences both levels of energy use and greenhouse gas emissions (see Jones, 1991 and, Parikh and Shukla, 1995).

This research suggests that it is important to investigate to what extent sustainable or smart communities are able to deliver sustainability to the urban context. Another consideration is whether it is feasible to adopt successful ideas and techniques, across borders and continents, from other parts of the world, in order to successfully propose a new sustainable urban development strategy for the GCMR. Within this context, it is important to bear in mind the root of the sustainability concept because of the many different interpretations that have evolved since its creation in the Brundtland Commission Report in 1987.

Chapter 2 lays the research theoretical framework; it discusses the components of sustainable development including definition, origin, perspectives and components. The chapter examines the historical events

involved with the development of the sustainable development concept, including the present debates about the development of a proper definition of the concept that serves the research aims and objectives of this study. In addition, this chapter contextualises sustainable urban development, including aspects and strategies in order to tease out problems of policy delivery in the GCMR. The chapter presents the major components of sustainable urban development and policy interventions that have been suggested in the past, which serve as possible models for sustainability policy strategies in the GCMR. In addition, previous attempts to apply the sustainable development concept in the urban context are provided in order to discuss the implementation of sustainable development in different economic contexts. A selected number of international examples from regional to local scales are discussed, and the sustainable development characteristics of each example are analysed. Finally, the chapter summarises the critical issues that form the sustainable urban development conceptual framework, which is used to investigate the Greater Cairo case study. The conceptual framework is utilised as a benchmark in the process of creating a proposal for a suitable sustainable urban development strategy for the GCMR.

Chapter 3 investigates the proposed methodologies adopted in this research, including the rationale for choosing case study as a methodological approach. In addition, it discusses the Greater Cairo case study design and analytical factors that formulate the body of fieldwork data collection and interviews. This chapter also discusses the utilisation of scenario-building technique and its contribution to the GCMR sustainable urban development proposal. Scenario-building discussion includes the methodology of identifying the critical factors that influence the GCMR future scenarios through the outcomes of the sustainable urban development conceptual framework and fieldwork interviews.

# CHAPTER 1:

## INTRODUCTION

“Nowhere is the implementation of sustainable products and processes more important than within cities” (Lord Rogers, 1999 p: 28)

### 1.1 Introduction

The publication of the report “*Our Common Future*” in 1987 by the World Commission on Environment and Development (WCED) provides a definition of sustainable development that developed a "global view" with respect to our planet's future. The definition of sustainable development given by the Brundtland Commission serves as the core element for almost all definitions. Sustainable development is a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987).

In the 1980s, there were those who proclaimed that sustainable development was no more than a catchphrase that eventually would wither away, much as the concept of appropriate technology in the 1970s did. Somewhat surprisingly, the influence of the concept has actually increased significantly in international and national policy development circles; the concept has become the core element for many policy documents produced by governments, international agencies and business organisations. This has led to a widening of the discourse on the concept of sustainable development, reflected in a variety of definitions and interpretations.

Several initiatives were embarked upon at global, national and local levels in an attempt to address different aspects of sustainable development. A number of encouraging local outcomes have ensued from these activities.

However, the increase in environmental concern around the globe has resulted in a growing interest in the need to extend sustainability principles to national and local planning levels. Sustainability integration has become an essential part of the planning process from the national level down to the local level; in other words, theory has been transferred into practice. Nowadays, several examples such as mass transit initiatives, transit-oriented development communities and environmental initiatives at local community scale demonstrate the direct impact of sustainability theory in terms of Local Agenda 21, which allows each country to adopt suitable sets of sustainability objectives according to that country's circumstances, environmental and transportation initiatives, social, economic and environmental indicators, and increased environmental awareness.

The main concerns of sustainability are not limited to protection of the environment, as most policy makers seem to believe, especially in developing countries. Rather, they concern the balance between economic growth, social prosperity, protection of the environment, and enhancement of the built environment. This is the definition of sustainable development adopted in this research. Sustainable communities in a wider sense are communities that offer a decent place to live, work, and move around without exploiting the environment. Within this simple definition lies a rich area of research, where what might be applicable in one place, might not be so in another. Metropolitan cities have always debated sustainability issues. The absence of affordable housing, green and open areas, employment and transportation problems raise the question of what is the future of sustainability in metropolitan cities. In the GCMR, urban growth expands every day with new development projects; the pressures for new housing, employment and transportation are prompting the urban government to respond without being fully aware of the consequences of their decisions for both present and future generations. Growing concerns for the future of the sustainability trend in the city have for several years been evidenced through academic research, and the government's strategies and policies. It is along these lines that the idea of this research has emerged: this research aims to develop a suitable sustainable urban development proposal for the GCMR.

## **1.2 Cairo, the political centre of the Middle East: the rationale for choosing the GCMR as the research case study**

High concentrations of population, economic activities, wealth and power have led to serious urban problems, resulting in several attempts since 1960 to manage and reorganise the growth of the Greater Cairo Metropolitan Region (GCMR) and to decentralise the population and its activities. In the GCMR, a chaotic urban context has existed for over 35 years since the implementation of the Greater Cairo Master Plan in 1970. Since the release of the first urban policy in 1970, which was followed by updates in 1986 and 1998, the Egyptian urban government has responded to urban problems without fully taking into account the consequences of current decisions on present and future generations.

Alterations to the GCMR urban policy have been particularly noticeable on several occasions for their effects on the urban policy of new towns, such as the introduction of various transportation plans, vast urban growth on agricultural land, daily commuting to the inner city, an increase in private automobile dependency rate, an increased rate of air and water pollution, and alteration of land-use activities. Housing shortages in the GCMR has always been a problem even after introducing an urban policy for new towns in 1970. A summary of some of these critical urban problems is as follows:

- Housing in the new towns is too expensive for lower and middle class workers and has attracted speculators rather than residents (Stewart, 1996). Poor basic services and the lack of social and educational infrastructure have also discouraged families from settling in the new towns. The majority of the “desert cities” remain empty due to lack of water, electricity and transportation infrastructures (Denis, 1997). By the early 1990s, the state had handed the future of these new cities over to private promoters and speculators who constructed villa complexes and enclosed elite compounds, often with integral golf courses (Stewart, 1996).

- Despite the design and execution of major transportation projects that include the Cairo subway, ring road and bridges, the GCMR is suffering from congestion, accidents and delays at many major junctions, and bad road conditions. The principal causes are the rapid growth in the number of private vehicles and their unrestrained use, a poorly developed road network, insufficient investment in the current public transport system, lack of monitoring and maintenance, poor planning and government indecision. During the 1978–1991 period, the number of motor vehicles registered in the GCMR increased from 0.5 million to over 2.6 million, an annual average rate of 13.5% (GCUDS, 1992).
- Vehicle emissions along major roads in the more intensively developed portions of the region were found to be dangerous to human health between 1989 and 1997, based on studies conducted by the national environmental board (UNCSD, 1997). Using an air quality index of 100 as the maximum acceptable tolerance level, the board measured an annual average of 277. Another study found that approximately 900,000 GCMR residents, almost 10% of the total population, suffered from respiratory illnesses due to air pollution (Rodenbeck, 2000).
- Local governments in the GCMR are unable to address the impacts of growth in an effective manner because they are dependent upon national government ministries for technical and financial resources. Moreover, these ministries are typically focused on promoting economic growth rather than supporting local efforts to address the adverse impacts of growth. These efforts are weakest in precisely the area of the GCMR that is growing fastest – that is, the peripheral areas, the outskirts, of the GCMR, where there is an equally rapid deterioration of environmental conditions. This deterioration occurs because of ineffective planning policies and inadequate services (UNDP, 2004).

The impact of these GCMR policies has created what we can call a chaotic Cairo urban situation, which has generated complex urban and environmental problems. The Egyptian urban government responses to this chaotic situation have not lived up to expectations. They handled urban growth management as piecemeal solutions, by altering the GCMR urban policy inconsistently; it lacks any strategic integrated perspectives, which raises a number of concerns related to future urban growth in the GCMR. The integration and strategic characteristics embedded in sustainable development could be adopted, in order to benefit from a sustainable urban development contribution, to provide solutions to encounter vast urban growth in a way that preserves the right for present and future generations to live in a healthy urban environment. The main concerns for sustainable urban development are to provide social, economic and environmental policies in an integrated form to secure this right and, when this is achieved, sustainability will meet the needs of chaotic Cairo. The absence of urban growth long-term vision and urban policies integration have always been the case in the Egyptian urban planning process formula. Socio-economic and environmental aspects of integration have been neglected in the GCMR urban policy despite the urgent need for such an approach in chaotic Cairo between land-use planning, transportation and environment. In addition, the Egyptian urban government envisions sustainable urban development from a very acute perspective, based on environmental considerations, without fully understanding the strong involvement of the social, economic, built environment and the political aspects embedded within the sustainable urban development framework. The difficulties are accentuated by the fact that, unlike many other large cities, Greater Cairo occupies a sensitive political position as the capital of Egypt and centre of an authoritarian regime that has existed since 1981 and which places undue emphasis on maintaining the status quo in political terms.

It can be concluded that the urgency for providing the critical requirements to achieve sustainable urban development for the case of chaotic Cairo is justified in order to sustain the current urban context to account for present and future generations. In order to promote sustainable urban development



in the GCMR, the urban planning authority needs to be revamped; radical changes must be initiated to address the catastrophic rapid urban growth situation in the GCMR, and new strategies are required to address these problems. Consequently, this research proposes critical prerequisites and guidelines to achieve sustainable urban development in the GCMR context based on current sustainable development theory found in the literature, constructive examples taken from the previous experiences of sustainable communities around the world, and the outcomes of interviews with those concerned with the Egyptian urban development process. The thesis examines the Egyptian urban context and the current drawbacks of urban policy in relation to the requirements of sustainable urban development, identifies urban development stakeholders involved in the process, provides an essential strategic framework to achieve sustainable urban development, and proposes future scenarios for Greater Cairo.

The main aim of this research therefore is to explore sustainability in both theory and practice in order to develop a sustainable urban development proposal for the GCMR. The research identifies the basic requirements for sustainable urban development and analyses a number of future scenarios in the GCMR. Despite the fact that research on sustainable development in the GCMR is so far quite limited, international literature on the subject is rich; the literature reveals that interpretation of the concept of sustainability depends on the social, economic, political and institutional aspects of each country. The circumstances of sustainable communities in both developed and developing countries differ; consequently, this study examines the concept of sustainable urban development in theory and practice and how it relates to future sustainability of the GCMR, and provides an insight into how the Egyptian policy makers approach the issue of sustainability. It can be argued that the common perception of sustainability by Egyptian politicians and policy makers is restricted to environmental concerns, but that it ought to be a wider concept that extends to embrace social, economic, institutional and political attitudes.

### 1.3 Sustainable development overview

The initial research task was a wide-ranging literature review of sustainable development. It became evident that the concept has different interpretations and perspectives, for instance, there may be differences in the geographical scale of study, depending on whether it be on a global, national or local level. Consequently, the objectives of sustainable development vary from global warming issues to the tiny details of a garbage collection system at the local level. In addition, the definition of sustainable development varies according to the social, economic and environmental background. For instance, issues such as equity and racism might be seen as social aspects of sustainable development, while protecting natural assets and habitats are considered environmental aspects. The literature that discusses the aims and objectives of sustainable development (e.g. Holmberg, 1994, Mappem and Gill, 1998, Bell and Morse, 2001, 2003 and 2005) revealed that the objective of sustainability is not a question of winning or losing with regard to the level of development – in other words, sustainability is not all or nothing. Instead, planning for sustainability requires an explicit accounting of perspectives and must involve broadly representative stakeholder participation. In addition, we determine success retrospectively, so the emphasis in planning should be on process, collective consideration and context-related progress rather than on achieving remote targets. Most importantly, policy makers are required to seek tools, strategies, policies and instruments to direct progress towards integrated economic, ecological and socio-cultural approaches for community urban development.

The literature also revealed the evolution of the sustainability concept from the contributions of urban and regional planning authors. The findings of previous studies justify the promulgation of sustainable urban development in the city context (e.g. Camagni *et al.*, 1998; Nijkamp and Perrels, 1994; Haughton and Hunter, 1994; Camagni, 1994; Nijkamp and Opschoor, 1995; and Nijkamp, 1996). For instance, the common interpretation of a sustainable city as a city in which 'natural environmental aspects' are given overall priority in urban policy is a rather limited interpretation. Haughton and Hunter (1994) describe a sustainable city as a city where both people and

businesses continuously endeavour to improve their natural, built and cultural environments at various spatial scales, including neighbourhood and regional levels, to support the goal of global sustainable development. This means that the concept of a sustainable city is multidimensional which embraces various development aspects (social, economic and environmental), and engages various geographical development levels (global, national, regional and local).

In addition, the literature revealed three aspects in which to achieve sustainability in the urban context: the economic, the social or cultural, and the physical environment. These aspects present challenges for planners, especially in the creation of policies and actions because they require integrated policies to impact sustainability. Consequently, sustainability requires a multi-faceted strategy in which socio-economic interests operate in harmony with environmental and cultural interests. Lynch (1981 pp: 35-37), advocating such ideas, claims: “the good city is one in which the continuity of this complex ecology is maintained while progressive change is permitted”. Lynch emphasises that progress and development is possible without destroying the ecology. This research considers Lynch’s argument as an important goal in the proposals for the GCMR sustainable urban strategy.

Moreover, to guide the city towards urban sustainability, the literature discusses two main fields of intervention policy – technology and territorial, of which the former is more common. A reduction in polluting technologies keeps environmental pollution under control through less polluting transport and heating systems, and through a generally more efficient use of energy. In this way, input substitution becomes the short-term aim of urban sustainability policy through a lower use of polluting and energy intensive technologies (Nijkamp, 1996).

Technology is not the only field where urban sustainability policies are required. In the past few years, several attempts have been made to identify optimal structures of urban form that would minimise energy consumption and environmental pollution. The territorial form of an urban system, and the

organisation of its activities in space, is a second field of intervention that may lead towards urban sustainability. For example, the 'compact city' idea promotes the reduction of trip length and thus energy use. Breheny (1992) suggests that sustainable development requires a systematic identification and analysis of alternative urban configurations and a critical judgement of such options, as excessive urban density is equally undesirable.

In the long term, a change in urban form may become the goal of urban sustainability policy. In fact, mobility patterns change substantially only in the presence of a change in urban locations and land-use patterns. Urban planning researchers recognise that regional and urban development planners generally ignore environmental interests, especially in the cities of developing countries, and normative guidelines, such as carrying capacity and regenerative capacity norms (Nijkamp, 1996).

A third field of possible policy intervention is personal 'life-style'. In developed countries, the present lifestyle results from increased per-capita income and energy prices that do not include the full social costs of energy use. Private car ownership is on the rise, as well as the density of electrical appliances per family. Sustainable policies would influence these habits. For example, a differentiated price of electric energy at certain hours of the day would influence energy use for private needs in peak hours. If these are short-term policies, long-term ones should try to orient structural changes in social behaviour, encouraging more environmentally oriented attitudes. However, in developing world cities, low per-capita income and high social-class disparities determine a different lifestyle that is oriented towards daily survival and influenced by less access to basic social services such as education, health and sanitary infrastructures. All these services allow people to change their habits, to raise their standard of living, and to avoid environmentally damaging social behaviour (Button, 1992).

#### **1.4 Research main questions and objectives**

After a brief scan of the literature, the question, however, remained: How to achieve the main aim of the research – developing a sustainable urban

development proposal for Greater Cairo. This requires breaking down the topic into specific questions and objectives. These questions will guide and inform the research with the specific tools and targets; the main questions of the research are as follows:

- *What* are sustainability and sustainable urban development in terms of concept, fundamentals and components? Moreover, *why* is sustainability important for urban development?
- *What* is the empirical evidence of achieving sustainable urban development in developed and developing countries? In addition, *how* do these examples contribute to the GCMR attempt to achieve sustainable urban development?
- *Why* is the GCMR in need of sustainable urban development and *what* are the current urban development constraints that prevent the GCMR from achieving sustainability?
- *How* can the GCMR achieve sustainable urban development and *what* are the essential requirements in order that it may do so?

The next step transfers the previous questions into specific objectives in order to determine the methodology required to answer these questions and to define the tasks and analytical framework of the research. In order to answer the previous questions, five main objectives have been determined:

- Define the theoretical concepts of sustainability, sustainable urban development and sustainable communities within the research context in order to build a base of expected sustainability requirements in the urban context.
- Distil evidence of sustainable urban development achievements at the international level to inform the applicability of the sustainability theoretical concept.
- Analyse the current urban context in the GCMR in order to identify the current constraints and critical sustainability concerns.
- Identify the critical sustainability issues that determine the future achievement of sustainable urban development in the GCMR.

- Analyse a number of future scenarios for the achievement of sustainable urban development in the GCMR and determine the possible areas of intervention as guidelines for future development.

## **1.5 Structure of the research**

In this study, the research provides a sustainable urban development proposal for solutions to the catastrophic rapid urban growth situation in Greater Cairo that are built on previous research and international examples of sustainable urban development. This research maintains that Egyptian urban planners are unable to implement sustainability for a variety of reasons, which has led to the current situation. In addition, the research argues that radical changes must be implemented before urban problems become impossible to correct. Figure 1.1 shows the initial steps taken as the research's different stages are developed. Figure 1.2 describes the research from a theoretical and empirical perspective.

### **Stage 1: Contextualisation of sustainable urban development theoretical and practical framework**

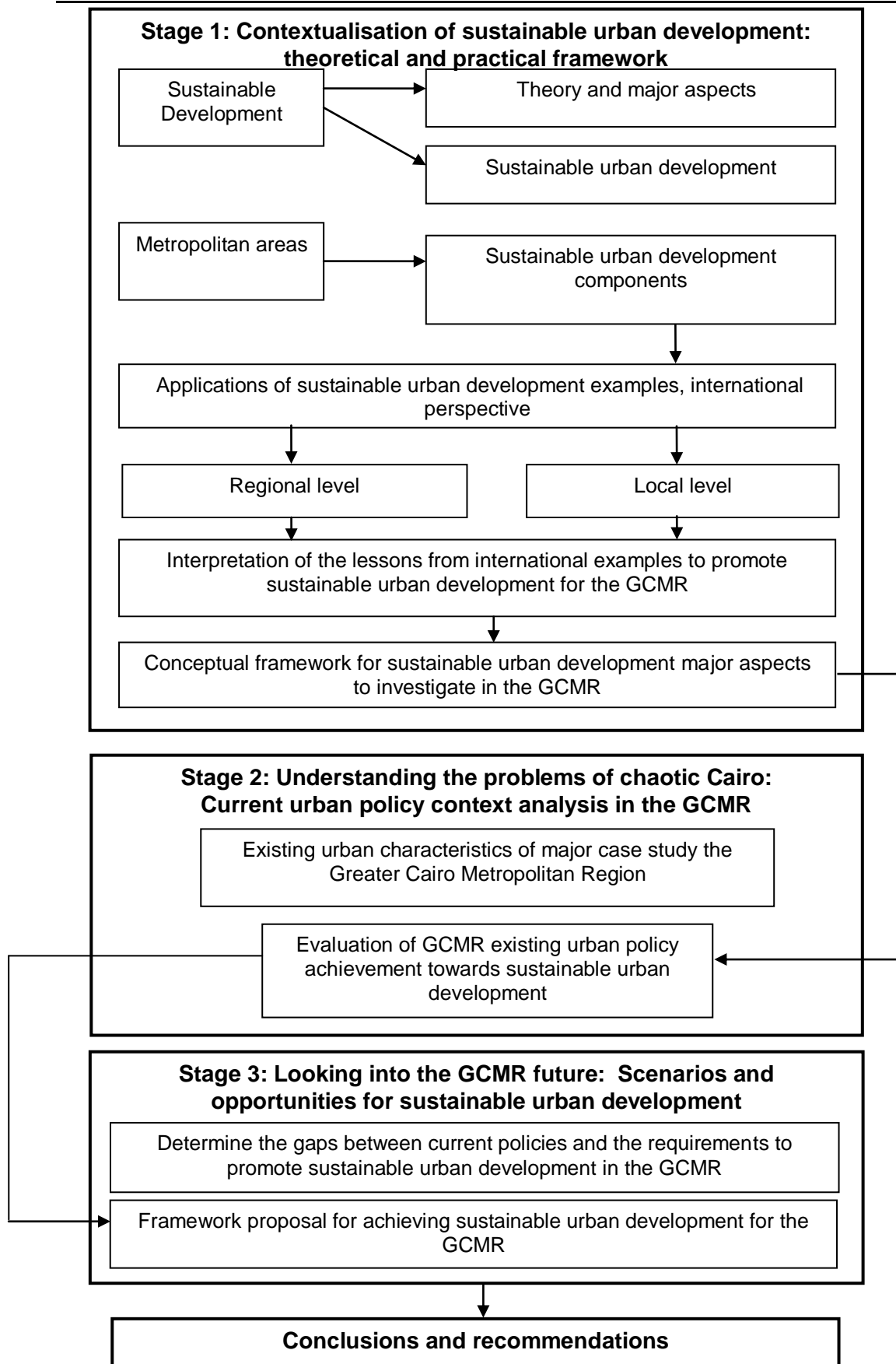
Part 1 (chapters 1, 2 and 3) is devoted to the literature review of sustainable development and sustainable urban development in theory and practice. Chapter 2 discusses the fundamental issues of sustainable development, including a definition, origin, perspectives and components of sustainable development. In addition, chapter 2 examines the major components of sustainable urban development, and discusses a selected number of international examples from the regional to the local scale. The examples demonstrate two different aspects: the first aspect is concerned with the variety of experiences all over the world, and the second is concerned with the spatial scale of the case studies, because implementation of sustainable policies on the local level is influenced by regional policies. The chapter discusses the major issues and various strategies adopted in these examples in order to summarise the critical issues that contribute to this research goal of proposing a sustainable urban development proposal for the GCMR. This part identifies and builds the theoretical framework of the research according to previous research development, including possible orientations of the research. This review of the research lays the foundation for the GCMR

sustainable urban development conceptual framework, and shows urban planners some of the latest concepts and developments in the field of sustainable urban development.

**Stage 2: Understanding the problems of chaotic Cairo; current urban policy context analysis and sustainable urban development challenges in the GCMR**

Part 2 (chapters 4 and 5 and 6) critically examines the existing GCMR urban context and the current sustainable urban development achieved (if any). Chapter 4 analyses the current urban context in terms of previous and current urban policies in Egypt generally and in the Greater Cairo Metropolitan Region (GCMR) specifically, and considers the consequences of such policies on urban aspects such as environment, population, employment, housing, transportation and urban growth. In addition, the chapter discusses the demographic, economic and physical changes associated with rapid growth in the GCMR, including the urban policies of new towns, and how they shape the existing and future urban context in the GCMR. The chapter focuses on the trend of increasing environmental degradation caused by Egypt's urban policies and the current concern about long-term sustainability of the GCMR. Finally, the chapter describes current efforts to manage urban development. The urban context conditions described in this chapter provide proof that radical changes must be implemented in the GCMR.

Based on the findings of the sustainable urban development conceptual framework in chapter 2 and the GCMR urban context evaluation in chapter 4, fieldwork was essential in order to investigate the recent changes in the GCMR urban context and to investigate the opinions of current and future stakeholders concerned with sustainable urban development in the GCMR, such as the government, academics and NGOs.



**Figure 1.1: Research methodology framework**



## **Developing research questions and sustainable urban development theoretical framework**

### **Stage 1: Contextualisation of sustainable urban development: theoretical and practical framework**

**Chapter 1:** Introduction to the research's aim, objectives and research

**Chapter 2:** Contextualisation of sustainable urban development for solving the problems of chaotic Cairo

**Chapter 3:** Research methodology

## **Understanding the problems of chaotic Cairo**

### **Stage 2: Current urban policy context analysis in the GCMR**

**Chapter 4:** Understanding the GCMR urban policy

**Chapter 5:** Current challenges for achieving sustainable urban development in the GCMR (Interviews outcomes)

**Chapter 6:** Central requirements for achieving sustainable urban development in the GCMR (Theories and Interviews outcomes)

### **Stage 3: Looking into the GCMR future: Scenarios and opportunities for sustainable urban development**

**Chapter 7:** Future development scenarios for sustainable urban development in the GCMR

**Chapter 8:** A proposal for achieving sustainable urban development in the GCMR

## **Conclusions and recommendations**

**Chapter 9:** Research findings/ PhD added value and future research opportunities

**Figure 1.2: Research main stages and chapters structure**

Chapter 5 analyses the findings of the fieldwork interviews and explores the critical issues influencing current urban policy such as any political and organisational aspects that might be obstacles for future sustainability in the GCMR. The lively debate generated by the interviews shows that those concerned with urban planning for the GCMR are interested in the issues and receptive to new ideas.

Chapter 6 links the theoretical findings in chapter 2, which discusses sustainable urban development, with the findings of chapter 3, which discusses the lessons from international examples, and how these theories and lessons fit in to the GCMR urban context. This chapter discusses the interview section that concerns the opinions of interviewees regarding the applicability of international examples in the Egyptian urban context. Finally, the chapter addresses the findings from a number of critical topics that are essential for sustainable urban development achievement in the GCMR.

**Stage 3: Looking into the GCMR future; scenarios and opportunities for sustainable urban development**

Stage 3 (chapters 7, 8 and 9) determines current sustainable urban development gaps, proposes a framework to achieve sustainability in the GCMR, summarises the research findings and makes further recommendations for future achievements in sustainable urban development in the GCMR. Chapter 7 discusses possible future scenarios for achieving sustainable urban development in the GCMR using the scenario-building technique. Scenario building is a way of envisioning the shape of the future rather than predicting what will happen. The chapter discusses the critical actors, driving forces and sectors that influence the sustainable urban development future of the GCMR. In addition, the chapter analyses the focal question of how to achieve sustainable urban development in Greater Cairo and uncertain factors that are involved in the scenario-building process for the GCMR, setting the assumptions for each scenario and drawing the storyline for each scenario. Finally, the chapter derives a set of priorities selected from the different scenarios in the form of a hybrid alternative.

Chapter 8 takes the last point of chapter 7 and elaborates on possible areas of intervention, areas such as organisational changes in the urban government bodies, urban policy interventions, partnerships required and academic and civic society involvement in future urban development.

Chapter 9 draws conclusions and outcomes from the research. It discusses the aim and objectives, whether the research provides answers to the main questions and to what extent. Throughout the thesis, the research argues that new strategies in urban planning are required to address the severe problems of the GCMR. In this chapter, the research provides answers to what is a suitable strategy for achieving sustainable urban development for the Greater Cairo Metropolitan Region, what are the major constraints and opportunities existing in the current urban context, and how these obstacles can be overcome, and suggestions for further research that is urgently required.

## **CHAPTER 2:**

# **CONTEXTUALISATION OF SUSTAINABLE URBAN DEVELOPMENT TO SOLVE CHAOTIC CAIRO PROBLEMS**

“More creative sustainability-related initiatives can sometimes take place in developing nations than within industrialised countries, because of urgent crises demanding immediate action, centralisation of government authority, more dynamic political leadership, or a lack of established bureaucratic tradition. For such reasons the Brazilian city Curitiba has emerged as one of the world’s leading examples of creative urban development” (Wheeler and Beatley, 2004 p: 237)

### **2.1 Introduction**

This chapter discusses the theoretical and practical framework of sustainable urban development to formulate a conceptual framework to promote sustainable urban development in the GCMR. The chapter is divided into two main parts. In part 1; sustainable development is being discussed in terms of historical background, the evolution of the concept since the 1970s, sustainable development definitions and the main aspects such as social, economic, environmental and political. Moreover, it includes a discussion of sustainable development integration and evaluation and monitoring of sustainability through indicators in order to formulate a working definition of sustainable development for the GCMR urban context.

Part 2 explores the concept of sustainable city, and the main components and policies intervention that are required to achieve sustainable development in an urban context. This part is concerned with the second objective of the research, which is meant to demonstrate examples (empirical evidences) of sustainable urban development achievements at the international level to inform the applicability of the sustainable urban development conceptual framework to the GCMR. This part focuses on policies concerning urban form and how it influences the transportation

system, such as compact city form, land use distribution and population densities. Following guidelines and indicators are a key to achieving sustainable urban development. Moreover, the ability to create new solutions to achieve SUD under economic pressures, such as in the case of Curitiba, Brazil, indicates possible lessons to be learned from developing countries.

The last section of this chapter is concerned with formulating a sustainable urban development conceptual framework to investigate a sustainable urban development proposal for the GCMR. This part identifies the critical aspects extracted from literature and practical applications which are essential to transport Cairo from its existing chaotic urban policy to a more integrated sustainable urban development policy.

## **Part 1: Sustainable development theoretical foundations**

### **2.2 Sustainable development overview**

This section discusses an overview of what is a sustainable development concern in terms of the evolution of the concept. It describes the historical background of sustainable development and the sustainable development definitions debate. Furthermore, it discusses the role of international communities to promote sustainable development at both global and national levels through the efforts of United Nations and HABITAT conferences. The aim of this section is to provide the reader with the growing importance of sustainable development for both global and national concerns.

#### **2.2.1 Historical background**

In 1972, the Club of Rome edited its *Limits to Growth* (Meadows et al., 1972). This report describes a computer-based dynamic systems modeling and its results. Different scenarios about the carrying capacity of the planet and simulations of the future availability of resources showed, with selected resources-related indicators, that humanity was about to destroy its living space. The shocking effect for the public was more lasting than the scientific bases of the report. The methods were too simple, and the computers utilised were not powerful enough to comprehend the complexity of the man–environment system. The self-healing effects and the flexibility of ecosystems

as well as the technological and biogenetic progress were underestimated. Mankind has survived until the present, and the raw materials have not run out. However, as not all natural resources are recyclable or substitutable, it would be misleading to propose that there are no limits to growth. Another model developed after the limits to growth model by the same author was called *World3 simulation model*. This model is based on similar presumptions to the 1972 model, and it takes into account the principle of sustainable development as well. The outcomes indicate that eventually a scenario of collapse is inevitable. For him, it is too optimistic to believe in sustainable development, for it would already be too late to achieve this goal. The report draws attention to the approaching danger to the environment and natural resources if the world does not make the protection of the environment a priority.

In 1972, the United Nations Conference on the Human Environment, held in Stockholm, introduced the debate about the causes of global environmental degradation and poverty. For the first time, this conference allowed the environmental degradation issues to be discussed on the international level and opened the possibilities for further development, such as the United Nations Environmental Programme (UNEP). The programme set out specifically to address environmental issues of monitoring and coordinating international action; Connelly and Smith note that its role is a catalyst in almost every area of global environment (1997). Their comment suggests the importance of the effect of this conference in the field of sustainable development.

By the 1980s, some proclaimed that sustainable development was no more than a catch phrase that eventually would wither out much as the concept of appropriate technology of the 1970s did. However, the publication of the World Commission on Environment and Development (WCED) report in 1987 "*Our Common Future*" has significantly increased the use of the concept. Despite its acclaimed vagueness and ambiguity, this report is significant because it calls for all nations to integrate sustainable development into their goals and adopt the following principles as a guide for policy action. "They

must revive growth, change the quality of growth, conserve and enhance the resources base, ensure a sustainable level of population, reorient technology and manage risk, reform international economic relations, and strengthen international cooperation” (WCED, 1987 pp: 4-5).

### **2.2.2 Sustainable development definitions**

The WCED definition of sustainable development has been highly instrumental in developing a “global view” with respect to our planet’s future. The Brundtland Commission defines sustainable development as: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987 p:4). The Brundtland definition does not inform spatial planners or economists about how to recognise sustainable development, neither what its main characteristics might be, rather it just identifies the problem (Batty, 2001). This has led to a widening of the debate on the concept of sustainable development, resulting in a variety of definitions and interpretations.

In its broadest sense, sustainable development implies that whatever is new should not harm future generations—a concept often expressed as “do not cheat on your kids”. However, the precise meaning of sustainable development varies depending upon who is using it and in what context. In Box 2.1, some of these definitions, which are ranked based on authors’ backgrounds and interests, are explored. The philosophy behind sustainability can be grouped into two major camps. The first camp opposes economic growth and considers the economic aspect the greatest enemy of sustainable development; hence, the World Conservation Union relates to this camp. The second camp believes that economic growth with the compromise of the environment and nature will be the solution for decreasing the gap between the poor and rich, in terms of equality. The Brundtland definition of sustainability can be classified under this camp as it emphasise development as necessity for protecting the environment. In addition, the Brundtland Commission definition opened the door for different interpretations of the concept (Mebratu, 1998).

### **Camp 1**

“Sustainable development means improving the quality of human life while living within the carrying capacity of supporting ecosystem.”

World Conservation Union (1991)

“Sustainability implies that the overall level of diversity and overall productivity of components and relations in systems are maintained or enhanced.”

Richard Norgaard (1988)

“Sustainable development is any form of positive change which does not erode the ecological, social, or political systems upon which society is dependent.”

William Rees (1992)

“Sustainable development is usually applied to less developed countries and the kind of economic and social development needed to improve the living conditions of the world's poor without destroying or undermining the natural resource base.”

John McCormick (1991)

“Sustainability is the fundamental root metaphor that can oppose the notion of continued exponential material growth.”

Ernest Callenbach (1981)

### **Camp 2**

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Brundtland Commission (1987)

“Sustainability requires at least a constant stock of natural capital, construed as the set of all environmental assets.”

Pearce and Jermey (1993)

“Sustainable development means basing developmental and environmental policies on a comparison of costs and benefits and on careful economic analysis that will strengthen environmental protection and lead to rising and sustainable levels of welfare.”

World Bank, World Development Report (1992)

“A sustainable society is one that can persist over generations, one that is far seeing enough, flexible enough, and wise enough not to undermine either its physical or its social systems of support.”

Donella Meadows, et.al (1992)

“The process of managing social demands without eroding life support properties or mechanisms of social cohesion and resilience.”

Nazli Choucri MIT (1997)

### **Box 2.1: Some definitions of sustainable development**

Mebratu (1998) discusses the different interpretations of sustainable development. He suggests that sustainable development has institutional, ideological and academic interpretations. For the institutional version, Mebratu suggests that the given definition by WCED, the International Institute of Environment and Development (IIED), and the World Business



Council for Sustainable Development (WBCSD) can be taken as representative – they all share the same definition of sustainable development, which is based on need satisfaction, with a wide spectrum of interpretation.

At the ideological level, Mebratu suggests that although there are some factors that indicate the emergence of a distinct green ideology, the environmental versions of classic ideologies such as liberation theology, radical feminism and Marxism dominate, while eco-socialism considers capitalist oppression as the major source of the environmental crisis (Pepper, 1993). With the rise of modern environmentalism in the 1970s, a new debate between red and green politics emerged, which led to the evolution of the concept of eco-socialism. Pepper defines eco-socialism: “Eco-socialism is based on the assumption that sustainable, ecologically sound capitalist development is a contradiction in terms that never can be realised” (Pepper 1993, p: 34). Peppers adds that the ecological crisis we are facing is a manifestation of the inherent crisis within the capitalist system, and it can be overcome only through ecologically oriented socialist development (Pepper, 1993).

In the academic version, Jacobs’ (1994) conceptualisations of economists, ecologists and sociologists reflect the response of the scientific community to the challenge of the environmental crisis of the twentieth century. At heart, the neoclassical approach to environmental economics has one aim – to turn the environment into a commodity that can be analysed just like other commodities. Economists believe that the environment is frequently undervalued: because it can often be used free of charge, it tends to be overused, and therefore, degraded. Redclift and Benton (1994) suggest that, if the environment were given its proper value in economic decision-making terms, it would be protected much more highly.

Town planners normally create a balanced approach to conceiving the previous points of view. In the urban planning field, a balance is required between the social, environmental and economic, by developing alternative

plans that integrate these issues together, which is considered a challenge for every town planner. In the GCMR, the urban context had and still suffers from a neglect of the integrated view of urban development; plans are focused on achieving physical development in terms of number of houses, roads, shopping centres, etc. Such a superficial urban development view in the GCMR contradicts sustainable development principles. It is crucial that town planners and decision makers in the Egyptian urban authority approach urban development from the economic, environmental and social perspectives.

### ***2.2.3 The role of the international community in promoting sustainable development***

Due to the ambiguity of the Brundtland definition of sustainable development, the United Nations Conference on Environment and Development, held in Rio 1992, translated the vague definition into action by setting guidelines for national and international environmental behaviour. For instance, it proposed initiating public participation and Environmental Impact Assessment. However, the most significant outcome of the Rio Summit is “Agenda 21”, which translated thinking at the international level into specific actions necessary for sustainable development achievement. It was a turning point for sustainable development because it addressed how to turn the principles of sustainable development into practice (Connelly and Smith, 1999). The Rio summit agreement also gave flexibility to each country – according to local situations – by allowing each country to reframe its local indicators guided by the principles of Agenda 21.

Cities and urbanisation received less attention within the sustainable development movement in the early 1990s because of the effort required to make the term “sustainability” known at the international level. However, the Istanbul Declaration on Human Settlements drew attention to the importance of sustainability within the urban context. The conference was sponsored by the Second United Nations Conference on Human Settlements (Habitat II) in Istanbul on 14 June 1996. The purpose of the conference was to confirm the importance of sustainable development in the urban context and to stress the right to adequate housing and to seek the active participation of public,

private, and non-governmental partners at different levels. In order to ensure legal security of tenure, protection from discrimination, and equal access to affordable, adequate housing for all persons and their families. The conference in Istanbul offered a positive vision of sustainable human settlements to build a world where living in urban settlements can be safe and healthy.

## **2.3 Sustainable development major aspects**

It is important to discuss the different aspects of sustainable development at the beginning of this study for two reasons; the first reason is to determine the working definition of sustainable development, as it has many interpretations as was concluded in the previous section, and in addition, to determine the theoretical framework that will be adopted in this research. The second reason is to be aware of the various aspects of sustainable development in order to understand the major aspects of the sustainability process and current debates. Sustainable development is usually divided into three systems that are basic to any process of development; these systems are the biological or ecological resource system, the economic system, and the social system (Hardi and Zdan, 1997 and West Midlands round Table, 2000). These three sectors usually present three interconnected rings (ICLEI, 1996 and Barton, 2000). The following section discusses each aspect separately followed by discussing how the process can be understood from an integrated overall perspective through the concept of integrated sustainable development.

### **2.3.1 Ecological aspects**

Ecological sustainability's main concern is the debate about humankind's exploitation of the world's natural resources that threatens the basis of all life. In order to go towards sustainable development and to guarantee the survival of life on this planet, it is necessary to find ways to protect the environment (Belsky, 2002). The Rio Summit Agenda 21 defined the following categories as the main categories for ecological sustainability:

- Protection of the earth's atmosphere.
- Integrated management of soil.
- The fight against desertification and drought.

- Protection of mountain areas as vulnerable ecosystems.
- Environmentally friendly dealing with solid waste.
- Secure and environmentally friendly dealing with nuclear waste.
- Environmentally friendly disposal of waste.

Using the above categories, the UN Division of Sustainable Development then added its own indicators for the following environmental areas:

- Protection of the atmosphere (Ozone layer, climate change, air quality).
- Management of soil (Agriculture, soil, forests).
- Protection of oceans, seas and coasts (Coastal zones, fisheries).
- Protection of fresh water.
- Protection of biodiversity.

In order to realise measurable progress in environmental protection, the following principles are central: First, the consumption rate of renewable resources should not exceed their rate of regeneration. Second, non-renewable resources should only be used to the extent that a substitute of equal value is created. Third, the rate of regeneration of natural resources must be in harmony with the ability of relevant natural processes to react (Berkes, *et al.*, 2003). Environmental Impact Analysis is a test for exercising a precautionary principle in the field. It assesses the impacts of new technologies and projects on the environment, and simulates several potential future scenarios as well (Buhrs and Graham 1999).

One approach to Impact Analysis is the Ecological Footprint, which is a non-monetary indicator of human pressure on the biosphere that was introduced in 1995 by William Rees and Mathis Wackernagel. This concept stresses that the depletion of renewable resources is a greater threat to human well-being than the depletion of non-renewable resources. The analysis' results are combined in a natural capital account, which can determine at each scale, from the global down to the household, how much of nature's "services" are appropriated for supporting the different entities at those levels (Rosenberg,

1997 and Rees, 1995). Another approach to Impact analysis is the Strategic Environmental Assessment (SEA).

This research agrees that the SEA approach strengthens the use of environmental impacts on the strategic level and offers the opportunity to evaluate different scenarios and alternatives for the proposed plan. However, it requires first, a wide spectrum of available data, which depends on the database and how regularly updated. Second, it requires financial resources to collect environmental data, which involves advanced equipment. Third, it requires a systematic indicators update. Last, and most important, to integrate SEA within the urban planning plans preparation needs institutional requirements, which are difficult to implement within ambiguous political systems such as in the developing world. Despite these difficulties, the SEA can affect the future regional planning process in the GCMR in various aspects such as transportation and urban growth policies.

### **2.3.2 Social aspects**

In 2002, the World Summit on Sustainable Development (WSSD) took place in Johannesburg. The goal of the summit was to hold a review of what had been achieved since the 1992 Rio Conference. The social dimension of sustainable development was a primary theme of the discussions, especially the subjects of equity and social sustainability between the Northern and Southern Hemispheres. Within the field of sustainability, the dimension of 'social sustainability' is the most controversial. This aspect has long been neglected; however, recently it has made its way to the centre of the international political arena, as was evident at the World Summit on Sustainable Development (WSSD, 2002) in Johannesburg. The term elaborates on the basic idea that in the light of growing pressure on natural resources and the environment, the organisation of societies and concepts of the individual have to be discussed while taking into account national and regional cultures, economic conditions, consumption patterns as well as basic needs. As far as sustainability is concerned, it is important to guarantee or even improve stability concerning these areas mentioned but also to

improve or even change patterns. A wide range of options is also being discussed for this integral pillar of sustainability. These include:

- Food, shelter, clothing and health care.
- Education.
- Social interaction and solidarity.
- Self-determination.
- Human rights, security and justice.
- Equality of opportunity and perspectives.
- Participation in social and political decisions.

The UN Division for Sustainable Development suggests using indicators from the following areas to measure social sustainability: education, health, housing, security, population and equity. These indicators recommend two possibilities to act; first, some central social problems that threaten human dignity and social stability must be identified and solved. These problems may be child poverty, social exclusion or illiteracy. It is necessary to maintain social cohesion as a prerequisite for mental health and solidarity. Secondly, stable social conditions include creating a framework for community building and participatory policy (Belsky, 2002).

Although a strong emphasis on the social dimension of sustainability was debated in Johannesburg in 2002, it is anticipated that the international community will not place a high priority on establishing a social policy based on the principles of equity, social dignity and solidarity. One major reason might be that the process of sustainable development as a whole has not been as successful as it was intended. The success of the summit in 2002 was seen in view of the fact that no regression was made in comparison with the results of the United Nations Conference on Environment and Development from 1992 in Rio de Janeiro (Belsky, 2002). In addition, a growing gap exists between the goals of sustainable development, and the real progress made since 1992. One underlying cause is the general lack of political will to launch the necessary structural changes for attaining sustainable development. The social aspects in the GCMR are no different

from other parts of world cities. Added to that, the spread of informal housing, degradation of political rights and poverty are elements that should receive most attention from political leaders instead of focusing on achieving economic growth targets.

### **2.3.3 Economic aspects**

The third pillar of sustainability is the economic system. It is evident that in order to guarantee a healthy environment and stable society, economic systems have to be not only taken into account but also seen as a critical tool for reaching the goals of sustainable development. Concepts of economic sustainability are based on possibilities for combining the conflicting notions of a limited natural environment and resources on the one hand and current national economies aimed at unlimited global mass production and mass consumption on the other (Harris and Wise, 2001). These conflicting issues have been examined in the field of environmental economics long before the United Nations Conference on Environment and Development took place in Rio de Janeiro in 1992.

Thus, the integration of economic and ecological factors within the field of sustainable development is advanced. Two positions concerning the substitution of different forms of capital are also currently part of the economic discussion. Supporters of a “strong sustainability” defend the position that other forms of capital cannot substitute natural capital – resources such as air, land...etc. Supporters of “weak sustainability” believe that a certain amount of substitution of natural capital is acceptable (Clayton, and Radcliffe, 1996). Urban economists discuss various means to influence managements to change their economic mindset towards sustainable development. One method concerns prices, which are a key element for controlling supply and demand. Price should reflect the “total” or “real” cost of the product or service by internalising the external costs. “An external cost arises when social or economic activities have an impact on another person or the natural environment, and that impact is not fully accounted or compensated for by the consumer” (Harris and Wise, 2001 p: 42). Consequently, certain economists argue that if prices reflect the real cost,

which includes external costs, abuse of natural resources will be reduced, making sustainability possible. The problem of air traffic provides an example. The airlines profit from their business and those who travel by air receive the benefit of the service; however, those who never travel on aeroplanes are exposed to the adverse consequences of air traffic – such as air pollution, noise or climate change – without receiving any benefit. One way to internalise external costs is via eco-taxes – e.g., taxing damaging fuels and technologies according to the resulting external costs (Keyser, 2002). An ecological oriented economy should incorporate basic sustainable management principles such as extensive use of renewable raw materials and energy sources, reduction of materials use, recycling of products, environmental means to dispose of non-recyclable materials and avoidance of the release of pollutants (Keyser, 2002).

Linkage between the environment and economics in the GCMR reflects a catastrophic situation, where the problems of recycling, pollution sources and waste management are handled inconsistently. The GCMR and the rest of Egypt lack the institutional mechanisms to reduce pollution, increase recycling and use of renewable materials. Such mechanisms could be useful to promote sustainability in the GCMR if tools and mechanisms are thoroughly introduced in the urban policy.

#### **2.3.4 The political aspects of sustainable development**

Adding to the previous three main pillars of sustainable development, it can be argued that sustainable development has strong political aspects because it is seen as a “good” thing like democracy. In addition, although no two people would understand it in the same way, few would argue against it (Lafferty 1996). *“The Brundtland definition has been criticised for misrepresenting the analytical and normative issues”* (Batty, 2001). Batty argues that the commission adopted the concept in order to obscure the fundamental incompatibility of economic growth and physical sustainability. This can be argued to a certain extent with Batty but, despite that, the fundamentals of sustainable development reflect a good face in terms of



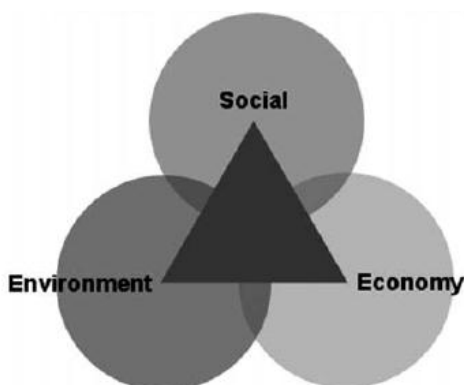
preserving the environmental, economic and social assets for current and future generations.

However, in order to analyse the political aspects of sustainable development, we need to evaluate the ethical basis of the concept and its usefulness in guiding our decisions. Lafferty (1996) mentions two foundations for sustainability – realism and consensualism. Realism indicates the moral aspect based on natural rather than human law. Our understanding of how the real world works provides the guide to what is right or wrong. The second foundation is consensualism, which relies on agreement. There is widespread international acceptance of sustainable development and there is a clear global commitment expressed in the Rio Declaration, which contains Agenda 21. The real question is how these two foundations of realism and consensualism translate into political structures for action and the capacity of power to act. If the definition of power is the ability of one agent to make another do what he or she wants, then power is at the heart of politics and political responses. This is important for the research practical models to achieve sustainable urban development in the GCMR, as this research argues that serious changes must be made at the government level where politics weigh heavily on urban policies. Thus, realism and consensualism must be taken into consideration in the creation of the suitable sustainable urban development strategy in the GCMR.

## **2.4 Integrated sustainable development**

As we have seen, researchers say that sustainable development contains three aspects: the economy, the environment and society (Hardi and Zdan, 1997; West Midlands round Table, 2000; ICLEI, 1996, Barton, 2000). These three sectors are often presented as three interconnected rings, seen in figure 2.1. In 1994, a study group of The World Bank developed the ‘capital stock model,’ which signifies that if we live only off the interest and not the capital, the basis of prosperity is maintained – however, if we consume the substance, our means of existence is endangered in the long term. this model suggests a trade-off between nature capitals and built capitals.

A trade-off may lead to weak sustainability that permits built capital to replace natural resources and systems (Giddings, et al., 2002). While Wackernagle and Rees (1995) argue this type of trade-off ignores the fact that, for instance, no amount of genetic engineering can replace biodiversity and it would be an immense technical problem to construct a replacement for the ozone layer. However, the major debate about sustainable development; either the environment or the economy is given priority, although Agenda 21 agreements at the Rio Conference included issues concerned with social and economic development, strengthening participation, and means of implementation (Neumayer, 1999).



**Figure 2.1: The three pillars (triangle) basic model of sustainability, shown as three interlocking circles (Keiner, 2003 p: 381).**

However, uncertainty over the meaning of sustainability has not reduced the popularity of the concept. Bell and Morse (1999) have suggested that the resulting flexibility has allowed the concept to attain the heights that it has. This uncertainty may benefit sustainability. Kidd (1992) argues: “there is not, and should not be, any single definition of sustainability that is more logical and productive than other definitions” – the author, considers multiple definitions of sustainability acceptable. This suggests that sustainable development is like “motherhood and apple pie” in that it sounds so good that everyone can agree with it whatever their own interpretation (Pearce and Jerney, 1993). On the other hand, others insist that the blandness of meaning, due to the lack of any clear rigour of analysis or theoretical

framework, makes the concept almost meaningless. It can be interpreted to mean almost anything to anyone, so that beneath its surface lies a multitude of sins (Workshop on Urban Sustainability, 2000).

To solve this conflict, critics suggest changing the name of sustainable development into sustainability (O’Conner, 1994) or sustainable livelihoods (Workshop on Urban Sustainability, 2000). They argue that these phrases avoid some possible conflicts between economic growth, social equity, and the environment, and instead focus on human needs and the environment, which are the original aims of Brundtland. However, committed ecologists reject the concept of sustainable development entirely as it prioritises the need of humans over the rest of life. Thus, this research sees that the term “sustainability” is not clear because of different interpretations.

It can be argued, from the urban planner point of view, that utilising sustainable development principals as a guidelines umbrella in various spatial levels in urban policies and actions will help to promote both built and natural environments. Urban planners should consider the four main aspects of sustainable development (social, economic, environmental and political) within the urban planning process. Focusing on achieving a balance between the three basic aspects of urban development and the existing political system as an instrument to enable urban policies delivery is a requirement. This perception of sustainable development works as a theoretical base for achieving the main aim of this research. Sustainable development within the Egyptian urban context can be defined as “the ability of the Egyptian political government system to achieve development in the social, economic and environmental sectors for the current generation while maintaining the rights of future generations in the GCMR to natural and built environment assets”.

## **Part 2: Sustainable urban development components and practice examples**

“A sustainable city is a city where achievements in social, economic, and physical development are made to last. A Sustainable City has a lasting supply of the natural resources on which its development depends (using them only at a level of sustainable yield). A Sustainable City maintains a lasting security from environmental hazards that may threaten development achievements (allowing only for acceptable risk)” (Sustainable Cities Programme Habitat and UNEP, November 2000 p: 2)

### **2.5 Urban problems and sustainability concerns of metropolitan areas**

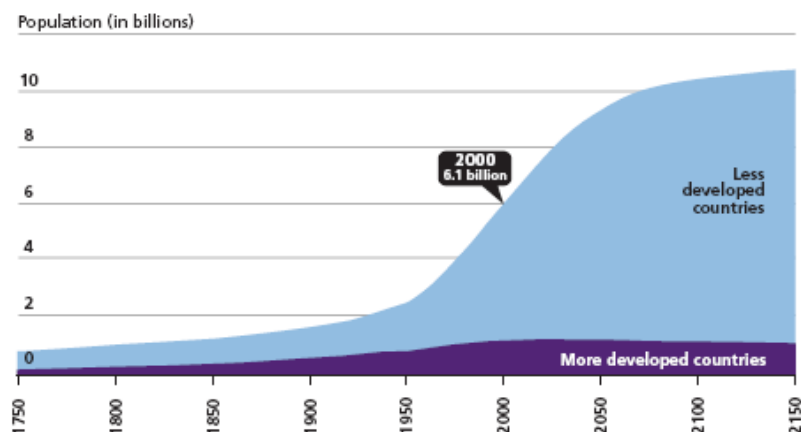
#### ***2.5.1 Urbanisation***

Generally, this century will be urban in nature, with more than 50% of the world's population living in urban areas. Figure 2.2 indicates that by 2050 the total population of the globe will reach over 10 billion and a spectacular 95% of that growth is concentrated in the less developed world, as table 2.1 and figure 2.2 show. It has only been within the last 100 years that cities have attracted more than a small percentage of the world's population. Table 2.1 indicates that for the first time in history, there are as many people living in urban areas as outside of them and predictions by the United Nations estimate that by 2030 over 60% of all people will live in cities (UNPD, 1999). The number of people living in cities is growing twice as fast as the total population growth. A majority of the world's people will be living in cities by 2007; by 2030, all regions will have urban majorities. Both mega cities of 10 million or more (20 in all, 15 in developing countries) and small and medium-sized cities are growing (UNPD, 2004).

Development group	Population (billion)				Growth rate (percentage)		Doubling time(years)	
	1950	1975	2000	2030	1950-2000	200-2030	1950-2000	2000-2030
<b>A. Population size and growth</b>								
Total population								
World	2.52	4.07	6.06	8.27	1.75	1.04	40	67
More developed regions	0.81	1.05	1.19	1.22	0.76	0.07	91	998
Less developed regions	1.71	3.02	4.87	7.05	2.1	1.24	33	56
Urban population								
World	0.75	1.54	2.86	4.98	2.68	1.85	26	38
More developed regions	0.45	0.73	0.9	1	1.4	0.38	50	185
Less developed regions	0.3	0.81	1.96	3.98	3.73	2.35	19	29
Rural population								
World	1.77	2.52	3.19	3.29	1.18	0.1	59	714
More developed regions	0.37	0.31	0.29	0.21	-0.45	-1.09		
Less developed regions	1.4	2.21	2.9	3.08	1.46	0.2	48	352
<b>B. Urban indicators</b>								
	Percentage urban				Urbanisation rate (percentage)		Doubling time (years)	
	1950	1975	2000	2030	1950-2000	200-2030	1950-2000	2000-2030
World	29.8	37.9	47.2	60.2	0.92	0.81	75	86
More developed regions	54.9	70	75.4	82.6	0.63	0.31		
Less developed regions	17.8	26.8	40.4	56.4	1.63	1.11	42	62

**Table 2.1: Indicators of rural and urban population by development group, 1950-2030 (UNPD, 2004)**

### World population growth, 1750-2150



**Figure 2.2: World population growth trend (UNPD, 2004)**

In the rural to urban population shifts over the past half century, cities have provided a large proportion of the population with employment, technology, social services and shelter. Cities have become gateways to the rest of the world, centres of learning and economics. In today's globalised world, cities are the nexus of commerce, gateways to the world in one direction and focus of their own hinterlands in the other (UNPD, 2004). Cities also consume three-quarters of the world's energy and cause three-quarters of global pollution (Rogers, 1998).

#### **2.5.2 Sustainable urban development opportunities in metropolitan urban planning**

Cities have for centuries, been the centres of innovation, discovery, culture and struggles for political and social improvement. After all, the words *civilisation*, *civility* (*civitas*), *citizen*, and *politics* (*polis*) are all derived from the city (Hopwood, 2001 p: 4). Cities will be the main testing ground for real sustainable development as they are where most people live, the centres of power and the main sources of environmental damage. However, some have argued that cities cannot be sustainable (Goldsmith, 1992). Such a perspective implies that either sustainability is impossible or huge changes are needed in the very nature of society with a decrease in population in the billions and a move away from industry.

Among the traits of metropolitan growth frequently associated with sprawl are unlimited outward extension of development, low-density housing and commercial development and fragmentation of land-use planning among multiple municipalities. In addition, there is reliance on private automobiles for transportation, segregation of types of land use; race and class-based exclusionary housing and employment; congestion and environmental damage; and a declining sense of community among area residents (Wheeler, 2004). The problems related to the growth of cities and the concentration of human population in large metropolitan areas represents huge challenges for modern urban societies. Economic growth drives urban expansion in the form of construction of businesses, housing, roads, leisure centres, etc., and the metropolitan regions face the growing problems of urban sprawl, including a decline in natural vegetation, wildlife habitats and agricultural land.

New development at the metropolitan edge creates transportation problems such as increased daily commutes in and out of the city due to the lack of job opportunities in these new developments, and the increasing rate of private transportation used due to the high- and medium-income target population. These problems are challenges to sustainable communities that are meant to be self-sufficient, with decent places to live and work, low fuel consumption, and adequate public services. Ideas such as “smart growth” have grown in recent years in North America, which seeks to curb growth and shape it in a way that lessens the effects of sprawl, while in Europe, government policies contain ideas about creating sustainable communities, especially in the South East region of London where urban growth is expanding. The British government started a long-term plan for sustainable communities in which £2.2 billion will be spent on major transport infrastructure in the growth areas for metropolitan London by 2010.

It can be argued that economic growth in metropolitan areas drives urban expansion to seek more land for various urban needs; this expansion is usually in the form of:

- Housing needs, to fulfil the needs of the growing number of families and job needs.
- Transportation needs, in the form of creating an accessible road network for daily jobs and commercial needs.
- Social and commercial activities needs, to fulfil the basic population increase needs.
- Degradation of natural and built environment because of the increase of economic activities that drives urban growth.

The previous needs in metropolitan areas are major reasons for metropolitan areas to expand in the form of urban sprawl, which have negative impacts on natural vegetation and agricultural land. The massive demand for development areas has replaced undeveloped areas by residential and commercial development (Fishman, 2002).

In conclusion, It can be argued that because of social and economic change brought about by rapid urban growth, the major urban problems in metropolitan areas are focused on housing affordability, transportation planning, socio-economic activities in the form of jobs services and commercial activities, urban growth policies which seek to manage urban expansion and integrations of various policies to promote sustainable urban development in metropolitan areas to ensure effective urban policy delivery. Sustainable urban development policies and strategies have emerged from these previous concerns with these urban expansion patterns in metropolitan areas.

However, despite the previous urban problems in metropolitan areas which challenge sustainability, cities do offer opportunities for sustainability. For instance, the energy efficiency of cities, both in transport and building heating, can be greater than in dispersed populations. It is technically possible to have good transport without cars, mixed-use compact communities to improve access and the quality of life, buildings with very low energy needs, well-designed and safe public spaces, greening of the urban landscape and the cycle use of materials (Rogers, 1998). In England, Lord



Rogers' Report – *Towards an Urban Renaissance* – in 1999 answers the question of how to improve the quality of towns while at the same time providing affordable housing for 4 million households over a twenty-five year period (Rogers, 1999). The report's main argument is that cities are a vital ingredient for the sustainable formula, because of the degree of the technological revolution, the ecological threat and the social transformation occurring in the urban context. These are the main drivers for change toward a new sustainable urban age for England. Lord Rogers insists: "*The need to respond to current demands without compromising those of future generations is already driving the adoption of new technology in building, transport, water management and energy recycling, nowhere is the implementation of sustainable products and processes more important than within cities*" (28). Lord Rogers emphasises the adoption of new technologies to achieve sustainable cities in various sectors such as transport and energy, which are forming important inputs in the urban policies at both regional and city levels.

### **2.5.3 Planning theories concerning sustainability in a rapid urban growth context**

Modern metropolitan planning began in the nineteenth century, when the rapid growth, overcrowding and service demands of industrial cities led to the needs of city expansion as is discussed in the previous section. One response in Britain was to create institutions such as London's Metropolitan Board of Works in 1855 to coordinate police, fire, sewer and public health services across the greater London area (Barlow, 1991). The late nineteenth-century industrial city also inspired visionary philosophies similar to current approaches to sustainability planning. The ideas and philosophy of Patrick Geddes, a Scottish scientist, correspond to the interdisciplinary approach of current sustainability efforts. Geddes writes:

*This is a green world, with animals comparatively few and small, and all dependent on the leaves. By leaves we live. Some people have strange ideas that they live by money. They think energy is generated by the circulation of coins. Whereas the world is mainly a vast leaf colony, growing on and forming a leafy soil, not a mere mineral mass: and we live not by the jingling of our coins, but by the fullness of our harvests, 1888 (Ballater Geddes Project, 2004)*

Geddes emphasises our dependence on nature (the leaves) that provides sustenance, and he separates it from economic concerns. Thus, according to him, the natural environment sustains all human endeavours, and we must give it priority. Geddes identifies the problem that faces the GCMR, where environmental factors must be given priority in order for economic elements to flourish. The current urban growth trend in the GCMR indicates that urban planners and decision makers should be fully aware of the consequences of the current urban policy, which is creating an unsustainable development trend in the biggest city in Egypt.

Another early example is Ebenezer Howard's Garden City metropolitan development model. This model is a constellation of linked, transit-oriented communities separated by green belts. This concept is used by recent transit-oriented development advocates such as Peter Calthorpe (1993) who redefines the models of urban and suburban growth in America in his book, *The Next American Metropolis: Ecology, Community and the American Dream*, which describes his current work and provides extensive guidelines for transit-oriented development. The TOD model is explained in Box 2.2

#### **Transit-Oriented Development (TOD)**

Transit-Oriented Development expression refers to residential and commercial centre designed to maximise access to transit and non-motorised transportation, and with other features to encourage public transport use. A TOD neighbourhood has a centre with a rail or bus station, surrounded by relatively high-density development, with progressively lower-density spreading outwards. For example, the neighbourhood centre may have a transit station and a few multi-storey commercial and residential buildings surrounded by several blocks of townhouses and small-lot single-family residential and larger-lot single-family housing farther away. TOD neighbourhoods typically have a diameter of one-quarter to one-half mile (stations spaced half to 1 mile apart), which represents pedestrian-scale distances. It includes these design features:

- The neighbourhood is designed for cycling and walking, with adequate facilities and attractive street conditions.
- Streets have good connectivity and traffic calming features to control vehicle traffic speeds.
- The area has mixed-use development that includes shops, schools, and other public services, and a variety of housing types and prices, within each neighbourhood.
- Parking Management reduces the amount of land devoted to parking compared with conventional development, and takes advantage of the parking cost savings associated with reduced automobile use. (Calthorpe, 1993)

#### ***Box 2.2: Transit-Oriented Development (TOD)***

By the late 1910s and 1920s, metropolitan planning became more pragmatic and quantitatively oriented. The initiatives of metropolitan planning began in Britain and continental Europe after the Second World War. The need for post-war reconstruction combined with social democratic politics in many areas led to dramatic government action in reshaping the metropolis (Whitehand and Carr, 2001). Perhaps the most ambitious was the British government's 1944 Greater London Plan, with its green belt and new towns, based on Patrick Abercrombie's designs. "Finger plan" channelling development along transit lines was later adopted in Copenhagen and Stockholm, which was a different, but related, approach to metropolitan spatial planning (Robson, 1973). Such plans represent attempts by central governments to shape the limit of growth and to coordinate land development with public transportation. Success was mixed, nevertheless, these efforts aimed for similar sustainability objectives as today's policies and projects.

The 1990s witnessed a revival of interest in metropolitan regional planning in North America, especially in Portland, Oregon where regional policies changed significantly. Following Portland's example, governments have developed many useful tools for coordinating metropolitan land use and transportation planning in recent years. With the inauguration of the 21st century, local governments have actively incorporated sustainability into plans for metropolitan planning with emphasis on transportation, environment and affordable housing solutions (Wheeler, 2000). However, the question remains of whether the holistic approach to sustainable development is applicable, and, if it is, how it will be achieved which leads to the emergence of a sustainable city concept which will be discussed in the next section.

#### **2.5.4 A sustainable city concept**

A city is an artefact environment, where aspects of the natural environment have already been sacrificed for the creation of urban agglomerations. This rupture of the natural environment by the city makes describing a "sustainable city" difficult. The more common interpretation of a sustainable city as a city in which aspects of the natural environment are given first priority in urban policy is a limited interpretation. Houghton and Hunter

describe a sustainable city as “one in which its people and businesses continuously endeavour to improve their natural, built and cultural environments at neighbourhood and regional levels” (Haughton and Hunter 1994, p: 68).

Nijkamp & Opschoor (1995) have defined a “sustainable city’ as a city-region in which negative effects stemming from the interaction of the three different environments, i.e. physical, social and economic are kept within certain threshold conditions associated with the urban carrying capacity” (Camagni *et al.*, 1998, p:106). Nijkamp and Opschoor (1998) define urban sustainability as “a development which ensures that the local population can attain and maintain an acceptable and non-declining level of welfare, without jeopardising the opportunities of people in adjacent areas.”

As noted above, the various definitions of sustainable cities suggest that three aspects lead to sustainable cities: the economic, the social or cultural and the physical environment. These aspects are the challenge for planners because they require careful policies to handle sustainability in a more integrated form. Consequently, sustainable city policy requires a multi-faceted strategy in which socio-economic interests are brought into harmony with environmental and cultural interests. Such ideas were already advocated more than two decades ago by Kevin Lynch in 1981, who claimed: “ The good city is one in which the continuity of this complex ecology is maintained while progressive change is permitted.” Lynch suggests five dimensions for judging such an urban quality: vitality, sense, fit, access and control. The empirical application of such principles requires careful study to succeed. However, the vast literature on the concept of sustainability at a global scale contains some common agreements on critical aspects, namely:

- Sustainability does not only refer to environmental protection, but also embraces the economic and social aspects (WCED, 1987 p: 46) definition of sustainability which implies that the environmental utilisation of space has to be related to social and economic factors;

- Sustainability relates to a dynamic, balanced, and adaptive evolutionary process, i.e. a process in which a balanced use and management of the natural environmental basis of economic development is ensured (Camagni et al/ 1998 p: 104).

As has been seen, three different environments coexist in a city – the physical (natural and built) environment, the economic environment, and the social environment, each of which explains in part or in combination the existence and continuity of a city. All three environments generate advantages and disadvantages for the city. All three have to be considered together because they interact with one another and represent at the same time goals, means and constraints to human action in the city.

The economic environment justifies the presence of a city through the agglomeration economies concept (Camagni, 1992 and 1994). In the social environment, the city offers many social amenity resources and guarantees socialisation opportunities and access to public goods. The third environment in a city is the 'natural/built environment' or 'physical environment'. Advantages stemming from this environment are typical public goods and externalities, such as the presence of urban green areas and environmental facilities, clean air, a pleasant city form conducive to social interaction and peaceful living (Camagni, 1994 and Nijkamp, 1996).

In Egyptian cities, this problem is related not only to social services, but also to the basic urban environmental services, such as clean drinking water, sanitary facilities and solid waste collection. The degree to which these services are available in all cities and all parts of cities should be driven by environmental equity. This is especially true for the poorer segments of the population in developing countries' cities. Urban sustainability policies should address these differences in resource endowment by either enhancing the level of supply of public facilities (e.g. water, electricity, housing, sanitation) or by defining and (more equitably) allocating private property rights to environmental assets (Nijkamp and Opschoor, 1995).

### **2.5.5 Sustainable urban development policy interventions**

According to Nijkamp and Breheny, two main fields of intervention policies may drive a city towards urban sustainability – technology and territorial aspects. The first and more common area of intervention is technology: a reduction in the use of polluting technologies keeps environmental constraints under control, through less polluting transportation, less polluting heating systems, and, in general, through a more efficient energy use. Thus, input substitution becomes a short-term aim of the urban sustainability policy, to be reached through a lower use of more polluting and energy-intensive technologies (Nijkamp, 1996).

Technology does not represent the only field where urban sustainability policies should be implemented. In the past few years, several attempts have been undertaken in different countries to identify optimal structures of urban form that would minimise energy consumption and environmental pollution. The territorial form of an urban system, in fact, and the organisation of its activities in space, is a second field of intervention, which may lead towards urban sustainability. An example of this is the “compact city” idea, addressed to the reduction of trip length and thus of energy use. “A systematic identification and analysis of alternative urban configurations from the viewpoint of sustainable development and a critical judgement of such options seem nevertheless necessary, as an excessive urban density might be equally undesirable” (Breheny, 1992 p: 27).

In the long term, a change in urban form may become the goal of urban sustainability policy; in fact, mobility patterns can change substantially only in the presence of a change in urban locations and land-use patterns. It is recognised that environmental interests are usually not incorporated into regional and urban development planning and normative guidelines. For example, carrying capacity and regenerative capacity are often absent from the planning process (Nijkamp, 1996).

A third field of possible policy intervention is regarding personal “life-styles”. In Western countries, the present lifestyle is the result of increasing per-

capita income and energy prices that do not include the full social costs of energy use. The number of private car ownerships is high and increasing, as well as the density of electrical appliances per family. Common social behaviour in these societies includes high mobility in leisure time. All these habits may be influenced by urban sustainability policies, such as differentiated prices of electric energy at set times of the day, to influence energy use for private needs in peak hours. If these are short-term policies, long-term ones should try to orient structural changes in social behaviour, encouraging more environmentally oriented attitudes.

In non-Western cities, on the contrary, low per-capita income and high social-class disparities determine a different lifestyle, more oriented towards daily survival, which might be influenced by a wider access to basic social services such as education, health, and sanitary infrastructures. All these services allow people to change their habits, to raise their standard of living, and to avoid environmentally damaging social behaviour (Button, 1992).

#### **2.5.6 Sustainable communities**

The study of sustainable development within the urban context concerns finding solutions for important issues, including land use, transportation, air quality, water quality, ecosystem protection, affordable housing provision, and social equity. The publication of Agenda 21 helped governments and local authorities to adopt sustainable measures, and it created the guidelines for local Agenda 21 planning in Europe. The 1996 UN Habitat II City Summit in Istanbul attempted to establish a global consensus on how to apply the sustainability agenda to urban planning. The Habitat agenda emphasised the interrelation of urban issues and the need for attention to social and environmental aspects of sustainable urban development.

Since the release of Agenda 21, many attempts to implement sustainable development in the local government have occurred, mainly in North America and Europe. The transformation of the sustainable city concept into tangible reality can be found in the literature, notably in Wheeler's book *Sustainable Urban Development Reader (2004)* and *Sustainable Urban Development*

*Implementation (2004)* which gives a thorough description of how to achieve sustainable urban development, accompanied by international examples of case studies. In Europe, specifically in England, the release of Lord Roger's Report and the Egan Report are guidelines for what sustainable communities should look like and the policies needed to achieve them. The Egan report was extended in 2005 by the integration of its basic principles into a wider European context. This report establishes a wide integrated base of sustainable communities' principles as one of the European Union's achievements.

In North America, sustainable urban development is known by the name of "smart growth" and "sustainable livelihood". The smart growth concept proposes guidelines to manage urban growth by creating alternatives to reduce daily commuting through the Transit-Oriented Development concept. In Europe, the term is different but the context is the same. Sustainable communities is defined by the "Bristol Accord", which intended to discuss and agree the benefit to all member states of creating sustainable communities across Europe by European ministers in December 2005, as places where people want to live and work, now and in the future. The agreement of the Ministers' meeting is that *sustainable communities meet diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life, safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all*" (ODPM, 2006).

The Bristol Accord identified a number of key prerequisites to achieve sustainable communities in Europe, these are; economic growth, social inclusion and social justice, the role of cities as a cultural context, responding to the challenge of social segregation, ensuring sustainable development principles, and recognising sustainable communities at different spatial levels: regional, city, local and neighbourhood. However, sustainability is not limited to the social and environmental aspects of urban planning as it is a multi-dimensional concept (Bell and Morse, 2001 and Bell and Morse, 2003). As well as the conventional notion of embracing social, economic and



environmental dimensions, sustainability also has time and spatial dimensions, even if these are somewhat vaguely defined. We live in a political-economic world where there is increasing competition for limited resources, greater demands for accountability and the delivery of “end products” along with an underlying emphasis on “value for money”.

“The new role for policy makers is to facilitate learning and seek advantage points with which to direct progress towards integrated economic, ecological and socio-cultural approaches for all human activity” ( Bell and Morse, 2003). The definition and prerequisites identified by the Bristol Accord ensure the spatial aspects of the Bell and Morse argument in the achievement of sustainable development, demonstrating its important role in urban policy. It can be argued that recognising the various spatial scales in urban policy is a key issue within overall sustainable urban development.

## **2.6 Sustainable urban development planning aspects in metropolitan areas**

Nowadays sustainable development in the urban context has a number of implications for urban planning. This can be seen in such international consensus documents as Agenda 21, the Habitat Agenda, the Sustainable Development Commission in the UK, and the Town and Country Planning Association, and among academics and professionals as well. Section 2.5.2 indicated a number of major urban planning aspects in metropolitan areas that have a strong relationship with sustainability in the urban context. Aspects such as urban growth, transportation, housing, public participation, policy integration and evaluation and monitoring are considered essential issues to discuss in relation to the main case study – Greater Cairo Metropolitan Region. These aspects are currently considered urgent problems in the GCMR urban context. Hence, the second part of the literature review applies theory to the urban context found in international cases that practice sustainable urban development in order to draw conclusions about the lessons of sustainable urban development.

It is important to mention that this research is not seeking to identify a single approach to sustainable communities, but rather to learn from these experiences in order to examine what effects the achievement of sustainable urban development in different political and economic contexts. The research literature shows and permits the study of planning problems and practices in different countries in relation to the institutional context of the respective countries (Masser, 1981), since these international sustainable communities' examples are evidential for the purpose of demonstrating and supporting the arguments of sustainable urban development applicability in the real world. In this respect, the research utilised international examples to provide indications (Indicative Examples) to investigate the sustainable urban development application evidences in order to identify lessons and experiences as part of the research process to inform the GCMR sustainable urban development strategy.

However, a set of criteria to choose the suitable and relevant examples for the GCMR case study. In that respect, the international examples' criteria focused on two different aspects. The first aspect is concerned with a variety of experiences in different economic contexts, for example, in such regions of the developed world as the United States, Europe and Canada, and in the developing world, such as Brazil. The second aspect concerns the spatial scale of the selected cases. As the researcher's intention is to develop a framework for sustainable urban development of the GCMR, it is important to demonstrate policies on the regional and local levels. For instance, at the regional level it is important to discuss the main strategies and policies for housing, transportation and land use while at the city scale, analysis may focus on housing spatial distribution and its allocation in relation to services and activities. At the neighbourhood level, analysis may emphasise urban design and its relation with the surrounding environment.

### **2.6.1 Sustainable urban development visions and planning model**

#### **Visions**

Sustainable urban development begins with setting a number of strategies and policies for achieving results in the future. These strategies are reflected in the most traditional planning tool, which is construction of a plan. Plans are varied from national to neighbourhood plans. SUD strategies can be seen in various plans: for instance, in the national environmental plan to identify environmental and development policy; in regional plans to manage urban growth and the transportation system; at the city level to regulate development across council territories: and in neighbourhood plans to regulate urban design standards.

Strategies for sustainable urban development start with either political or interest groups' visions in both the developed and developing worlds. Perhaps the purpose is varied in both areas. For instance, in the developing world it may be tailored for political purposes, while in the developed world it may start with a political cause but end with tangible strategies and policies. Exceptions in the developing world, where political vision is turned into strategy are probable, such as in the case of Curitiba, Brazil and Bogotá, Columbia. For example, the vision of the Mayer of Curitiba led to the establishment of the Curitiba Urban Planning Institute (IPPUC). Despite the different characteristics of the cities' and towns' visions, an examination of their major sustainability objectives shows their similarities. Box 2.3 lists some of these visions. For instance, limiting automobile congestion, cleaning up pollution, ensuring decent, affordable housing, provides infrastructure that enhances rather than degrades the natural environment, creating steady job opportunities and promoting equity and quality of life. However, turning these visions into practice depends on a number of elements such as political will, financial resources, capacity building in central and local government as well as public demands to solve daily problems such as transportation, environment, jobs and housing.

### **Sustainable development visions**

#### **Curitiba, Brazil**

“When a city accepts as its mandate its quality of life; when it respects the people who live in it; when it respects the environment; when it prepares for future generations, the people share responsibility for that mandate, and this shared cause is the only way to achieve that collective dream.” *Former mayor, Jaime Lerner. Curitiba, Brazil*

#### **Greater Vancouver, Canada**

“Our goals are to create a framework and action plan for Greater Vancouver based on the concept of sustainability that embraces economic prosperity, community well-being and environmental integrity” (GVRD, 2006), *Greater Vancouver, Canada*

#### **Portland Oregon, United States**

“Established the OSD because it is vital that we, as a community, advance the principles of sustainability to enhance our quality of life. Sustainability is synonymous with integrating ecology, economics, and social justice. Sustainability means thinking about our behaviour in a bigger context and recognising that our choices have a profound effect on our future. Please join us in working for a better future, and a better now.” *A message from Commissioner Dan Saltzman*

#### **London, England**

Our thinking and decision-making will be long-term, meeting the needs of the present without compromising the ability of future generations to meet their own needs. This means ensuring that the ways in which we live, work and play will not interfere with nature’s inherent ability to sustain life. We will achieve this by taking responsibility for the regional and global impacts of city life. Resources will be used efficiently and fairly and the natural and built environment protected. Our reward will be a prosperous, vibrant and healthy city. *Sustainable London Commission*

### **Box 2.3: Sustainability visions**

### **Planning model**

The characteristics of the classical planning model, “rationale comprehensive planning”, “used to account for the top-down approach and involve analysing situations, defining goals, identifying obstacles of development to be accomplished, and to provide alternatives solutions, evaluate solutions, decide on the preferred approach, and implement and evaluate its success” (Hoch *et al.*, 2000 p:23). Rational comprehensive planning has many advantages such as providing a clear method to formulate strategies and policies and straightforward use of indicators. Wheeler (2004) states a number of drawbacks concerning the rational model; one is that planners decide on public policy, rather than letting the public drive the formulation of policies. Second, it relies on quantitative analyses rather than taking into account qualitative analyses of tangible concerns about the urban environment. Most importantly, Wheeler argues that the model serves the agenda of those in political power rather than the public interest.

A response to the shortcomings of this model is models that have existed since the late 1960s such as participatory and communicative planning that address public involvement more directly. Communicative planning simply involves planners communicating with public interest groups and developers (Healey, 1997). Similar to the participatory and communicative planning models is advocacy planning, which also began in the 1960s and promotes a bottom-up and participatory approach in local governments. The model suggests that planners communicate with low-income communities to ensure that their viewpoints are effectively represented in urban policies (Davidoff, 1968). In conclusion, communicative and advocacy planning are suitable for the process of sustainable development rather than the rational comprehensive planning model as they promote the role of citizens, social and environmental groups in the planning and policy-making process. Examples of participatory planning can be seen in Porto Alegre, where each neighbourhood voted on spending priorities for a percentage of the budget. Another example is the city of Portland in the United States, where the local government secured the constitutional rights for the public to evaluate and monitor public policies. In the Greater Vancouver Regional District (GVRD)

sustainable development strategies were engaged through partnerships with a variety of actors such as the public, NGOs and environmental groups to pursue a growth management framework and to monitor and evaluate sustainability through a set of indicators. In addition to the planning model, planning for sustainability requires an integrated approach incorporating economic, social and environmental aspects as mentioned in part 1. For instance, integrating transportation and land-use policies is key to controlling urban growth and daily commuting by associating land-use spatial distribution with the major public transportation network. This is evidenced in Curitiba, Brazil where the city achieved integrated urban planning through a strategy that informs social, economic and environmental aspects. Box 2.4 describes the integrated planning approach adopted in Curitiba in which transportation land-use and road systems were used as integrative tools of development.

### **Curitiba, Brazil**

#### ***Background***

Curitiba is the capital of the State of Parana. The city had few outstanding historical or natural features, but its architects and urban planners have transformed it into a vibrant centre with good quality of life that draws many tourists. Curitiba is one of the fastest-growing cities in a nation of urban booms, its metropolitan area grown from 300,000 citizens in 1950 to 2.1 million in 2002. Despite major challenges that came with rapid growth, significant improvements have been made to the city's quality of life in areas including public transportation, preservation of the city's cultural heritage, expansion of parks and green areas, and social and environmental programs.

Urban planning in Curitiba focused on building the city and decentralising it. From the 1990s until today, the city's main planning focus has been on sustainable development and integration of Curitiba's metropolitan region.

#### ***Urban Planning in Curitiba***

With the approval of Curitiba's Master Plan in 1966, guidelines were established that restructured the city's radial configuration into a linear model of urban expansion. Accordingly,

With the creation and guidance of planning agencies like The Research and Urban Planning Institute of Curitiba (IPPUC), Curitiba's planners decided to address the process of transportation as an integrative approach that can assist in the development of the city. The planners recognised that transportation systems can serve as the backbone for the development and growth of the city in the future. A mass transportation system developed that today covers eight neighbouring cities, and transports 1.9 million passengers daily with an 89% approval rate, according to a survey done by URBS (Rabinovitch and Leitman, 1996).

### ***Box 2.4: Curitiba background and urban planning***

In the 1970s, zoning laws were set in place and structural avenues were designed to direct linear growth by attracting residential and commercial density along a mass transportation lane. In 1974, the main mass transit line began to operate along those avenues. Leadership resulted in successful, long-term implementation of this strategy (Rabinovitch and Leitman, 1996).

Perhaps vast urban growth in a city such as Curitiba was the driving force to focus on integration of transportation and land-use aspects, while other aspects of sustainable development were not receiving the equivalent attention from the city planning aspects such as environmental protection and management. In other examples, integrated approaches are considerably comprehensive in formulating the sustainable development strategies such as in the cases of Vancouver and Portland. In the case of Vancouver, the strategy clearly identifies the objectives in a number of issues that are concerned with urban growth of the region, which aim to:

- Protect the green zone: The green zone protects Greater Vancouver's natural assets, including major parks, watersheds, ecologically important areas and resource lands such as farmland. It also establishes a long-term growth boundary.
- Build complete communities: The plan supports the public's desire for communities with a wider range of opportunities for day-to-day life. Focused on regional and municipal town centres, more communities that are complete would result in more jobs closer to where people live and accessible by transit, shops and services near home, and a wider choice of housing types.
- Achieve a compact metropolitan region: The plan avoids widely dispersed and accommodates a significant proportion of population growth within the "growth concentration area" in central part of the region.
- Increase transportation choice: The plan supports the increased use of transit, walking and cycling by minimising the need to travel (through convenient arrangement of land uses) and by managing transportation supply and demand. (GVRD, 2006)

The Greater Vancouver Regional District, showing the focus of the regional strategy on building regional and local centres, which could secure job opportunities in the region and provide services close to residential areas to minimise private care dependence.

While in Oregon, United States, Portland's sustainable development strategy, called Region 2040, focuses on regional urban growth management; the

strategy developed through an extensive public process and is maintaining the region's tight Metro urban form and steering urban growth into a series of centres along the spine of the light rail system. The goal is that 85% of new residents will be within a five-minute walk of a transit station; while in other American cities regional planning has not had much power to guide urban growth, it has succeeded in Portland. The planning strategy has led to a more compact regional development pattern than in most other American cities (Wheeler, 2004).

### ***2.6.2 Institutional aspects in sustainable urban development***

The growing shift towards a managerial resolution of problems of urban sustainability, as well as recommendations for shifting the role of the state and increasing the participation of civil society groups in the processes of development, have placed the debate of sustainable policy making at the heart of the governance debate. The concept of governance, which over the past years has gained increasing importance for urban planners and policy makers alike, investigates "the state's institutional arrangements, the process for formulating policy, decision making, and implementation; information flows within government; and the overall relationship between citizens and government" (World Bank 1998 p: 824). The concept raises important questions about the ability of the state, in partnership with non-state actors, to mobilise political, institutional, and technical resources that would be conducive to sustainable development (Majdalani, 2001).

#### ***The concept of governance***

Governance as an approach to urban research has proved to be very useful in conceptualising a new role for the state and its interaction with other private and non-governmental bodies (Majdalani 2001). In synthesising the definitions put forth for governance, three levels of analysis are clear within the concept: systemic, administrative and political (Leftwich 1993).

From a systemic perspective, governance is wider than a government. The notion of partnership, which encourages dynamic systems of relationships linking state and non-state actors at various levels, brings the latter to the level of partners in fostering development. This approach to governance is



more analytic than normative and allows exploration of state–society models of interaction that could then be developed into lessons to be learned from (Kamal, 2000).

From an administrative perspective, this approach to governance represents a normative framework for an efficient, transparent, and accountable public service with competent bureaucracies that have the adequate capacity for resource management, policy making and policy implementation. Indeed, the failures of post-colonial states to live up to the role of developers and service providers, their overgrown bureaucracies, and their over centralisation have all contributed to the creation of inefficient, overstaffed and corrupt states (Connelly, 1999).

Furthermore, the shift in the role of the state from provider to enabler requires different operating structures for the state. Policies fostering good governance include decentralisation in administrative and political structures, flexibility in the capacity to build partnerships, privatisation of services, legal capacity to hold partners accountable, and strong monitoring systems that prohibit corruption (UNDP, 2003).

From a political perspective, “governance denotes a legitimate and authoritative state, built in a liberal plural democratic system of polity” (Connelly, 1999 p: 42). This broader definition of governance insists on competitive democratic politics and the correlation of liberal politics and economic growth (Rueschemeyer et al 1992). Governance represents the traditions and institutions that determine how authority is exercised in a particular country, including government selection, accountability, legitimacy, fairness, inclusiveness, and citizens’ respect for the state institutions that govern economic and social interactions (Kaufmann et al 2000). The precepts of democratic governance also comprise the mechanisms, processes, and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences with the state (World Bank, 1998 and UNDP, 2003).

These values are translated effectively in holding free elections, setting up audit systems, strengthening an effective, predictable, and impartial rule of law, fighting corruption, promoting information flow between citizens and their governments. This last approach to governance is mostly promoted by developed states and institutions such as USAID, the United Nations, or the OECD (UNDP, 2003).

The first two levels of governance are those most highlighted by the World Bank. Administrative and systemic analyses of the development process have led the World Bank to formulate its structural adjustment policies that are essentially focused on the unconditional reduction of the role of the state. It is *about reinventing governance on a new institutional and political basis*. From “getting the price right” the concept of governance has introduced a new paradigm – “get the context right” – which amounts for many to “get the politics right” (Weiss, 2000 p: 8). Through this, the concept shifts closer to politics, testifying to the interrelatedness of these three levels of analysis.

### ***Urban governance***

The notion of governance, preceded by its “urban” qualifier, has recently been used in several contexts. Perhaps the most important contribution of this notion is that it signals a new set of policies that emphasise the urban management dimension of urban planning. Decentralisation has emerged over the past years as a preferred policy option for improving city management, and it places considerable attention on city authorities, their capacity, and their relationship to local communities (UNDP, 2003). It also highlights the importance of the state–citizen relationship, which often reduces the citizen to a consumer in the urban management approach (Weiss, 2000). Processes of negotiation, conflict resolution and other interactions between state and non-state actors are in general more visible in urban contexts where citizens tend to be more vocal, stakes higher, and inequalities larger, necessitating a more important role for the state ( Habitat, 2000).

Urban governance also highlights the specificity of city problems, in particular the case with growing income inequality and urban segregation, the phenomenon of over-urbanisation in many developing countries, as well as high rates of pollution or the development of informal settlements that often constitute the largest areas of urban residential spaces (Porter and Sheppard, 1998, and Bonine, 1997).

The debate on urban governance also deals with the changing face of urbanisation and the new roles ascribed to cities under the move towards globalisation (Sassen, 1998). It is widely believed today that cities are transcending nation states to compete over attracting foreign and domestic investments. These new urban dynamics necessitate an improvement in the infrastructure of cities, in their service, industry, financial, leisure, and institutional capacities (Majdalani 2001).

### ***Decentralisation***

Since the early 1990s, the decentralisation of public sector institutions in lower income countries has emerged as an important priority for the proponents of good urban governance. In its basic definition, decentralisation reflects “a government’s willingness to transfer responsibilities, control, and activities and allow lower-level organisations and institutions to take over these activities partially and/or completely” (Mayfield 1996 p: 209). It entails “the transfer of responsibility for planning, management and resource raising and allocation from the central government to (a) field units of ministries and agencies; (b) subordinate units or levels of government; (c) semi-autonomous public authorities and corporations; (d) area-wide regional and functional authorities; or (e) NGOs” (Habitat, 2003). Like governance, decentralisation entails systemic, political, and administrative dimensions, including citizen participation and empowerment, improved revenue and resource mobilisation, experimentation and innovation in urban management, as well as higher efficiency, better accountability and transparency, and increased responsiveness in governance (Tendler, 1997).

The decentralisation literature recognises three levels at which decentralisation can occur: the lowest level is referred to as “deconcentration”, which indicates in general the transfer of responsibility and workload from central agencies and ministries to their field units, and involves some level of discretion for local units without however questioning their subordination to central ones. The next level of decentralisation is “delegation”, in which functions are shifted from central government to semi-autonomous public authorities and corporations who are granted the authority for planning and implementation. The highest level of decentralisation is “devolution”, which requires effective transfer of decision-making power and authority to local governments that have the power to secure resources and perform their functions relatively independently. The latter form, which is the closest to “democratisation of governance”, is hardly ever seen in lower income countries (Mayfield 1996).

### ***Partnership***

The Habitat Agenda emphasises as a pre-requisite for sustainable urban development the need to include civil society as a main actor in the development process. Specifically, it requires countries to take steps in “encouraging the establishment of community-based organisations, civil society organisations, and other forms of nongovernmental entities that can contribute to the efforts to reduce poverty and improve the quality of life in human settlements” (HABITAT, 2004). This approach calls for a basic reconsideration of the roles played by the state and civil society actors, such as NGOs, as equal partners in the development process. It is therefore well in line with the good governance paradigm to which the United Nations has been committed in the past decade. According to this vision, governance is “embedded in and interwoven with state–society interactions. It is part of the public realm that encompasses both” (Weiss 2000 p: 800). It “comprises mechanisms, processes, and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences” (UNDP 1997). It also goes beyond the requirements of multiparty elections, a judiciary authority, and a parliament to

include “universal protection of human rights, non-discriminatory laws, efficient, impartial and rapid judicial processes, transparent agencies, accountability for decisions by public officials, devolution of resources and decision making to local levels from the capital and meaningful participation by citizens in debating public policies and choices.” (Weiss 2000 p: 801).

Overall, it appears that the normative models of governance are strongly rooted in Western traditions and its present conceptual framework overlooks the importance of good governance structures for working towards inclusive, decentralised, and equal relations among development partners.

***Governance and sustainable urban development: concluding remarks***

From the above discussion, it is clear that good governance is essentially seen as a prerequisite to the achievement of sustainable urban development. Therefore, there is a need to develop a strong emphasis on the promotion of “transparent, responsible, accountable, just, effective, and efficient governance of towns, cities, and metropolitan areas (Habitat, 2004). The Global Campaign on Good Urban Governance explains, “inclusive decision making processes form a strategic entry point for the achievement of sustainable urban development” (The Global Campaign for Good Urban Governance, 2000). The strategy presented by the Habitat Agenda for good governance as a way to sustainable urban settlements can be summarised in the following points:

- *Decentralisation* of responsibilities and resources to local authorities based on the principles of subsidiary and accountability;
- Encouraging the *participation* of civil society, particularly women, in the design, implementation and monitoring of local priorities;
- Using a wide variety of *partnership between state and non-state actors*, including the private sector, to achieve common objectives;
- *Building capacity* of all actors to contribute fully to decision-making and urban development processes;
- Facilitating *networking* at all levels;

- Taking full advantage of modern information and communications technologies (*ICTs*) to support good urban governance and sustainable urban development.

The above points should provide the basis for developing policy options, which could be grouped into three broad categories: (i) decentralisation and strengthening the role of local authorities, (ii) encouraging participation and civic engagement, and (iii) ensuring transparent, accountable, and efficient governance of cities. A regional campaign is proposed to bring this debate into a regional context and consequently mobilise stakeholders in the GCMR to articulate their own definition, policy framework and plans of action for good urban governance.

### **2.6.3 Public participation and civic engagement**

Public participation is one of the important aspects in contemporary urban development projects implementation. In developed countries, public participation became an essential part of many initiatives. Developers have learned that there are benefits in explaining their plans to the public, in order to avoid the expense of direct opposition later on (Snashall, 2000). Many previous examples indicate the positive role of public participation within the planning process. For instance in Portland Oregon, public opinion has been taken very seriously before initiating urban development projects, backed up with necessary institutional rights to oppose urban plans. In the sustainable Ismailia Project, public participation has played a major role in carrying out many initiatives such as building housing and infrastructure (SIP, 2004). Snashaal (2000) indicates that the benefit of public participation is that it increases the accountability of administration. He stresses that decision makers should impose a relatively objective decision-making framework as the community will have the opportunity to review the issues that have been identified in the planning process.

He suggests that the role of the administrators in participation is to provide expert technical advice. When administrators seek the views of the public, they are reinforcing their role as technicians, and the role of the public as

representatives, in the decision-making process. Community participation ranges from simple processes such as passive involvement in the consultative practice to a situation where a community may exert the power of influence and take an active part in decision making (Maywald, 1989). Arnstein (1969) argues that the most critical point of public participation is that citizens lack the power to ensure that their views will be heeded. She argues that in order to have effective public participation, it is important to consider the participation process as an integral part of, and complementary to, planning and decision-making processes.

Participation should not be carried out as a public relations campaign and not related to the urban planning process, but it should be integrated into the planning process in order to integrate public views into the decision-making process. Box 2.6 reflects this idea by summarising the goals and objectives of the Porto Alegre participation infrastructure project. The example relates to the success of the public participation in the creation of a self-governing body and the political aspects that create active participation and direct democracy. Arnstein argues that in order to have effective public participation, this should commence from the early stages of the proposal and recognise the diversity of opinions in the community. Consequently, the participation process should recognise the widest range of views and integrate these into the decision-making process. In addition, the public participation process requires information, time, money and skilled staff because it is a time-consuming process and therefore requires providing the community with appropriate information and time for feedback suggestions which involves many meetings, discussions or public events.

There are many ways to inform and involve the public with the decision-making process, such as through printed materials, a local newsletter, an open house and information days, public meetings, community vision groups, presentations to community groups, workshops, surveys and media. In general, involving the public in the decision-making process is one of the aspects that Local Agenda 21 stressed as an enhancement of the development process, and helps to reflect the community's various opinions

in planning sustainable development initiatives. The Sustainable Seattle indicators represent how public participation and community groups' involvement can make a difference in sustainable development initiatives. "A key factor of successful public participation in Seattle is the strong cultural connection with the local environment, a strong connection to native Indian traditions, and high educational standards" (Sustainable Seattle, 1993, p: 4). Connelly and Smith (1999) argue that the community should "own" Local Agenda 21 if it is to be effective; he argues that providing citizen engagement at earlier stages of the decision-making process with tools such as citizen's juries will enhance sustainable development initiatives on the local level.

#### **Porto Alegre public participation example**

Porto Alegre is the capital of Rio Grande do Sul, Brazil's southernmost state. Porto Alegre is situated on a flat area on the eastern bank of Lake Guaíba. The Porto Alegre County has a total land area of 471 square kilometres, of which some 70% is urbanised and 30% is rural land. On average, there are 102 inhabitants per hectare in the county.

#### **Porto Alegre's guiding principles for the provision of services**

The current government of Porto Alegre County remain staunch believers in public administration and the civil service. There are four key guiding principles that shape the direction of their policymaking:

- That public administration can actually be as competent and efficient.
- That services essential for the population are strategic issues that have to be managed by the general will of the people and expressed through their representatives.
- That the basic needs of a population cannot be regarded as a profit source.
- That good public management can actually provide the conditions for giving a better and cheaper service to the public.

The success of Porto Alegre's project can be attributed to institutional, economic and political factors:

- Institutional: the creation of an autonomous self-governing body; the competence of civil servants; the tradition of public services in utilities.
- Economic: tariff structures; every citizen contributes their share to the maintenance and operation of the system.
- Political: participation and direct democracy are the main reasons why the system has evolved into its current state (Vieira and Cordeiro 2003 pp: 3-10).

### ***Box 2.5: The case of public participation in Porto Alegre***

#### **2.6.4 Compact urban form policy**

The urban form of a city is an important factor for achieving sustainability because the shape of the settlement pattern determines the patterns of



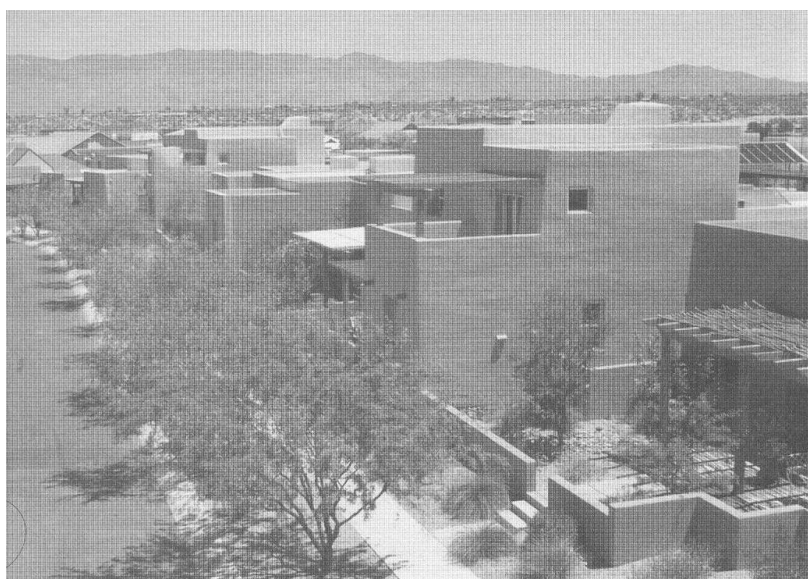
private transport, fuel consumption and emission, and public transport. Breheny and Rookwood (1993) argued that the urban form might affect the rates of conversion of land from rural to urban. The urban form at all scales may be a significant determinant of sustainability. An environmentally desirable urban form may be seen as less desirable in economic and social terms, but Rogers (1998 p: 17) argues that mixed land uses can be acceptable within the successful sustainable urban neighbourhood. Adding to this, there is a conflict between high urban densities and the desire to green the city, therefore urban form and sustainability are linked in principle (Breheny and Rookwood, 1993). It is possible to argue that some types of urban form are more sustainable than others. This is clear in metropolitan or large cities, where sprawl is a common ingredient of any large city. Thus, the urban form of the city will determine how successful sustainability will be in the city. It has already been debated that compact cities have a big advantage in terms of saving energy and reducing automobile dependence by Elkin et al. (1991) and Breheny and Rookwood (1993), however, others argue that compact cities have their own downfalls, such as the acute impacts of pollution and other hazards on neighbouring activities (Ewing, 1997).

The compact city model represents a strategy to control urban growth in metropolitan areas which is known as infill. The infill policy focuses on building on vacant lots within the urban area, redeveloping underutilised spaces such as existing deteriorated areas and redeveloping industrial sites. The opposite model from that of the compact city is green-field development which frequently takes place on agriculture lands at the city's edge. 57% of new development has taken place on infill lots through UK infill policy (Cullingworth and Nadin, 2002).

Beatley (2004) suggests three characteristics of urban form that make many other dimensions of local sustainability more feasible. These three aspects are public transit, walkable places and energy efficiency. However, these three policies are focused on the urban core and new development. In urban growth areas, he noticed that development studies always located these

areas adjacent to existing developed areas. Cities such as Freiburg in Germany demonstrate the compact urban form, with a high density of new urban growth areas along the main corridors of its tram system (p: 250).

The development model in Civano, Tucson in Arizona State, United States, is demonstrated in Figure 2.3. This model of development indicates the benefits of taking advantage of compact urban design to provide shaded areas and a friendly streetscape environment. The homes are built based on high-energy standards using solar energy and are estimated to use 50% less energy than other typical homes in this area. In addition, a double-water system is used, one line for potable water, another for less clean reclaimed water. The urban design concept is based on best spatial orientation of homes for the use of solar energy. The emphasis on natural plants and vegetation on the community is represented in Tucson's preservation policy. In addition, it uses various building materials that are suitable for building in a desert climate. The passive and active solar elements, which take into account sun, wind, and shade, help maximise building efficiency and work with the natural environment. The architectural style employed is based on traditional building types. Openings and wall materials are designed relative to their exposure to the sun, thereby lessening dependence on mechanical heating and cooling.



**Figure 2.3: Streetscape in Civano, Tucson Arizona**

### **2.6.5 Housing and environment**

Housing is considered as an important sector in the community; hence, the policies of housing distribution in the community include demand, size, quality, and location. Housing has been a major issue in urban policy, due to a constant shortage of affordable housing for low-income sectors, which form a large portion in any country. Shortage of affordable housing means the availability of enough well-designed housing to meet the requirements of the low- and middle-income population. Decent housing is seen by many as a basic human right. Efforts to promote this statement have been made in the Istanbul City Summit in 1996 to ensure decent affordable housing. The idea of providing social housing has been promoted by the British government since the beginning of the 20<sup>th</sup> century. The United States opposed the idea of social housing and believes the housing sector is better left to the market rather than the government. Other countries, such as Canada, the Netherlands and Sweden, are promoting the idea of social housing. Despite the design or funding problem, the idea itself reflects the consideration that government housing policy is giving to social issues.

*“Policies should define affordable housing as housing designed to meet the needs of households whose incomes are not sufficient to allow them to access decent and appropriate housing in their borough. Affordable housing comprises social housing, intermediate housing and in some cases, low cost market housing. Urban Development Plans policies should ensure that new affordable housing provision seeks to meet the full spectrum of housing need” (The London Plan, 2004)*

However, even with limited budgets, governments can still provide social housing with better design, architectural design and landscaping to promote sustainability of the community. For instance, various levels of government can play a major role in creating better housing – the national level can supply funding and set guidelines for structural quality and public access to housing such as in the case of the regional housing strategies of North West of England. Local governments can work with builders and communities to ensure the best housing locations and that building codes are followed, or can set requirements that builders include within their housing projects (Wheeler, 2004).

Offering decent, accessible housing and minimising daily travel to the core city is essential. This can happen by providing social and economic services to new community developments. Adaptation of growth management to achieve sustainable urban development includes policies to promote infill development and investments in light rail transit such as smart growth policy.

Smart growth policy is providing affordable housing through land-use designation policies. The smart growth aims to support compact, infill and transit-oriented development. The land-use policies allow for mixed use spaces and no maximum residential densities, which help to achieve a compact city. In addition, the policy allows for increased densities in sites near transit stations which encourages the need for new housing and related services and supports public transportation. For example, housing initiatives in San Jose, United States, encourage the production of high-density housing in close proximity to public transit corridors. Employment concerns have led to providing at least one job for every two households, as a way to minimise automobile commuting (CTSV, 2006).

Environmental considerations in the urban context are one of the aspects to be dealt with in local-level programmes and initiatives, and can be a vehicle to promote socio-economic sustainable urban development. In Curitiba Brazil, for instance, under the “garbage that’s not garbage” programme, 70% of the city’s trash is recycled by its residents. Once a week, a truck collects paper, cardboard, metal, plastic and glass that has been sorted in the city’s homes. The city’s paper recycling alone saves the equivalent of 1,200 trees a day. As well as the environmental benefits, money raised from selling materials goes into social programmes, and the city employs the homeless and recovering alcoholics in its garbage separation plant. Curitiba Open University, created by the city, lets residents take courses in many subjects such as mechanics, hair styling and environmental protection for a small fee. Retired city buses are often used as mobile schools or offices (Rabinovitch and Leitman, 1996).

An example of new development in the city fringe is the Tucson Arizona housing development. The urban development approach in this project is to help guide its land use, and its overall physical, social, and economic development. In addition, technology has been utilised in the housing design phase by incorporating solar cells into the roofs in order to regenerate energy enough to operate household daily usages. In addition, through the usage of sustainable materials, the community has been able to establish an example of achieving sustainable urban development through technology.

### **2.6.6 Sustainable transportation planning**

Transportation systems have been a powerful force in determining the form of cities. Automobiles have accelerated the urban growth trend especially in metropolitan areas, because they have allowed people to reach the city periphery in a short time. Consequently, new towns and satellite communities have existed in metropolitan areas as an answer to the high density in the core city coupled with the availability of a good transportation network. However, later, conflicts became apparent between transportation growth and land use and the environment in the urban context. The city faced problems such as traffic congestion, air pollution due to daily car usage, daily commuting, generation of noise pollution, roads and parking area shortages, severe limitation of walking and cycling, public safety, etc.

However, urban planners did try to address these imbalances between motor vehicles and human activities before the concept of sustainable development existed, but it can be argued that since sustainable urban development began in the late 1970s, policies to tackle these issues have increased in the three major aspects. The first aspect was providing good alternative modes of travel, by stressing mobility through walking and public transport. Second, changing land use and urban design policies to achieve previous alternative modes in order to reduce the length of trips, such as in the case of the compact city. Third, reforming transportation prices/taxes by incorporating the full social and environmental costs of driving into the price of fuel, road use and parking (Wheeler, 2004) such as in the central London business area by increasing the taxes of accessing this area after 6:00am.

An example of this public transit policy is the Curitiba public transit experience (Box 2.6). The city pioneered the idea of an all-bus transit network with special bus-only avenues created along well-defined structural axes that were also used to channel the city's growth. The transit system is rapid and cheap, and is currently being integrated with the metropolitan region. Its efficiency encourages people to leave their cars at home. Curitiba has one of the highest rates of car ownership in Brazil, and high population growth – yet auto traffic has dropped substantially. Curitiba has the highest public ridership of any Brazilian city (about 2.14 million passengers a day), and it registers the country's lowest rates of ambient pollution and per capita gas consumption. In addition, an inexpensive “social fare” promotes equality, benefiting poorer residents settled in the city's periphery. A standard fare is charged for all trips, meaning shorter rides subsidise longer ones. One fare can take a passenger 70 kilometres.

#### **Transportation planning in Curitiba**

To accommodate the growing population over the past 30 years, the system has grown to utilise varying types of bus services that cater to the needs of passengers within the metropolitan areas and surrounding municipalities. The Integrated Transport Network, is designed to allow the passenger to make travel arrangements to a certain destination without paying more than one passage within the metropolitan area. This integrated system connected by tube stations and terminals also incorporates an express bus system that serves as a surface subway for the city of Curitiba whose foresight in urban planning has demonstrated positive results.

Brazil's first pedestrian network in the centre of the city was commenced in 1971. However, the most significant changes in the transportation system were taken in 1974 with the creation of the road hierarchy and land control system (Rabinovitch and Hoehn, 1995). In coordination with the Master Plan, they began to construct the first two out of five arterial structural roads that would eventually form the structural growth corridors and dictate the growth pattern in the city. These structural corridors were composed of a triple road system with the central road having two restricted lanes dedicated to express buses. Parallel to the express bus lanes were two local roads running in opposite directions. They allowed local traffic to pass through the city. In 1982, all five structural corridors were completed with inter-district and feeder lines. In accordance with these structural roads, zoning laws were set in place to structure the growth of the city. Large buildings holding a high density of people were permitted to be built along these corridors, but as one moved away from these central corridors, the admissible densities declined from urban apartment buildings to residential neighbourhoods (Rabinovitch and Leitman, 1996).

**Box 2.6: Transportation planning in Curitiba (Rabinovitch and Leitman, 1996)**

The city of Portland has taken many actions to reduce the dependence on private automobiles, by promoting a more walkable city, at the same time protecting the environment by introducing a series of downtown plans to increase the amount of housing in the centre, to reconnect the city with the riverfront, and to create an attractive urban environment. The reduction in automobile use has a long history within the city, by recapturing space from the automobile and giving it back to pedestrians. Examples are the tearing out of a riverfront highway and putting a park in its place and the removing of a downtown garage to create a courthouse square, to solve the transportation problem. In the downtown areas, a highly popular regional light rail system has been set up, which connects much of the region. This case is important because it shows the benefits of giving interest to regional planning to guide urban growth, whereas in other places regional planning does not have much power to guide urban growth (Wheeler, 2004).

Portland's planning strategy has led to a more compact regional development pattern than most other American cities. The strategy is prepared for the region, through an extensive public process, and maintains the region's tight Metro urban form and steers urban growth into a series of sub centres. The key policy goal is that 85% of new residents will be within a five-minute walk of a public transport station. Although these methods have successfully promoted sustainability in Portland, the recent sharp rises in housing prices have been blamed on the UGB and its growth controls. Others have been critical that while greater density and compactness have been achieved, there are still problems with growth, such as car dependence – the same classic suburban issues (Portland OSD, 2006). Appendix 2 demonstrates samples of indicators and figures of international cases (GMV, 2006).

### **2.6.7 Urban growth Policy**

Curbing urban growth in metropolitan regions is a crucial issue in the discussion of sustainable urban development especially in large cities. Preserving the agricultural land and natural environment from being overrun by rapid urban growth is considered as one of the challenges of the urban planning process. The 20<sup>th</sup> century witnessed a large urbanisation

movement. The UNDP is predicting that 60% of the world's population will live in urban areas by 2030. It has been mentioned in chapter 2 that urban sprawl causes pollution, congestion and automobile dependence, which are crucial issues that need to be addressed in sustainable urban development. One policy mentioned in the last section is the compact urban city where creating urban forms and designs can reduce daily travelling and commuting to the city and save energy.

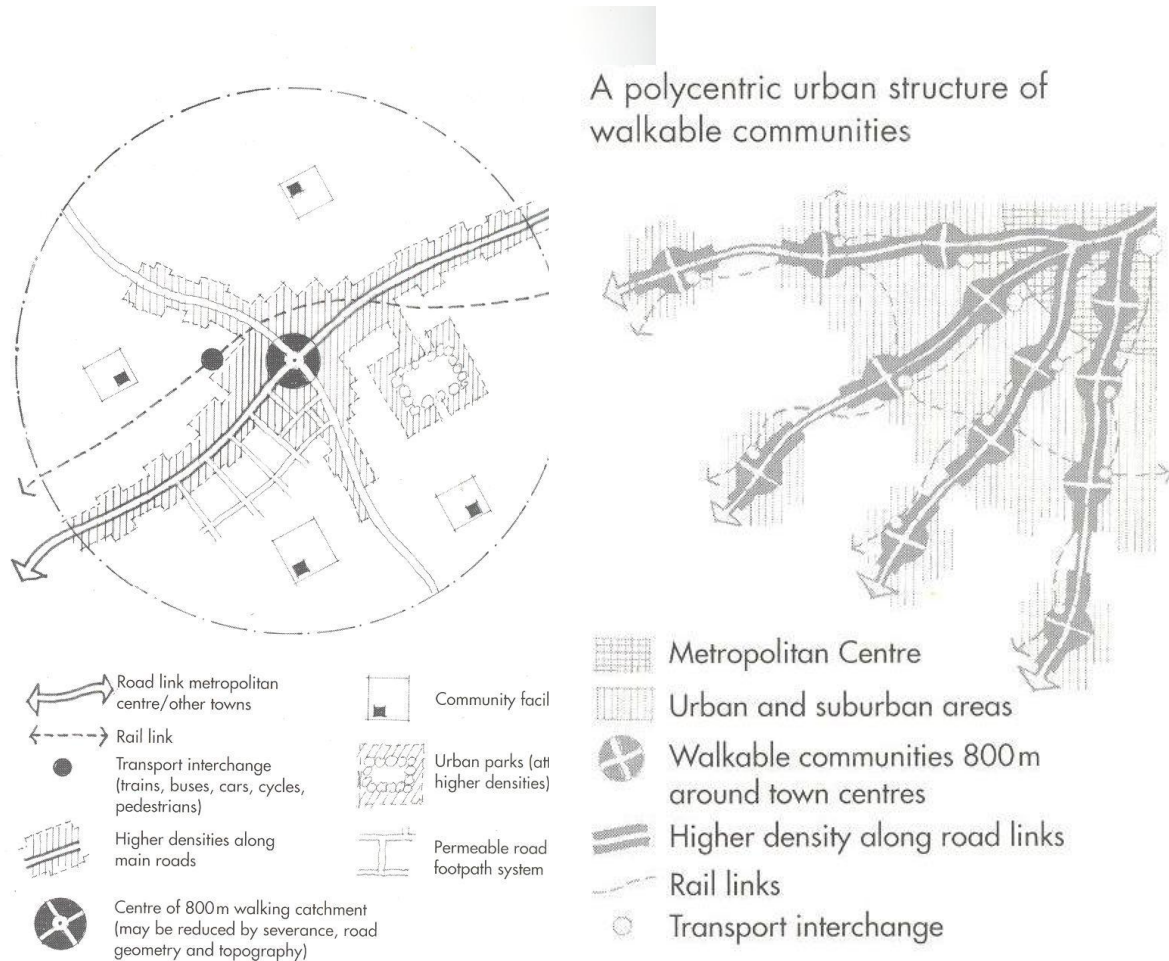
However, the urban structure of the community begins with the urban region. Clarke (2003) argues that the concept of polycentric urban structure can help cities grow while maintaining walkable sub-communities by developing public transit in the form of urban corridors. Figure 2.4 demonstrates that the concept of polycentric urban structure allows the city to spread while at the same time, providing corridors with public transit in order to reduce automobile dependence.

The polycentric urban structure is supported by Calthorpe in the Transit-Oriented Development. He describes pedestrians as “the catalyst, which makes the essential qualities of communities meaningful” (2004, p: 76). He argues that, the spatial form in the region should be the product of transit accessibility and environmental constraints, and adds that urban growth boundaries should be established that provide adequate areas for growth while honouring the criteria of polycentric growth (2004 p: 80). The means of transportation plays a major role in polycentric urban growth – however, this is meaningless unless provision is made for a suitable mass transport system to achieve accessibility to these communities while reducing automobile dependence.

In order to curb urban growth, metropolitan areas seek policies such as compact urban growth as in the case of Portland Oregon and the Greater Vancouver Region. Greater Vancouver's strategy focuses on achieving a compact metropolitan region: the plan avoids wide dispersed spatial form and accommodates a significant proportion of population growth within the “growth concentration area” in the central part of the region. Figure 2.5 shows the Greater Vancouver growth boundaries. The urban growth policy is to curb urban growth by concentrating future growth around regional centres, while



also providing mass transit to connect these regional centres in order to provide accessibility and avoid private automobile dependence. In the case of Portland Oregon, the city controlled the urban growth by adopting an Urban Growth Boundaries policy (UGB) that helps the local government manage growth by tools such as urban service limits (Wheeler and Beatley, 2004).



**Figure 2.4: A polycentric urban structure of walkable communities and attributes of a walkable community (Clark, 2003)**

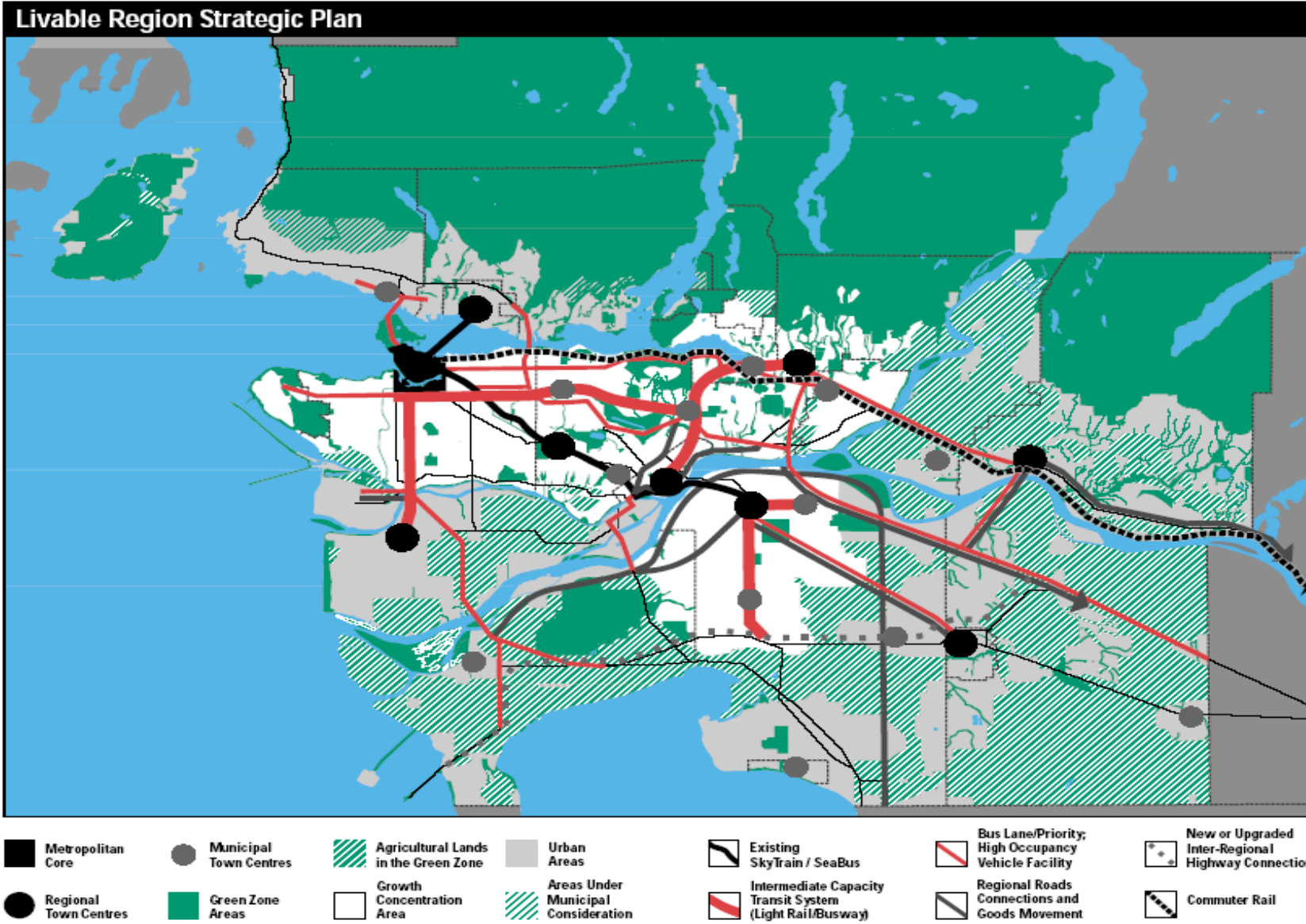


Figure 2.5: Greater Vancouver Urban Growth Policy (GVRD, 2006)

In addition, urban growth should be planned in parallel with land uses. It is important to address land-use planning issues in relation to urban growth. The efficiency of allocating land use in the spatial context, such as industrial areas and commercial activities, are attracting poles to new housing development. Integration of transport and land use such as in the case of Curitiba, described earlier, where urban planners realised that transportation, land use and road systems can be used as integrative tools of development is in compliance with these guidelines. In the 1970s, zoning laws were set in place and Structural Avenues were designed to direct linear growth by attracting residential and commercial density along a mass transportation lane. In 1974, the main mass transit line began to operate along those avenues.

In conclusion, urban growth in metropolitan areas has always been a challenge to urban policy makers. In a situation such as rapid growth, planning for urban growth is as important as any other aspect of urban policy. Perhaps, one can argue that it is one of the essential aspects because it determines the magnitude of future urban problems such as congestion, pollution, automobile dependence and increasing daily commuting. Consequently, it should be planned carefully with the consideration of land use and transportation policies.

#### ***2.6.8 Monitoring and evaluation in sustainable urban development: the role of indicators***

One of the crucial issues in sustainable urban development practice is reporting, monitoring and evaluation. In other words, how do we recognise progress towards sustainability? Evaluation and monitoring techniques have always been crucial tools in urban planning. One of the essential instruments of urban planning is indicators, which can play a crucial role in educating the public on current development trends. In addition, they can be used to develop political support for change such as campaigning and coalition for environmental and social concerns of existing government policies. Local governments are keen to inform the public with the progress of policies in different methods; one of these methods is the publishing and updating of indicators to show the progress of certain policies.

### ***What are sustainability indicators SIs***

The initial use of sustainability indicators has been restricted mainly to one-dimensional environmental systems, usually dealing with energy and agriculture concerns. In 1992, indicators of sustainability were recognised at the United Nations Earth Summit in Rio de Janeiro, where 179 countries came to a consensus agreement, aimed at applying sustainable development in global terms. Sustainable Development SD delivers basic environmental, social and economic services to all, without threatening the viability of the ecological and community services upon which these services depend (Chapter 28 of Agenda 21) (Guy and Kibert, 1998). UN sustainability indicators have been defined in the chapters of the Rio conference document, divided into four main categories: (Bell and Morse, 2003)

- 1- Social aspects of SD
- 2- Economic aspects of SD
- 3- Environmental aspects of SD
- 4- Institutional aspects of SD

The main focus of the UN is to establish a list of SIs within the three dimensions of sustainable development (social, economic and environmental) to help planners and policy makers understand the wider potential of sustainable dimensions and apply them in their systems. Therefore, the UN and the Sustainable Development Indicators (SDI) group selected 150 SIs from 400 potential ones, further reducing them to a final stage list of 40 (SDI group, 2001), to determine the building, regional, national and international dimensions of sustainability and create the most balanced approach to environmental, economic and social policies.

Over the last ten years indicators have aimed to encourage designers and planners to improve building performance and deliver objective measurements of their impact on sustainability. More recently, however, a sustainability indicator has come to include more than just environmental performance – it has social and economic dimensions pertaining to all factors

of human activity (e.g. industry, transportation, food production, etc.) (Cole, 1998). As Cole stated, "Sustainable development is an evolving process that improves the economy, the society and the environment for the benefit of current and future generations" (Cole, 1997). The frontiers of sustainability in this scope are much larger and therefore, it is necessary to classify the relative indicators into three groups depending upon the dimension or element that they are related to:

- Environmental Sustainable Indicators SIs: environmental indicators include three main categories of services to human society. Firstly, natural resources provide various qualities of materials as requested by humans for economic development. Second, the environment acts as a sink to observe and recycle the waste products of economic activities (such as forests extracting carbon dioxide from the air and returning oxygen to the atmosphere). Third, it is recognised that the environment supports life on earth (Mackley, 2001).
- Social Sustainable Indicators SIs: social concerns are not only related to the needs of the least advantaged in society, but also, to ensure that a balance is maintained between the quick satisfaction of the public and an investment in the needs of the community and of future generations (Cole and Lorch, 2003). Sustainable indicators should stimulate the community to take a role in creating action plans for sustaining positive aspects of the community and improving weakness. "Indicators exercises should be founded on a participatory process that helps provide new goals for politicians and decision makers" (Pinfield, 1996 and Meter, 1999 in Bell and Morse, 2003, p. 49). However, understanding requirements and transforming them into high quality sustainable indicators (effective indicators) is a universal one that many stakeholders have struggled with (Gann et al, 2003).
- Economic Sustainable Indicators SIs: this can be understood in the scope of sustainable development in terms of the maximum rate of resource consumption and waste production that can be sustained indefinitely in a region without impairing ecological productivity and integrity. Furthermore, the efficiency of economic indicators has been

regarded as an ultimate goal for every government to achieve ideal standards of living and increase the capacity of providing goods and services to satisfy human needs. (Mackley, 2001 p: 19).

The lesson to be learned from sustainable indicators is that the meaning of sustainable development has three crucial dimensions reflecting the important interactions between environmental protection (Environmental SIs), economic security (Economic SIs) and social equity (Social SIs). The goal is to raise public awareness towards the means of sustainable development, along with a broad overview of whether we are achieving a better quality of life for everyone, now and for future generations to come (Sustainable Development the UK Government's approach, 2003).

It is difficult and perhaps even irrelevant to use every SI that may be potentially available. There should be a limited number of indicators, which have standardised measurements and can be compared to targets, thresholds or other standards as appropriate. "There is no limit on the number of indicators that can be used, although a greater number can limit comprehension and the relative importance of each indicator" (Becker, 2004). Therefore, the challenge for most stakeholders is to find effective indicators, requiring a clear conceptual basis.

### ***Urban sustainability indicators***

Indicators have received crucial importance in the last 10 years especially when dealing with the urban context. For instance, in North America, there are national and regional sustainability annual reports which present evaluation of progress through reviewing sustainability strategy objectives. In the UK, for instance, scrutiny reports for sustainable communities and housing pathfinders are doing exactly the same. In developing countries such as in the case of Curitiba Brazil, the lack of financial and organisational resources indicate inconsistency in the monitoring and evaluation data available online which is likely to also be the same for the government evaluation and monitoring report. The publishing of annual reports online is crucially important especially with the increase of IT and daily access to the

internet by a large portion of citizens. Building a communicative bridge between local government and the public is a vital requirement in the sustainability process. Evidence of positive progress is important for justifying past expenditure on sustainability initiatives and a lack of evidence for it can provide communities with ammunition to act accordingly.

Box 2.7 describes the different types of indicators that can be utilised in monitoring and evaluating sustainable urban development; it shows how indicators can vary from simple straightforward social, economic and environmental indicators, integrated by linking economic, social and environmental dimensions, or distributional indicators that deal with intergenerational equity, such as historical trend indicators.

The Portland, Oregon indicators system is one of the best-known systems among sustainable urban development indicators (Wheeler, 2004) and it uses targets to review government accountability. The Oregon Progress Board identifies 272 indicators of environmental, social and economic aspects by identifying a target for each indicator to be met in 2010 and considering these targets as benchmarks. The significance of these targets is that they are output rather than input targets. For instance, they measure the number of households with drinking water that do not meet government standards rather than measuring expenditure on water treatment facilities. Figure 2.6 shows an example of indicators from the Greater Vancouver system that can help to monitor the trend of private automobile and daily commuting using different transportation alternatives that can help in the planning of mass transportation strategy.

### ***What is an urban sustainability indicator?***

Indicators are simplifications of complex phenomena. The term indicator provides the indication of conditions or problems (Whorton and Morgan, 1975, Clarke and Wilson, 1994). The sustainability indicator can be defined as “bellwether tests of sustainability and reflecting something basic and fundamental to the long-term economic, social and environmental health of a community over generations” (sustainable Seattle, 1994). Maclaren (1996) distinguishes urban sustainability indicators from simple environmental, economic and social indicators by the fact that they are:

Integrating, in the sense that they attempt to make linkages among the economic, environmental and social dimensions of sustainability, for example, the amount of Brownfield land found in an urban area could be considered as indicator of industrial activity loss or environmental constraints on redevelopment. Another example would be the unemployment rate, which can be considered a measure of both economic stress and social stress.

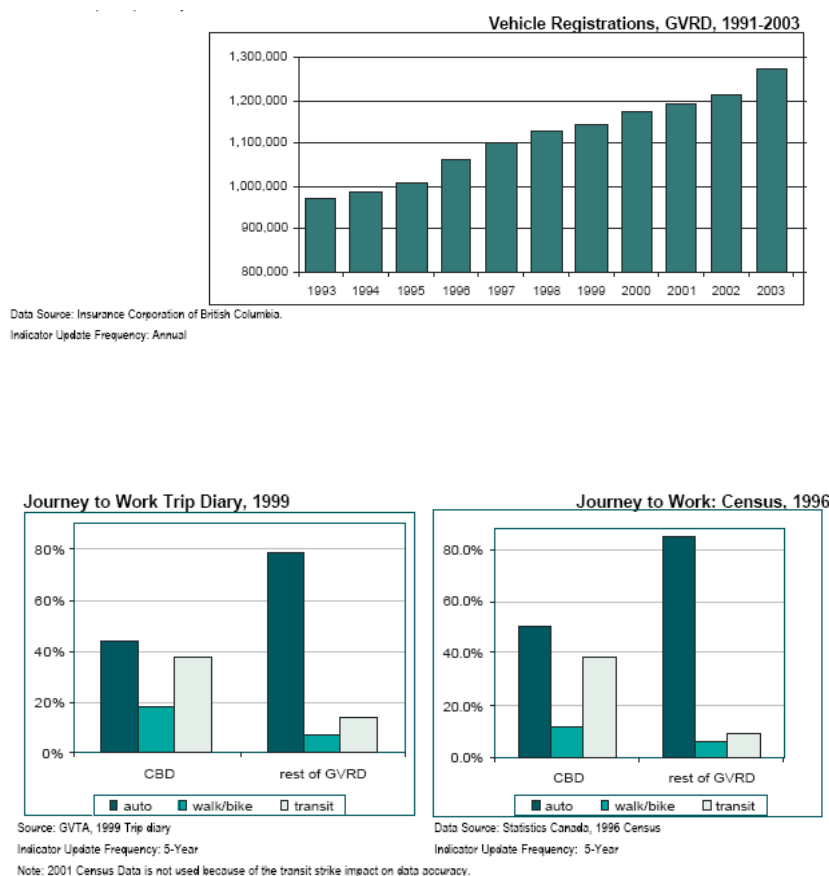
Forward-looking, in the sense that they must be forward-looking in measuring progress towards inter-generational equity. An example of that is the trend indicator, which describes historical trends and provides indirect information about future sustainability.

Distributional, in the sense that sustainability indicators must be able to measure intra-generational equity. They should be able to take into account the distribution of conditions within population or across geographic regions. They also should distinguish between local and non-local sources of environmental effect.

Developed with input from multiple stakeholders in the community. Innes (1990) mentioned that the most influential and reliable indicators have been those that were developed with input from a broad range of participants in the policy process. Sustainability indicators should seek input from a broad range of stakeholders.

### ***Box 2.7: Types of sustainability indicators***





**Figure 2.6: Transportation indicators in Greater Vancouver (GVRD, 2006)**

Another example is Sustainable Seattle indicators, a multi-stakeholder group concerned with evaluating and monitoring government accountability to inform the media and the public of the progress of sustainability initiatives. The group consists of a volunteer network and a civic forum conducted to promote sustainable communities. The group formed 40 indicators to monitor social, economic and environmental progress based on sustainability policy objectives. They use a simple communicative method to demonstrate the position of each indicator towards sustainability: either moving away from or towards sustainability, or neither.

Another significant example of sustainability indicators is the predictive ones, which relies on mathematical models for the future such as trend indicators (Bratt, 1991). One of these examples is the conditional indicators, which has been adopted by the British Columbia Board using various conditions for

housing density to predict the areas needed for urban functions for the total area needed and the overall density of the city of Vancouver.

Two issues arise from the previous examples: one is the public concern for measuring sustainability progress, which reflects the level of public awareness of government accountability and the ability of governments to respond to public demands. It raises the question of the level of democracy required in a community for citizens to be able to discuss and change public policies in their interests. The second issue is that the level of independence of evaluation and monitoring boards, such as the Oregon Progress Board, the British Columbia Round Table, Sustainable Seattle Group, is significant. These boards are either public groups or independent committees funded by the provisional government. It can be argued that independence is crucial for evaluating the progress of sustainability. It reflects the degree of government accountability in democratic systems, while these boards may not necessarily be fully independent nor lack government bias, but at least it indicates a level of independence that does not exist in developing countries. The concern in this research is not to examine the degree of independence in these committees but to imply their vital role in the process of sustainable urban development.

## **2.7 Sustainable urban development conceptual framework for the GCMR**

The literature review contextualises sustainable development in the urban context; it revealed no common interpretation of sustainable urban development, and it agreed on the notion that sustainable development involves three major aspects – social, environment and economic. However, the challenge to achieving sustainable development is not the adoption of new technology, but changes in politics, economics and social relations.

### ***2.7.1 The major concerns of sustainable urban development***

When someone such as David Fisk, the Chief Scientist of the UK Department of Environment, Transport and the Regions, states that the main challenge is political rather than technical, we must pay attention for this is confirmation of

the real issue. This research agrees with Fisk and argues that the challenge is to confront the existing political agenda and to align it with the economic and social principles of sustainable development in the urban context. This general principle serves as the base for the practical applications of theoretical models that are developed for the GCMR in later chapters.

However, it causes the research to adopt the very fundamentals of the concept as the guidelines for defining sustainable development: these are simply the intersection of the three main sectors – social, economic and environmental. It is important to mention that, when examining an interpretation of sustainable development it is necessary to bear in mind the philosophy underlying the proponent's point of view. Despite differences, there are a number of common principles embedded in most definitions of sustainable development or sustainability. These include:

- Conservation of biodiversity and ecological integrity (including halting the non-evolutionary loss of biodiversity)
- Constant natural capital and sustainable income
- Ensuring intra-generational (within generations) and intergenerational (across generations) equity
- Recognising the global dimension
- Dealing cautiously with risk, uncertainty and irreversibility
- Ensuring appropriate evaluation of environmental assets
- Integration of environmental and economic goals in policies and activities
- Social equity and community participation.

The significance of sustainable development is that, by showing how environmental problems are inextricably linked to economic and social inequalities, it has brought development issues to the forefront of the environmental debate. By now, it should be clear that the goal of sustainable development is not a homogenous recipe for solutions, but that diversity lies within the concept of sustainable development.

- The objective of sustainability is not to win or lose and the intention is not to arrive at a particular point.
- Planning for sustainability requires explicit accounting of perspective (worldview or mindset) and must involve broadly representative stakeholder participation (through dialogue).
- Success is determined retrospectively, so the emphasis in planning should be on process and collectively considered, context-related progress rather than on achieving remote targets. A key measure of progress is the maintenance of a creative learning framework for planning.
- Institutional arrangements should be free to evolve in line with community learning.
- The new role for policy makers is to facilitate learning and seek advantage points with which to direct progress towards integrated economic, ecological and socio-cultural approaches for all human activity (Mappem and Gill,1999)

### **2.7.2 Definition of sustainable urban development in the GCMR**

It can be concluded that sustainable development within the urban context can be achieved through consideration of the three main aspects of urban development (social, environmental and economic). In addition, sustainable development needs long-term strategies in order to monitor and evaluate urban policies within a considerable time span. The focus of delivering sustainable development urban policies within the different spatial aspects will provide solutions for managing urban growth and transport at the regional level and improve the built environment at the local level. Sustainable urban development within the context of this research can be defined as a development that meets the needs of the present without compromising the ability of future generations to meet their own needs, by providing urban strategy and policies that deal with the various aspects of urban development (social, environmental and economic); and taking account of the importance of institutional aspects, involving various urban development stakeholders, and of political aspects to drive the progress of sustainable development,

using indicators in order to evaluate and monitor sustainable development targets in the short and long terms.

### **2.7.3 International examples lessons**

The literature suggests the consideration of three aspects leading to sustainable cities: economic, social or cultural issues, and the physical environment. Taking account of these aspects is the challenge for planners because they require careful policies to handle sustainability in a more integrated form.

One of the important contributions to the field is the Bristol Accord, which identified a number of key prerequisites to achieve sustainable communities in Europe. These are: economic growth, social inclusion and social justice, the role of cities as a cultural context, response to the challenge of social segregation, ensuring sustainable development principles, and recognising sustainable communities at different spatial levels – regional, city, local and neighbourhood.

In addition, a number of lessons have been learned from these examples, which have informed the GCMR sustainable urban development conceptual framework, these lessons are:

The first step is to consider the vision of community political leaders. This includes reaching out to a wide range and large number of community stakeholders to help in developing the community vision through discussions, public forums, and consensus building.

Setting the goals and objectives is another crucial requirement, and so too the development of specific indicators to measure progress towards community goals, which may be time-consuming, especially when it includes many different stakeholders and attempts to build community consensus, as for instance, was found in the case of an indicators development project in Seattle.

Drafting guiding principles for the development of sustainable development to help individuals and organisations within their communities can make a difference. For instance, Portland, Oregon has developed sustainable city principles as guidelines for elected city officials and staff. Communities evaluate their progress and revise their activities accordingly. It is important to include a programme evaluation process within such activities to measure the effectiveness of the programme and to make necessary changes to improve it.

In addition, evaluation of sustainability progress is best conducted by independent bodies. Public participation is seen as an important aspect within the achievement of sustainable urban development such as in the case of Porto Alegre, Brazil and formulation of sustainable urban indicators for urban policy such as in the case of the Sustainable Seattle Project and monitoring sustainable urban development initiatives in Portland Oregon.

Urban planners have the chance to apply sustainable urban development principles by promoting more affordable housing, mass transit, green urban design and mixed land use in order to create more sustainable communities and overcome rapid urban growth. In addition, urban planners have the opportunity to manage these policies through various spatial scales such as region/city/district/neighbourhood, but it depends whether the political system promotes sustainable development principles or ignores them. Issues such as democracy and public evaluation of urban policy should be at the forefront of the urban planning process.

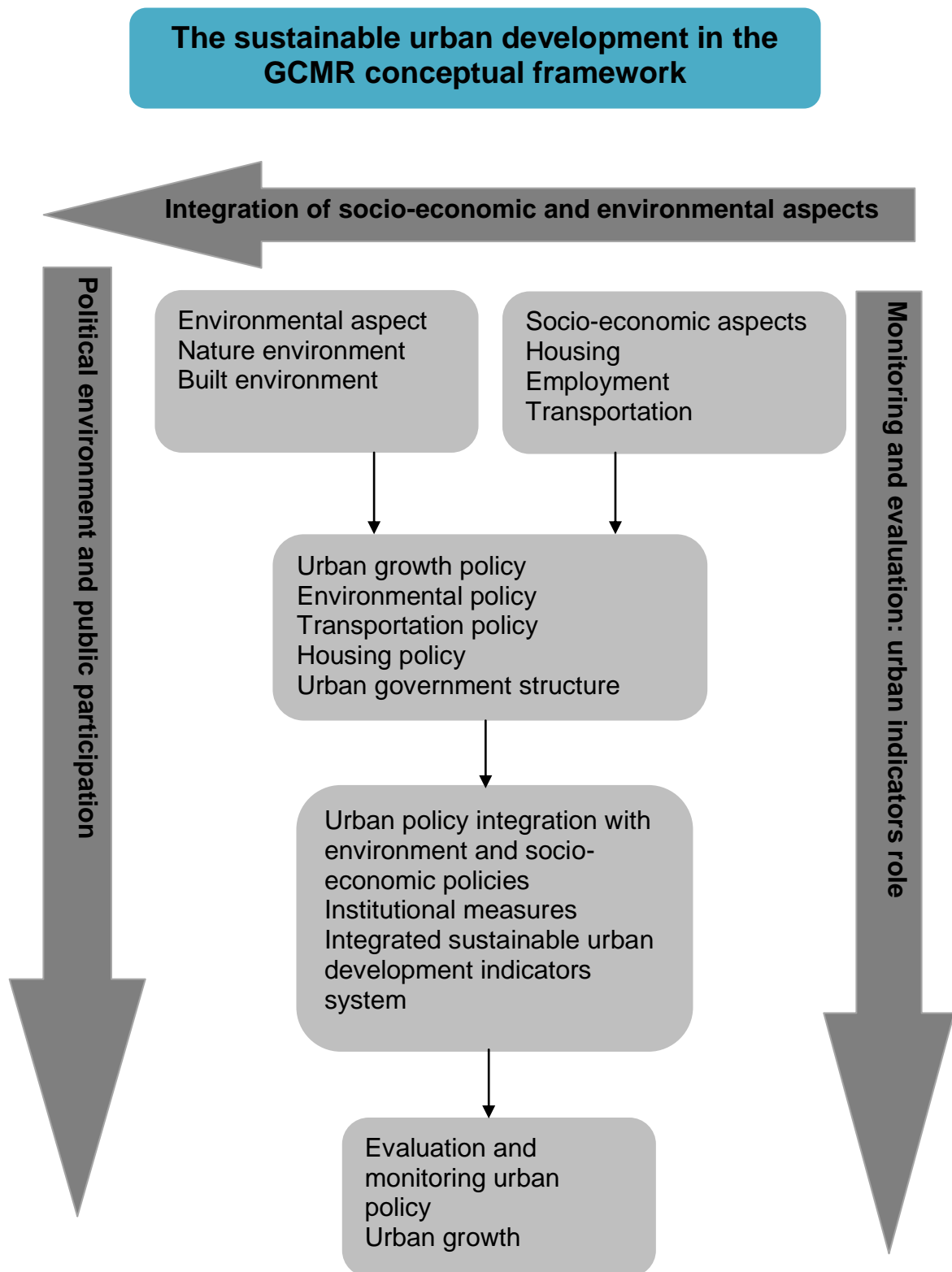
The lessons learned from the international examples imply a number of issues related to the main case study, Greater Cairo Metropolitan Region. First, the absence of development stakeholders and community participation are major obstacles to the achievement of such a concept now. In addition, organisational performance currently suffers from corruption and favouritism when it comes to housing development especially in local government. Another crucial issue concerning urban development in Egypt is evaluation and monitoring of urban policy. Currently evaluation and monitoring in Egypt

raises many questions that are concerned with the involvement of development stakeholders such as academics and NGOs. The government is the only authority to set goals, objectives and guidelines for urban development, as well as evaluating and monitoring performance. Dialogue between the government and interest groups is absent. In addition, an issue such as the involvement of public participation in urban development needs to be addressed. Investigation of urban growth policy for the GCMR is needed in order to examine its consistency with sustainable development principles.

Figure 2.7 indicates an illustration of the sustainable urban development aspects that are required to be investigated in the GCMR based on the findings from the sustainable development theoretical framework and lessons extracted from international examples. The figure indicates three aspects that are essential to investigate sustainability within the Egyptian urban context.

**Integration of socio-economic and environmental aspects:** benefits of integration of socio-economic aspects in sustainable urban development policies were demonstrated and investigations were required to analyse the GCMR urban policy in relation to environmental and socio-economic policies. It is essential to explore and analyse housing aspects in relation to transportation, employment and environment considerations in the current policies in order to identify the current gaps that prevent promoting sustainable urban development in the GCMR.

**Monitoring and evaluation:** is another pillar of the process in investigating how to promote sustainable urban development in the GCMR. This includes a discussion of the crucial role of indicators in the sustainable urban development process in the GCMR.



**Figure 2.7: the GCMR sustainable urban development conceptual framework**



**Urban governance and civic participation:** is a third pillar in the process of sustainable urban development in the GCMR, it is required to investigate current urban governance, issues of democracy, partnership and decentralisation that are crucial within the achievement of sustainable urban development. Habitat Agenda provides a strong reference for good governance as a way to sustainable urban settlements: *Decentralisation* of responsibilities and resources to local authorities based on the principles of subsidiary and accountability. Encouraging the *participation* of civil society, particularly women, in the design, implementation and monitoring of local priorities. Using a wide variety of *partnership between state and non-state actors*, including the private sector, to achieve common objectives. *Building capacity* of all actors to contribute fully to decision-making and urban development processes. Facilitating *networking* at all levels and taking full advantage of modern information and communications technologies (*ICTs*) to support good urban governance and sustainable urban development.

In addition, investigation of the relation between the organisational structure of the current Egyptian government and urban policy delivery is a key to understanding the current performance and drawbacks that prevent the promotion of sustainable urban development in the GCMR

## **2.8 Conclusion**

This chapter contextualises the main aspects of sustainable development, its components and requirements, and discusses sustainable development within the urban context, and the essential requirements to promote sustainable urban development in order to reach a conceptual framework to investigate sustainable urban development in the context of the GCMR. The next chapter discusses the methodological approaches that are required to carry out the formulated conceptual framework through the Greater Cairo Metropolitan Region case study.

## **CHAPTER 3:**

# **INVESTIGATING SUSTAINABLE URBAN DEVELOPMENT IN GREATER CAIRO: RESEARCH DESIGN AND METHODOLOGY**

### **3.1 Introduction**

This chapter discusses the research design and proposed methodology to achieve the main objectives. It discusses the rationale for choosing case study methodology for “Chaotic Cairo”, case study design in terms of data collection, fieldwork interviews and identification of urban development stakeholders in Cairo. The chapter also discusses a proposed method to achieve a transition from the current chaotic urban situation into a sustainable urban development framework in the GCMR using scenario-building technique. The chapter discusses the advantages of using such a technique, moreover, provides two examples of scenario-building that contribute to the GCMR scenarios. The design of the methodology provides a roadmap of how to accomplish the proposal of sustainable urban development framework in the GCMR.

### **3.2 Case study methodology and rationale of choosing Cairo case**

A case study approach is one of the methods commonly applied in the social sciences, it frequently applied when a theory in need to be investigated in a specific practical context (national, regional, neighbourhood) such as poverty, unemployment, urban policy evaluation and monitoring public policy (Hamel *et al.*, 1993). Hamel argues that the case study approach is conducted by giving attention to observation, reconstruction and analysis of the case under study. Case study methodology typically examines the interaction of all variables in order to provide as complete an understanding of an event or situation as possible (Zonabend, 1992). Tellis (1997) argues that this type of comprehensive understanding is arrived through a process known as thick

description, which involves an in-depth description of the entity being evaluated, the circumstances under which it is used, the characteristics of the people involved in it, and the nature of the community in which it is located. However, a frequent criticism of case study methodology is its dependency on a single case, which makes it incapable of providing a generalising conclusion. Hamel *et al.* (1993) and Yin (2003) forcefully argue against common misconception concerning case study methodology, they argue that case study approach is valuable when addressing the questions *why* and *how*. In that sense, case study can contribute to explaining and verifying certain local phenomena, which can be generalised on a global level. In addition, Hamel *et al.* (1993) argue that the singularity of a case study is a concentration of the global in the local. However, Yin (1994) indicates that multiple cases strengthen the results by replicating the pattern-matching, thus increasing confidence in the robustness of the theory. Yin (1994) argues that a single case study is used to confirm or challenge a theory, or to represent a unique or extreme case. In addition, a single case study is considered ideal for revelatory cases where an observer may have access to a phenomenon that was previously inaccessible. Yin stated that in the case of single or multiple case studies, the general applicability results from the set of methodological qualities of the case, and the rigour with which the case is constructed. He described the essential procedures that would satisfy the required methodological rigour which meet the three aspects of the qualitative method: describing, understanding, and explaining (Yin, 1994). It can be concluded that case study methodology and the transformation from the local to the global for explanation are accepted. However, single case design requires careful investigation in order to avoid misrepresentation and to maximise the investigator's access to the evidence (Tellis, 1997).

Following the previous discussion, Cairo case study emergence is also derived from the *how* and *why* questions. Chapter 1 explained the chaotic urban context of Greater Cairo. It demonstrated the inconsistent urban growth policy and organisational drawbacks that accelerated the emergence of this research. In addition, chapter 1 concluded that a strong connection between political and urban government aspects causes this chaotic

situation. Because of these conflicts, evidences of inaccessible new towns, uncontrolled urban growth, lack of public transportation policy, lack of environmental aspects in urban policy, socio-economic problems and lack of democracy and public participation have emerged. These aspects formulate the importance of adopting a case study approach to examine current urban development policy in Egypt and to explain why and how sustainable urban development is critical to solve this chaotic situation. Sustainable urban development can contribute solutions to the impacts of rapid growth on both the natural and built environment in the GCMR. In addition, the objectives of this research, which is to explore the GCMR urban development aspects in depth justify the adoption of a case study approach. Regarding to the singularity of the case study approach in the case of the GCMR, Hamel *et al.* (1993) indicate that generalisation of results, from a single case study design, is made to theory and not to populations. It can be argued that the Cairo case study is designed to test the theory of sustainable urban development in developing countries. It explores how the political aspects influence the urban development process. The next section explains the case study approach and its requirements within the research methodology design for Greater Cairo to achieve the main research aim and objectives.

### **3.3 Case study research design**

The GCMR case study design framework focuses on providing insight of the current urban development and the potentials of introducing sustainable urban development framework based on fieldwork outcomes. Yin (1993) suggests three types for general approach to design case studies: exploratory, explanatory, and descriptive case studies.

- Exploratory case study: in this type, fieldwork, and data collection may be undertaken prior to definition of the research questions and hypotheses. However, the framework of the study must be created ahead of time. In such a case, pilot projects are very useful in determining the final design to be used. Survey questions may be dropped or added based on the outcome of the pilot study.
- Explanatory case study is suitable for doing causal studies. In very complex and multivariate cases, the analysis can make use of

triangulation technique by cross-referencing the evidences that are collected from various sources (data collection, survey, interviews or direct observations).

- Descriptive case study requires that the researcher begin with a descriptive theory, or face the possibility that problems will occur during the project. Thus, what is implied in this type of study is the formation of hypotheses of cause-effect relationships.

It can be concluded that The GCMR case study falls within the explanatory case study approach. The proposed case study design explains the drawbacks of current urban policy caused by various aspects such as political, government performance and cultural. In addition, the case study design identifies the consequences of taking alternate approaches through utilisation of scenario-building approach, which will be discussed in later stage of this chapter. Design of the GCMR case study is based on Yin's explanation of case study structure that can be summarised in his recommendations concerning the use of case-study methodology, the design of the GCMR case study includes the following sections:

- Research objectives: In the case of Cairo, research objectives are identified following the explanation of chaotic urban context in chapter 1 and detailed description of current urban policy in chapter 4. In addition, the conceptual framework in chapter 2 indicates the need for an integrated approach to achieve sustainable urban development in the GCMR.
- Field procedures (credentials and access to sites): Fieldwork activities are based on investigating policies in terms of literature review of previous urban policies and interviews that are concerned with various actors in the urban development process.
- Questions (specific questions that the investigator must keep in mind during data collection): The questions in the interviews cover the central urban aspects that are emerged from the conceptual framework in achieving sustainable urban development in the GCMR.

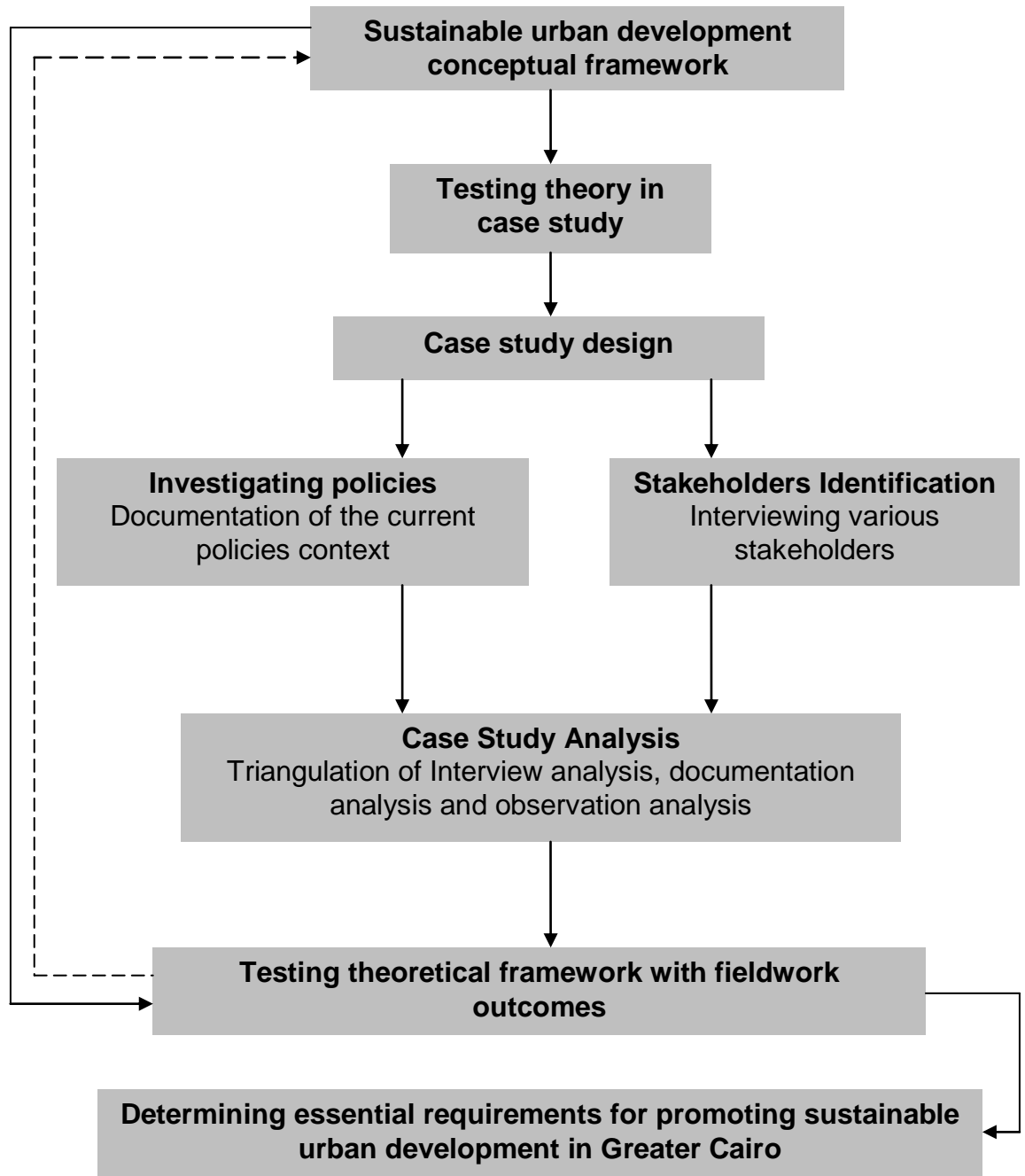
- Guide for the report (outline, format for the narrative): Interview design inventory is designed to outline the central urban aspects and discusses the major components of each aspect (1994 p: 64).

Figure 3.1 describes the research design to investigate the GCMR case study by testing the conceptual framework through case study design, which is divided into two main sections. Firstly, investigate the current urban policy documents. Secondly, investigate involved stakeholders in the urban development process, through a series of interviews. The next stage is to analyse the policies and interviews through the triangulation method in order to provide robust evidences of the current urban policy performance in relation to sustainable urban development theoretical framework. Finally, determine the essential requirements to promote sustainable urban development in Greater Cairo.

In the search of methods for Cairo case study design, a number of requirements have emerged to investigate the current urban development process in Egypt. Literature indicates that there are various sources to collect evidence from a case study fieldwork, Stake (1995) and Yin (1994) identified at least six sources of evidence to investigate in case study design:

- Documents
- Archival records
- Interviews
- Direct observation
- Participant-observation
- Physical artefacts (Yin, 1994 p: 20).

Yin (1994) called the above six aspects *case study protocol* in order to construct the validity of the case under study and to avoid potential investigator subjectivity. Yin asserts that a case study protocol contains more than the survey instrument, it should also contain procedures and general rules that should be followed when using the instrument. It is to be created prior to the data collection phase. It is essential in a multiple-case study, and desirable in a single-case study.



**Figure 3.1: The process of investigating sustainable urban development framework in Greater Cairo case study**

The GCMR case study is divided into two main sections, the first section is the data collection of related urban development policies, the second section is a series of interviews in order to gather evidences of current urban development performance and future urban development orientations. The next sections discuss the details in the GCMR case study fieldwork activities.

### **3.3.1 Data collection**

A fieldwork mostly involves data collection issues. Gaining access to the subject organisation, having sufficient resources while in the field, clearly scheduling data collection activities, and providing for unanticipated events, must all be planned for (Yin, 1994). In that perspective, data collection for the GCMR case study can be clearly seen to be investigating the present and future urban context of the GCMR in its bid to achieve urban sustainability. Therefore, the initial task for data collection activities is to explore the literature related to urban sustainability of Cairo, at the same time, investigating the kind of problems, which are challenging the achievement of Cairo's urban sustainable development whether they are political, administrative, economical or cultural. Second, data collection procedures should identify the data source authorities who are holding information related to the urban development process of the GCMR in order to understand the present and future initiatives and potentials and constraints for achieving urban sustainability. These authorities can be summarised as shown in box 3.1:

In addition, other sources of data can be summarised as follows:

- Scanning of previous dissertations which dealt with the GCMR urban development
- Personal contacts play a central role to ensure the fieldwork success in terms of gaining access to data to examine them. The visits to previously mentioned authorities mainly obtained through personal communications and recommendations from other colleagues in order to facilitate and secure data release during the fieldwork.



**Data collection sources in Greater Cairo**

**The Central Agency for Public Mobilisation and Statistics (CAPMAS)** .This authority is responsible for preparing statistics in the national, regional and city level in terms of social, economic and physical statistics.

**General Organisation for Physical Planning (GOPP)**. GOPP is a central place to obtain various policy documents, maps spatial schematic and like such related to the GCMR planning and evaluation reports.

**GCMR Unit in the Ministry of Housing** .This authority holds information related to urban planning and management of Greater Cairo Metropolitan Region including, the GCMR urban policy and various implementation plans of urban projects.

**Urban Observatory**. Urban Observatory is responsible for the collection and management of the urban indicators for the Egyptian cities.

**Ministry of Housing, Utilities and New Communities (MHUNC)**. The MHUNC is responsible for planning, designing, implementing and management of the existing and future housing plans.

**Ministry of National Planning**. Strategic planning policy in the national level is the main responsibility of this department.

**Housing and Building Material Research Institute (HBMRI)**. HBMRI holds reports and thesis about the evaluation of housing conditions, supply and demand, housing in new towns and housing and urban design evaluation.

**Ministry of Transportation (Transportation Planning Institute)**. Transportation related studies such as transportation planning policy.

**Ministry of Environment**. Environmental documents, environmental evaluation studies, organisations that are involved in the environmental planning.

**Box 3.1: Data collection sources in Greater Cairo****3.3.2 Interviews design**

Interviews are one of the most important sources of case study information. Glesne and Peshkin (1992) assert a major advantage of the interview is its adaptability because the interviewer can follow up ideas, probe responses and investigate motives and feelings, which the questionnaire can never do because it lacks interaction between the interviewer and interviewed person. There are several forms of interviews that are possible: Open-ended, Focused, and Structured or Survey. Stake (1995) advises in an open-ended interview, key respondents are asked to comment about certain events. They may propose solutions or provide insight into events. They may also

corroborate evidence obtained from other sources. During interviews, which by nature are open ended; the subject's schedule must dictate the activity. The researcher must avoid becoming dependent on a single informant, and seek the same data from other sources to verify its authenticity.

However, interviews are time-consuming and interviewing is a highly subjective technique that risks being biased. This includes the possibility of an eagerness of the respondent to please the interviewer, a vague antagonism that might arise between interviewer and respondent, or a tendency of the interviewer to seek answers that support his preconceived notions (Borg and Gall 1989). Gavron (1966) also discusses the difficulty of avoiding the bias problem, but maintains that being aware of it and the interviewer's constant self-control helps avoid a biased interview. Keeping this in mind, the technique adopted for these interviews is semi-structured interview with thematic guidelines for a number of topics. At the same time, the interview allows the opportunity to elaborate or extend points of view on various topics. Therefore, researcher should consider all relevant actors within the interview design process (Feagin et al., 1991).

In order to achieve that, the first step of interview design is to involve various stakeholders besides government officials such as international development organisations and town planner academics. Second, a preliminary list of interviews is prepared which includes 20 interviewees, the list reduced to a final 16 interviewees after pre communication with participants. The researcher identifies the list of authorities in Box 3.2 as the main government bodies to manage urban planning issues in the GCMR. The list includes government bodies who are responsible for formulating, implementing and evaluating urban policy such as the Ministry of Housing, Utilities and New Communities (MHUNC), in addition, the General Organisation for Physical Planning (GOPP) which is responsible for formulate, monitor and update the GCMR Master Plan. On the other hand, evaluation and monitoring of the urban planning development of Cairo is considered a high priority for independent international organisations such as the United States Aid Agency (USAID), United Nations Development Programme (UNDP) and

United Nations educational, Scientific and Cultural Organization (UNESCO). These organisations are running several programmes to monitor and evaluate the urban development projects in GCMR and other sites in the country. In addition, the list includes research centres and town planner academics who are involved in urban policy consultations in various stages such as formulating and evaluating urban policy implementation.

### ***Egyptian urban development main stakeholders***

- **The Ministry of Housing, Utilities and New towns.** This department is responsible for planning, designing, implementing and management of existing and future housing. In addition, it is responsible for management and implementation of the new towns and settlements in Cairo's urban fringe.
- **General Organization for Physical Planning.** The importance of this organisation cannot be over emphasised because it is the only responsible authority for preparing and implementing urban plans in the GCMR.
- **The Greater Cairo Planning Authority (GCPA).** It is responsible for preparing, implementing plans and monitoring urban development for GCMR. The unit is responsible for monitoring urban regeneration projects conducted in the GCMR as well.
- **Ministry of Transportation.** This department is responsible for the implementation and management of transportation plans, monitoring traffic flows, and solving congestion problems.
- **The Ministry of Environment.** This ministry plays a vague role in terms of initiatives and commitments towards the urban context of GCMR. The interviews investigate its current role to find out how its initiatives and programmes within the urban planning process are effective or otherwise.
- **NGO and Academic Research centres.** Independent international organisations and academic research consider the evaluation and monitoring of the urban planning development of the GCMR as a high priority. Agencies such as The United States Aid Agency (USAID), the United Nations Development Programme (UNDP), and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) are running several programmes to monitor and evaluate the urban development projects in the GCMR and other sites in the country.

### ***Box 3.2: Identification of interviews' stakeholders***

In conclusion, interview stakeholders are chosen comprehensively to investigate the GCMR current urban development process. In addition, investigate and update case study profile with any sustainable urban development indications within the current urban policy in terms of initiatives,

conceptual or implementations. This step is crucial within the interview design process to identify potentials and constrains within the current urban policy.

### **3.3.3 General structure of interview topics**

The next step in interview design is to identify the general structure of interview questions. The structure of the GCMR case study interviews is focused on discussing the sustainable urban development conceptual framework, which is concluded in chapter 2 and aimed to link the theoretical framework with the empirical study. This linkage enables the research to fulfil the research design framework in figure 3.1. This done by structuring the interviews section based on the outcomes of conceptual framework. The literature indicates sustainable urban development is concerned mainly with certain aspects such as:

- Focus on integration of sustainable urban development principles in urban policies such as; land use, environment protection and transportation policies. In addition, Integration of environmental aspects within urban policy requires actions such as strengthen and initiating local agenda 21 and ensure public participation to ensure implementation of environmental agenda.
- Sustainable transportation main target is to provide a public transit solution in order to decrease private car dependency and reduce air pollution.
- Spatial urban growth policy focus on compactness in order to reduce daily commuting for services and work, polycentric growth and compact urban form imposed as policies that could achieve sustainable urban development in the regional level. On the local level, Transit Oriented Development discusses the planning and design requirements for implementation. Compact urban form is another policy to create a liveable community, it indicates that compact design can save energy, mixed land use increase public activities and prevent consumption of green belt areas.
- Housing policy's role in achieving sustainability within the urban context.

Box 3.3 discusses the sorts of questions need to be addressed in each selected theme during the interview sessions. The questions reflect the investigation areas within the urban development process in Egypt generally and in GCMR specifically. In addition to the listed questions, each interview will discuss the point of views of each interviewee related to the lessons extracted from sustainable urban development international practice. In order to get impressions of the readiness degree for accepting changes to current urban planning thinking for GCMR. In addition; adapting concepts and practical solutions such as;

- Compact urban growth policy,
- Political environment and the role of urban government,
- Mass transit policy,
- Public participation and the role of indicators in urban policy formulation, evaluation and monitoring,
- Creative solutions for generating jobs and
- Transit oriented development and others from other countries and apply these experiences in GCMR urban context.
- The points of view about whether these experiences are suitable or applicable for the case of Cairo. What are the major pros. and cons. of applying these experiences?

**Interviews topics and themes**

- **Urban policy and sustainability.**
  1. Are sustainable development initiatives present on the government urban agenda; are there any attempts to include the principles of sustainable development in the urban policy or is it absent at the moment?
  2. If there are some attempts, what are these attempts and in which sectors?
  3. If these attempts exist, are they translated into government initiatives to introduce sustainable development and in which urban sectors?
  4. Have there been attempts to introduce sustainable cities policies and then have been abandoned later on, and if so why? and
  5. What are the policies and initiatives to achieve sustainability for GCMR?
- **Transportation Planning.**
  1. What are the government initiatives to control Cairo's urban growth and are transportation projects helping to do that or encouraging more urban growth
  2. The commitments to the environmental aspects in terms of reducing pollution, fuel types and consumption, public mass transit plans in inner city and new towns.
  3. The connectivity and commuting problems, which are generated, by new towns and the inner city activities in terms of traffic flows, traffic congestions and job availability.
- **Environmental Aspect.**
  1. What are current laws and regulations of environment and its present practice?
  2. What is the nature of the relationship between the Environment Department and other urban planning organisations. What is the shape of the current coordination between these organisations in terms of potentials and constraints in order to understand how far the environment law is applied and what its role in the GCMR urban planning process?
  3. Is there any role for NGOs organisation in introducing environmental awareness to the people and how are these organisations working within the framework of the urban planning process?
  4. What does the GCMR current urban planning process do to achieve environmental sustainability?
  5. Are the current efforts (if there are any) enough to consider GCMR sustainable and if not how in your view can it be achieved?
  6. What are the environmental problems generated from the daily urban activities in the GCMR in terms of different types of pollution for example air and water pollutions. In addition, what are the government initiatives to cope with it?
- **Housing affordability.**
  1. What is the current status of housing supply and demand?
  2. Have the new town policies succeeded in absorbing the population problem? And If not?
  3. What are the main reasons for the failure of the new towns to be populated as they planned in the original master plan?
  4. What are the current government initiatives for sustainable housing policy?

**Box 3.3: Fieldwork Interviews main topics and Themes****3.3.4 Analysing case study evidences**

Yin (1994) encouraged researchers to make every effort to produce an analysis of the highest quality. Therefore, case study analysis considers as

the most difficult part of research design. In order to accomplish this, Yin presents four principles for the researcher to follow:

- Show that the analysis relied on all the relevant evidence: this aspect is presented in the reliance of previous urban policy reports, data and statistics, previous academic research and interviews conducted in the fieldwork.
- Include all major rival interpretations in the analysis: this is represented by the involvement of major urban development stakeholders in Egypt and reflected in the interviewees' background.
- Address the most significant aspect of the case study: identification of the significant aspect in the case study is reflected in the major interview's themes. Discussion of environmental, social, economic and political aspects constructs the backbone of the interview design.
- Use the researcher's prior, expert knowledge to further the analysis: this is considered one of the most important aspects contributing to the fieldwork analysis. The researcher in the last 15 years was involved in both academic and government consultancy on major urban development issues in Greater Cairo, this previous experience enabled the researcher to locate, identify, analyse the crucial aspects concerning the sustainable urban development in the GCMR.

To conduct the GCMR case study analysis, triangulation research strategy is adopted to achieve robustness in case study analysis. Feagin *et al.* (1991) assert that triangulation could occur with data, investigators, theories, and even methodologies. Stake (1995) stated that the method that is used to ensure accuracy and alternative explanations is called triangulation. The need for triangulation arises from the ethical need to confirm the validity of the processes. Consequently, the design of the GCMR Interviews represents three main groups, government policy makers, private organisations, and academics. Therefore, triangulation methodology is the main analytical tool to ensure accuracy and alternative explanation. The analysis strategy of the GCMR depends on cross-examining responses of the previous three groups, and comparing the three sets of answers. Contradictions or agreements that arise provide material for analysis and conclusions. In addition, the use of

this method aids in avoiding repetitions and redundancies generated by listing each point of view in a separate section. The case study analysis design divided into three main steps:

Firstly, the interviews are divided into separate themes. Each theme focuses on a specific objective. This was done in the early stages of preparation for the fieldwork in January 2006. Secondly, the interviewees list (16 interviewees)<sup>1</sup> is divided into three main groups: government urban decision makers, private organisations and academics. The reason for grouping interviewees in such a way is that they represent three different potential sources of opinions. Government bureaucrats are likely to represent the official position of the government about the issue discussed; private organisations may draw attention to the drawbacks of government policy; and academics may represent a detached point of view in relationship to the two other groups. Thirdly, the responses of the three camps are grouped into each of the predefined themes discussed in the fieldwork report<sup>2</sup>. This helps to explore the different attitudes towards one issue at a time, and to reduce time consumed for checking the responses of each group separately.

### **3.4 Scenario-building methodology**

According to the process of investigating sustainable urban development in the GCMR framework described in figure 3.1, the case study analysis outcomes will determine a crucial set of requirements for the GCMR sustainable development proposal. In order to move the research to the next step that is concerned with providing that proposal, one of the methods to adopt in this stage is developing scenarios. Scenarios, as a prime technique for future studies, have long been used by government planners, corporate managers and military analysts as powerful tools to aid in decision making in the face of uncertainty. Scenarios methods are greatly influenced by a number of companies, institutes and schools for instance, Stanford Research Institute and Shell (Van der Heijden, 1996, Godet, 1987 and Ringland, 1998). In practice, scenarios resemble a set of stories built around carefully

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<sup>1</sup> Complete list of the interviewees and their government position is in Appendix 1.

<sup>2</sup> The fieldwork report is described in detail in Appendix 1.



constructed plots. Such stories can express multiple perspectives on complex events, with the scenarios themselves giving meaning to these events. Next sections discuss the rationale of using scenario-building methodology in the GCMR, advantages and disadvantages of scenarios, scenarios main component and examples and a discussion of the implications reflected on designing the GCMR scenario-building in chapter 7

#### ***3.4.1 Rationale of using scenario-building methodology in the GCMR***

The fifth objective of this research is concerned with developing of a sustainable urban development proposal for the GCMR. Identifying the methodology for this part raised two alternatives; one alternative was to develop a number of general suggestions regarding sustainable urban development in the GCMR derived from the lessons extracted from international cases, coupled with an analysis of the interviews, which would discuss the applicability of these lessons within the GCMR context. This alternative, however, carried with it several restrictions. First, it assumes the continuity of current organisational and political aspects; consequently, it would be a process of building upon previous aspects, which would generate limited suggestions and solutions. Secondly, suggestions might ignore some critical changes in the political and institutional aspects of the GCMR, consequently, weak and ineffective results could result. Thirdly, the nature of sustainable development engages dealing with the present and the future, which requires a futuristic vision to guide the process rather than sets of suggestions. Such a set of requirements leads to the second alternative methodology.

The second alternative discusses the future vision of urban sustainable development in the GCMR through a scenario-building process. Sustainability by its very nature deals with the future, thus scenario-building, which looks at the future from different angles, is a useful tool. The advantage of this tool is to envision alternative futures based on uncertain factors that might change the course of the future, which traditional alternative studies would probably avoid. In that sense, scenario-building allows the researcher to explore the future, taking into account uncertain

circumstances and events that could influence the process in the future. In addition, it would help to inform decision makers of the consequences of their actions rather than suggesting what actions they might take, which is a sensitive issue in Egypt.

### **3.4.2 Scenario's historical development**

Futures research has its origin in early systems thinking in the 1940s, where it was linked mainly to safety issues and strategic analysis (Berkhout and Hertin, 2002). The scenario planning concept first emerged following World War II, as a method for military planning. The big transformation point for scenarios as an organisational or institutional model for clarifying ideas about the future goes back to the Department of Defence in the 1950s (Daum, 2001). Herman Kahn, in the 1960, refined scenarios as a tool for business applications. Kahn's states that there are distinct variations or stages of what may occur between 'war' and 'no war' under different circumstances. Kahn describes dealing with different circumstances having detailed accounts on how they may arise, be responded to, and resolved to create a new terminal or baseline situation, which can only be done by dealing with complexity. Therefore, the great value of a scenario is being able to take complex elements and weave them into a story that is coherent, systematic, comprehensive, and plausible (Mietzner and Reger, 2005).

In the early 1970s, scenarios reached a new dimension, with the work of Pierre Wack, who was a planner in the London office of Royal Dutch/ Shell in a department called 'Group Planning' (Tellis, 1997). The wave of interest in scenario planning can be explained by the traumatic effect of the oil crisis in 1973 that draw attention to the possibility of major unexpected changes in the international economic system (Berkhout and Hertin, 2002). Pierre Wack realised that Arabs could demand much higher prices for their oil and there was every reason that they would. Pierre Wack and his team wrote up two scenario stories about the future, with tables of projected price figures. The first story presented the usual opinion at Shell: that the oil price would stay somehow stable. Nevertheless, in order for that to happen, a miracle would have to occur such as new oil fields might have to appear in non-Arab

countries. The second scenario looked at another future which is an oil price crisis started by the Organisation of the Petroleum Exporting Countries (OPEC). In October 1973, war started in the Middle East between Egypt and Israel, and there was an oil price shock. Not one of the major oil companies, except Shell, was prepared for the change. “The company’s management responded quickly and in the following years, Shell moved from one of the smallest of the seven large oil companies to the second in size and the number one in profitability” (Mietzner and Reger, 2005 p: 223).

The example of Shell should make clear the purpose of scenario planning: to help decision makers to change their subjective view of reality, to match it up more closely with reality as it is and possible futures. The end result is not an accurate picture of forecast, but better decisions about possible futures, which is then called ‘foresight’ (Daum, 2001). Then Scenario-building and planning was further developed for management purposes, for example through the works of Peter Schwartz and colleagues from the Global Business Network and other authors (e.g. Van der Heijden, 1996; Ringland, 1998; Slaughter, 1996).

Some authors differentiate between scenario-building and scenario planning. Building scenarios means speculating about the uncertainty surrounding the future: it means envisaging a few different possible future outcomes for the situation under scrutiny or to create ‘memories of the future’ (Schwartz, 1996). Scenario-building is the necessary foundation for scenario planning. Scenario planning can be understood as integrating scenarios permanently in the organisation’s planning process.

### **3.4.3 Scenario definitions and philosophy of scenario-building**

“Scenarios often describe particular sets of events or variables” (Roubelat, 2000 p: 4). Kahn and Wiener (1967 p: 34) and Pearman (1988 p: 15) define a scenario as a hypothetical sequence of logical and plausible (but not necessarily probable) events, constructed for focusing attention on causal processes and decision-points. Scenario-based planning falls within the class of conjectural forecasting methods and is commonly associated with futures

research. Godet and Roubelat (1996, p: 166) understand a scenario as a description of a future situation and the course of events which allows one to move forward from the original situation to the future. Sohail (2002) states that scenarios are the favourite tool in futures studies. For some, they help forecast the future, while for others, they clarify alternatives. Scenarios are useful because they give us distance from the present, open up the future and allow the creation of alternative futures. Warfield (1996 p: 135) looks at scenarios as a:

“Narrative description of a possible state of affairs or development over time. It can be very useful to communicate speculative thoughts about future developments to elicit discussion and feedback, and to stimulate the imagination. Scenarios generally are based on quantitative expert information, but may include qualitative information as well.”

In addition, scenario may be considered from a philosophical point of view. When Jouvenel (2000) discusses scenario-building, he refers to it by using the wider term *prospective*. He explains that scenario-building is not a Biblical prophecy or prediction, and does not aim to predict the future, but rather unveils some prefabricated future that offers an approach that helps us build the future. He argues that: “ *it enables us to consider the future as something that we create, rather than something already decided, like a mystery that simply needs to be unravelled*”(Jouvenel, 2000 p: 37). There has been a shift in philosophical thought from the idea of a self-regulated system (a system regulated by God) dominated according to its own logic and with man a subject in that system, to a system in which man is a key player, if not the master (Jouvenel, 2000). Nevertheless, man is still faced by unpredictable and unexplained catastrophic natural disasters that contradict the philosophy of man who became God. Most religions agree that Man’s fate is neither totally free nor totally predestined.

Jouvenel divides the main principles of *prospective* into three themes: 1) the future is a realm of freedom, power and will. The realm of freedom refers to the idea that the future is not yet determined, is far from ruled or controlled by man, and remains open and undetermined. 2) The realm of power refers to the nature of decision making under emergencies. As decision makers allow

specific situations to get out of hand, foresight is needed to avoid being reduced to emergency management. The rate of change also makes looking ahead more necessary. 3). The realm of will refers to the ability of man to decide where his future is heading, thus, we can reduce the risk of spoiling the future by having clear ideas or values that enable us to define a goal and to conceive of a desirable future (Jouvenel, 2000 pp 38-41), “a fair wind blows only for the man who knows where he is heading” (Seneca, 1917 p: 25).

A distinction can be made between scenario-building and forecasting by defining three essential traits. First, forecasting focuses on a sectoral approach to a certain problem, but scenario-building uses an integrated approach based on the principle that problems we face cannot be correctly understood if we reduced them to one dimension. Scenario-building is capturing realities in their totality (Jouvenel, 2000). In that respect, phenomena must be considered on the basis of studying all the factors and their interrelations. Second, whereas a forecast is a quantification-oriented method, scenario-building combines quantification and a qualification approach, which allows it to deal with variables of great inertia, for example, with ecosystem and technological innovations (Rotmans, *et al.*, 2000). Third, forecasting follows the continuity principle, while scenario-building allows integrations of breakdowns. Consequently, rather than hypothesise that change is permanent, scenario-building takes into account the phenomena of breakdowns or breakthroughs and the consequences of factors. In conclusion, from Jouvenel’s point of view, scenario-building can be described in five stages: (1) defining the problem and choosing the horizon; (2) constructing the system and identifying key variables; (3) gathering data and drafting of hypotheses; (4) exploring possible futures, often with the help of a tree structure; and (5) outlining strategic choices (Jouvenel, 2000 p: 39).

#### **3.4.4 Scenario-building characteristics and components**

In practice, scenarios are descriptions of alternative images of the future, created from mental maps or models that reflect different perspectives on past, present, and future development (Rotmans *et al.*, 2000). Rotmans uses

the movies as a metaphor for describing scenarios. He views images as static snapshots of the future while scenarios are movies containing a logical sequence of images of future events and actions that leads us to visualise the condition of the images in the future. It is a sort of projection of what the future might be, thus the real value of scenarios lies in their ability to provide insights of the present through helping to identify what Rotmans calls weak signals of change. These weak signals could become major future developments such as employment, decline in forest cover, or increasing numbers of cars per capita (Rotmans *et al.*, 2000 p: 821).

Ratcliffe (2002 p: 4) summarised the following main characteristics of scenarios:

- Present alternative images instead of extrapolating trends from the present
- embrace qualitative perspectives as well as quantitative data
- allow for sharp discontinuities to be evaluated
- require decision makers to question their basic assumptions
- create a learning organisation possessing a common vocabulary and an effective basis for communicating complex conditions/ options.

According to Ratcliffe, a primary purpose of scenarios is to create holistic, integrated images of how the future might evolve. These images, in turn, become the context for planning, a testing ground for ideas, or the stimulus for new development.

Further, scenarios should inform decision makers and influence as well as enhance decision making. In this context, Fahey and Randell (1998) suggest that the purpose of scenario-building is to:

- augment understanding by helping to see what possible futures might look like, how they might come about, and why this might happen
- produce new decisions by forcing fresh considerations to surface
- reframe existing decisions by providing a new context for decisions
- identify contingent decisions by exploring what an organisation might do if certain circumstances arise.

Neilson and Wagner (2000, pp: 10–11) highlight that scenarios intend to provoke strategic thought by removing obstacles to creative thinking and aim to:

- anticipate future threats and opportunities
- develop multiple futures based on optimistic and pessimistic projections of past events
- foster strategic thinking and learning
- facilitate the art of strategic conversation
- envisage a future state
- challenge or dispel assumptions about the 'official' future,
- create a rallying point
- provide leadership for new initiatives or direction
- create options for decision making
- create frameworks for a shared vision of the future to influence organisational and individual behaviour
- create an internal or external communication channel that transcends organisational boundaries, time and space.

The characteristics of scenario-building have been also discussed in the *Vision of Sustainable Europe* (2001). According to Rotmans *et al*, scenarios are:

- *Are hypothetical, describing possible future pathways.* We all agree that the future is uncertain, but because we believe that at least something in the future is predictable, scenario-building always starts with assumptions or hypotheses that open onto new possibilities. “A total set of scenarios about the future reflects our understanding of what in the system is predetermined and predictable and what we believe to be fundamentally indeterminate” (Van Der Heijden, 2000 p: 33). Understanding these facts about the future helps us to formulate the assumptions about the future for the GCMR. Scenario-building helps to explore the possible future and different outcomes that might result if basic assumptions change in policy reform, policy interventions, or drastic changes in population trends, for example. The true question scenario-building addresses is not whether an event

will happen but what we could do if it did happen (Rotmans, *et al.*, 2000 p: 811).

- *Are dynamic processes, representing sequences of events over a period of time.* The social sciences deal with human activities and how they interact with the surrounding built environment, involving different sectors such as environment, transport, urban form... etc. These sectors are inter-related and their influence extends beyond the individual sector to multi-sector influences. Scenarios represent the sequences of events that happen over a period in different sectors, consequently they take into account the events that occur in the different aspects of this study.
- *Start from an initial state, “the present” and depict a final state at a fixed time horizon, “the future”.* Scenario-building can be described metaphorically as a movie -it contains the beginning of a story, which in this study is the initial state or the present time for the GCMR, and the ending of a story, which is the final state or the target year in the GCMR.
- *Consist of states, driving forces, events, consequences and actions, which are causally related.* Scenarios are meant to engage all the elements that are involved in the decision making process, such as transportation policy. A number of basic elements are involved: first, existing facts about the present situation, such as transportation modes, existing transportation conditions, traffic problems... etc. Second are the factors that influence decisions and which represent driving forces, such as daily commuting, land use activities...etc. Third are the consequences of decisions, which are represented in terms of daily commuting reduction, increasing on public transportation... etc. Finally, there are the actions needed for deploying decisions in terms of initiatives, programmes, institutions...etc. Within this framework, scenarios are meant to supply decision makers with visions of future changes in policy and allow them to view their decisions in a broader long-term perspective.



Alcama provides a similar definition of scenario-building. He argues that the principal elements of any scenario are:

- A description of stepwise changes in the future state of society and environment.
- Specifying the driving forces, the main factors that influence the changes described.
- Base year, time horizon, and time steps.
- Storyline, which is a narrative description that highlights the main features of each scenario including the relationships of the driving forces (2001).

However, to conclude previous discussion of scenarios component and characteristics, it can be argued that there are no critical differences between the various authors in describing the components of building a scenario. All authors agree that scenario components share these themes: (1) a time horizon where the scenario starts and ends (2) definitions of factors that influence the scenario, are varied from global to local level (3) events and consequences of a certain assumption(s), and (4) a description of the impacts of factors that interact in the scenario. the literatures reveals that scenarios can enhance strategic foresight and enable decision maker to be more prepared to the changes which may occur in the future. The next section discusses the various types of scenarios which may be utilised in the GCMR scenario-building methodology.

### **3.4.5 Scenario types**

There are different scenario types and the literature revealed many classifications associated with scenarios (Rotmans, *et al* 2000, Shaftan, *et al.*, 2003, Lobo, *et al.*, 2005, Brzold, 1999, Barbanete, *et al.*, 2002, Raskin, *et al.*, 2004, Van Der Heijden, 2000 and 2004, Neilson and Wagner, 2000, Schwartz, 1998, van Notten *et al.*, 2003, Martelli, 2001 and Ratcliffe, 2002). Scenario types are varied, but basically different types of scenarios are based on four assumptions:

- The future is not only a continuation of past relationships and dynamics but can also be shaped by human choice and action

- The future cannot be foreseen, however, exploration of the future can inform the decisions of the present
- There is not one possible future only, uncertainty calls for a variety of futures mapping a 'possibility space'
- The development of scenarios involves both rational analysis and subjective judgement; it therefore requires interactive and participative methods.

However, literature indicates various attempts to classify scenarios, as a conclusion, scenarios can be classified into four main types:

First, forecasting and backcasting scenarios: Forecasting is forward-oriented and explores the future based on a sequence of assumptions. Backcasting scenarios are backward-oriented and they start from an assumed final state and work backward to explain the condition that could lead to this final state (van der Heijden 2000).

Second, descriptive and normative scenarios: Descriptive scenarios state and ordered set of possible events irrespective of their desirability or undesirability. Normative scenarios take values and interest into account, by reasoning specific targets to be reached (Berkhout and Hertin, 2002).

Third, quantitative and qualitative scenarios: Quantitative scenarios are those involved in building mathematical and computer models and often used by engineers and scientists. Qualitative scenarios are descriptive and have a narration approach that involves brainstorming, expert workshops, and are usually conducted by social scientists (Schwartz, 1998).

Fourth, participatory and expert scenarios: Participatory scenarios, (where different stakeholders play active roles in the building of scenarios), the diversity of knowledge, perspectives and interest increase scenarios' richness. Expert scenarios are developed by a group of technical experts who are responsible for their design and development (Raskin, *et al.*, 2004).

### 3.5 Scenario-building examples

The first public attention towards the use of scenarios was initially alerted by the publication of the highly contentious *The Limits to Growth* by Dennis and Donella Meadows (1972). Jay Ogilvy, Paul Hawken and Peter Schwartz in their seminal text *Seven Tomorrows* (1980) and wider acceptance was gained by the work of Michel Godet with a particular emphasis in his contributions on morphological analysis (1987 and 1995) in France, Garrett (1966) in the USA and Robertson (1983) in the UK (Ratcliffe, 1999). Literature reveals that most of scenario-building examples are focused on using quantitative mathematical scenarios such as Trend-Impact analysis, Cross-Impact Analysis, global scenarios developed by Shell Company. However, in searching for examples to support using scenario-building method for the case of Greater Cairo, it is important to mention that most of scenario-building examples developed are concerned with global scenarios such as Shell Scenarios or computer-based scenarios in various fields. The research picks on two examples, which are closely relevant to the case under study.

The relevance comes from the fact that first, these examples are discussing sustainable development aspects. Second, they are concerned with social, economic and environmental aspects and the sorts of expected interactions between these three aspects. The interaction between these three aspects is basically the base of Greater Cairo scenarios, where current urban policy drawbacks are in need to develop integrated view of the three aspects. One is the scenarios developed for the Azores region to support the definition of sustainable development strategies for the region; the second example is the Visions of Europe, which developed to build the future scenarios of sustainable development in the EU countries. The contribution of these two examples is considered within the research to support the argument of using scenario-building for greater Cairo case. In addition, the learning lessons from these examples enable the researcher to extend the current use of scenario-building within the sustainable urban development literature.

### **3.5.1 The Azores Region: to support the definition of sustainable development strategies**

The first example is a scenario-building exercise for the Azores region to support the definition of sustainable development strategies. This exercise develops scenarios to encourage the active participation of citizens in the debate about the sustainable development model for the Azores Region. The Azores region is located in the middle of the Atlantic Ocean, between Europe and North America. It consists of nine islands with 237,795 inhabitants. The key feature of the region is the natural landscape, which is the major attraction for tourist activities. Farming is the second major activity for the region's economy. There is a growing conflict between previous activities and environmental protection of the island to insure tourism activities. To create sustainable development strategies for the region, Lobo *et al* (2005) approached the issue using scenario-building as a tool.

The authors based their methodology on five hypothetical scenarios for the year 2030 starting from 2003. They derived these five hypotheses from a set of driving forces, which were determined by a causal-effect exercise in terms of positive and negative driving forces. For example, strategic location, geothermal resources, a young population, regional product, natural and cultural heritage, farming and European Union Funds were selected as positive driving forces for the region. Examples of negative driving forces are transportation, ultra-periphery and education, pressure on natural resources, geological risks, social exclusion and European Union Policy. Then, five scenarios were developed and narrated in terms of positive and negative sustainability aspects. These scenarios are:

- Hotelandia: based on tourism development,
- Lactogenia: based on agriculture progress,
- Ecotopia: based on environmental protection,
- Sociopolis: based on social cohesion, and
- Infocracia: based on an information society.

One example of these five scenarios is the tourism development scenario. This scenario is based on the natural and cultural heritage role in tourism

sector development. The scenario considers the natural and cultural heritage sectors as assets to be explored by the tourism sector. The scenario assumes that in order to improve the economy of the region as a result of this proposal, strong investment in infrastructure and transportation are required. Then, the storyline describes the negative and positive effects on the sustainability aspects of the region, suggesting the consequences of such development (Lobo, *et al.*, 2005).

In addition, the above-mentioned driving forces vary in importance according to each scenario, which allows deployment of different events and actions that are distinguishable in each scenario. For example, in the tourism development scenario, the dominant driving forces are regional product, natural and cultural heritage, and transportation, while in the environmental protection scenario, dominant driving forces are geothermal resources, natural heritage, pressure on natural resources, and geological risks (Lobo, *et al.*, 2005). Then finally, the evolution of sustainable key aspects (waste and water management, sustainable land use planning, transportation, social exclusion and public participation in decision-making process) of each scenario is evaluated and monitored in terms of negative, neutral and positive effects. The article stresses the importance of community-based thinking and involvement in order to create a sustainable development process. However, “involving citizens effectively in the debate of alternative futures is not an easy task” (Lobo, *et al.*, 2005 pp: 827-829). Then, as a final stage, the authors suggested that by using scenarios they have been able to establish priority actions for sustainability strategy by selecting the key issues from each scenario to formulate eleven priorities for sustainable development strategies in the Azores region.

The previous example demonstrates scenario-building, and some lessons can be drawn:

- Civic participation is important in the preparation of a sustainable development strategy because it allows a community to decide its own future. However, the different backgrounds and the degree of knowledge of the participants complicate the task.

- The methodology for building the Azores region scenarios focuses on sectors for each scenario such as tourism, environment protection etc, rather than taking an integrated approach to explore how different sectors interact in one single scenario.
- The scenario-building approach can be considered an effective and conventional approach to sustainability, rather than classical approaches such as modelling and forecasting, because the former takes into consideration drastic changes that could occur, and the consequences of these changes for the future of the region, while the later takes present trends as a primary assumption.

### **3.5.2 Visions for a Sustainable Europe**

This example represents one way to address the concept of a sustainable Europe, the research conducted by the International Centre for Integrative Studies (ICIS) in the Netherlands. This research examines the current period of extensive transition in Europe in terms of commercial, financial and social changes facing the continent. The emergence of the research occurred from changes in demographic, consumption, and production patterns, declining economic growth, and the use of natural resources. This social, economic and environmental transition in Europe causes great uncertainty.

This study argues that the new problem of planning for sustainable development is far more complex than the problems of the past, and consequently, planning for sustainable development requires different methods and a changed paradigm from traditional planning. The authors argue that the new concept for planning sustainability should be based on approaches and tools that are capable of dealing with short the short term-long term, objective and value-laden, the quantitative and qualitative and finally the certain and uncertain (Rotmans, et *al.*, 2000 pp: 815-817). The main objectives of the project are:

- To develop a range of alternative visions for the future of Europe, comprising European and regional scenarios for sustainable development paths.

- To raise awareness of sustainable development through understanding the linkages between socio-economic, environmental and institutional processes at various scale levels.
- To provide a point of reference and practical tools for key decision-making and stakeholders.

The research is focused on the main sustainable development key issues: equity, employment, consumption behaviour, degradation of natural resources basis (scenarios' driving forces) in relation to development in energy, water transport and infrastructure (scenarios' sectors). In addition, in contrast to the Azores region scenarios that used a sectoral/themed approach, the Europe scenarios attempt to achieve integrity by including all dimensions and relevant inter-linkages between various processes, and by checking the scenarios among different scales, sectors and issues (Rotmans, et al., 2000). Figure 3.2 describes the methodological framework for Europe scenarios. The figure shows that the scenarios are based on two pillars of integration. First, the scenarios consist of a selected number of themes, sectors and institutions to be addressed (actors/factors/sectors). The second pillar of integration is the geographical scale level. Both the European and regional scenarios are designed by using the same actor-factors-sectors framework. The global trends scenarios are based on the major global flows that could influence the future development of Europe.

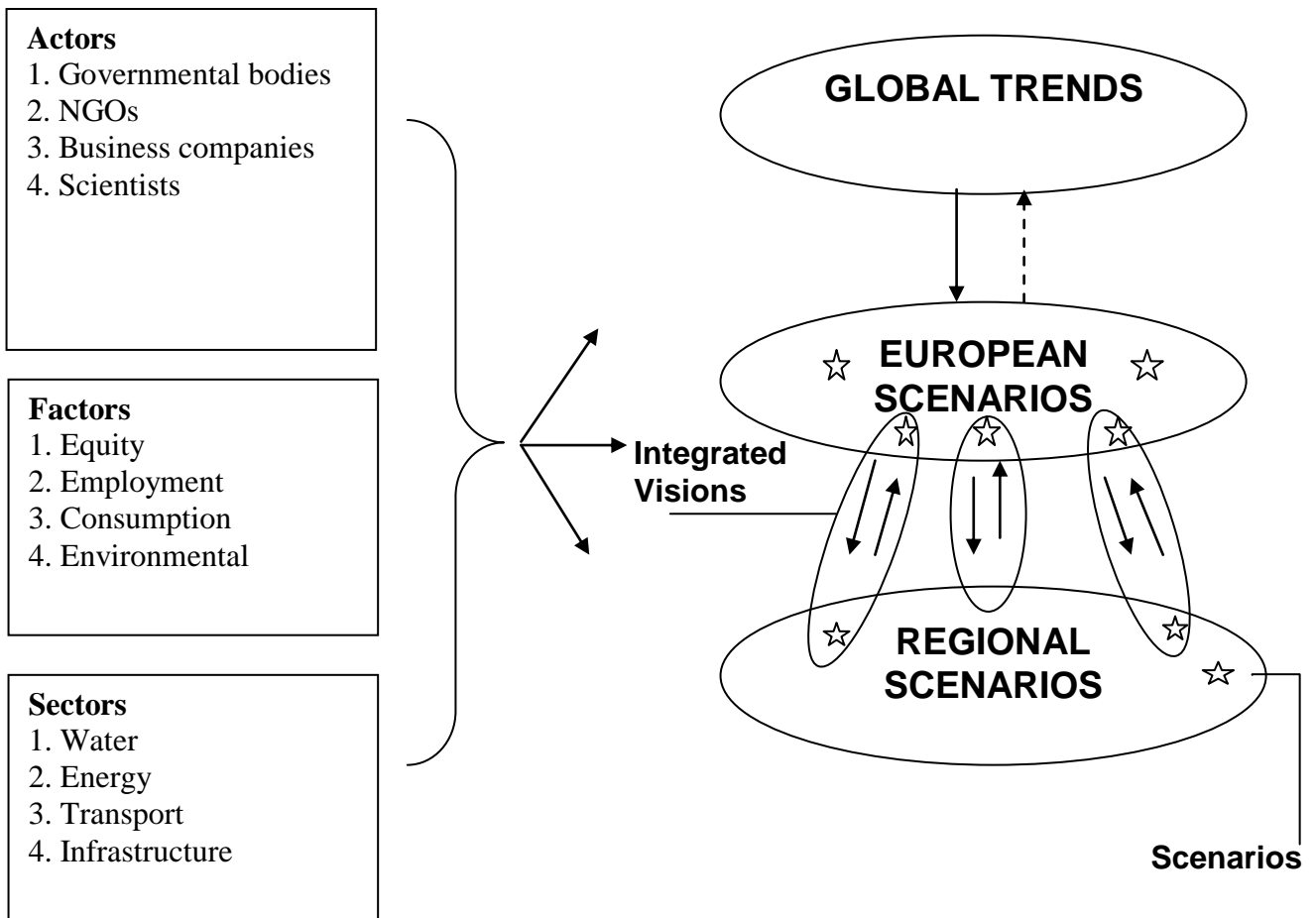
The scenario methodology used in this process is based on an approach developed by Shell London, which is a participatory process of mutual learning, or the storyline approach. The method involves a combination of knowledge and expertise provided by various experts in the form of lectures and creative thinking by selected stakeholders. This approach leads to what are called storylines. Rotmans notes that "Storylines are sequences of events, linked in a logical and consistent manner" (Rotmans, et al., 2000 p: 817). The advantage of a storyline is that it goes beyond the "business as usual" perception, which is based on assuming that present trends will continue.

The storylines produced by the project are aggregated into a limited set of common storylines, and then fleshed out and enriched by using background research material such as the preparatory study on existing scenario studies and Global Format that indicates strong global flows and weak global signals that could influence future developments in Europe (Table 3.1). Global flows are ranked according to strong flow and weak signals in social, economic and ecological sectors. The aggregation of storylines produced four main storylines thematic drivers, which are:

- Economic development
- Social-cultural and technological development
- Ecological calamities
- Regional tensions

The scenarios went through a process of refinement and enrichment through preparing sketch scenarios, then draft scenarios by checking consistency and transparency objectives of the research. The result was three scenarios. Researchers developed two scenarios in 2000: “Knowledge is King” and “Big is Beautiful”. The “Knowledge is King” scenario is based on evolution in information and communication technology and how it influences economic, social and environmental aspects in Europe. The second scenario, “Big is Beautiful” is based on the merger principle steered by globalisation, and describes a world in which the forces of liberalisation, globalisation and technology create an environment that allows big scale industries to emerge (Rotmans, *et al.*, 2000 pp: 824-826).





**Figure 3.2: Sustainable Europe scenarios methodology (Rotmans, et al 2000)**

	<i>Social</i>	<i>Economic</i>	<i>Ecological</i>
<b>Strong Flow</b>	<i>Ageing</i>	<i>Reduced barriers</i>	<i>Growing consumption</i>
	<i>Increasing wealth and well-being</i>	<i>deregulation</i>	<i>Changing patterns energy resource use</i>
	<i>More educated</i>	<i>Increasing FDI</i>	<i>Climate change</i>
	<i>Increasing mobility</i>	<i>Global economy</i>	<i>Urban air pollution</i>
	<i>Shifted responsibility for environmental protection</i>	<i>Global institutions</i>	<i>Increasing exploitation</i>
	<i>Global info-system</i>	<i>Innovation potential</i>	<i>Human burden</i>
	<i>“Global society”</i>	<i>Realisation innovation</i>	
<b>Weak signal</b>	<i>Employment</i>	<i>Euro effect on tourism</i>	<i>Decline in forest cover</i>
	<i>Changing value</i>		<i>Increasing cars per capita</i>
		<i>Improved efficiency</i>	

**Table 3.1: Global flows and signals per capital form (Rotmans, et al., 2000)**

The previous example of building scenarios for a future Europe indicates some lessons can be learnt within the context of this research, these lessons are:

- Taking into consideration the integrity in scenario-building, which is represented in the different scales applied in the scenarios (Global, Europe and regions), also engaging the sustainable development main principles (equity, employment, environment), enriches the overall process and gives credibility to the scenarios.

- Exploring and screening the previous scenario-building theories helped the authors to come up with a definition of integrated scenario-building. In addition, screening previous Europe scenarios enabled the research to consider the scenario-building drawbacks, such as instead of developing sector approach scenarios as in the Azores Region examples, it would be more coherent to consider the various development aspects in one scenario as in Europe scenarios.
- The storyline technique enables the exploration of some wild ideas and assumptions and gives the opportunity to discuss these ideas with the different stakeholders
- The narration technique is easily understandable by decision makers as its format is as a series of events and consequences, which leads to some conclusions. It can be argued that this is an effective technique to inform decision makers about the consequences of their actions.

### **3.6 Scenario's approaches Implications on the GCMR scenario-building**

The reflections and implications of previous discussion concerning scenario-building methodology have various lessons to be extracted to contribute towards the GCMR scenario-building methodology. The next sections are summarising the important aspects of scenario-building and the implications on the research objectives.

#### ***3.6.1 Scenario methodology advantages and disadvantages***

Literature shows that oil crisis in the mid 1970s had an effect on futures research from 'forecasting' towards 'foresight'. Forecasting is understood here as a prediction of what is expected to happen based on current trends. In contrast, foresight is regarded as the ability to see what one's future needs are likely to be which is based on a range of possible futures and a stronger focus on the process perspective of the foresight activities. Scenario techniques fit very much in the latter understanding. However, scenario technique itself has changed since the 1970s from a quantitative, modelling perspective towards a qualitative, process-oriented one. The use of scenario techniques has several advantages:

- The strength of scenarios is that they do not describe just one future, but that several realisable or desirable futures are placed side by side (multiple futures) (Ratcliffe, 2000).
- Scenarios open up the mind to unimaginable possibilities and challenge long-held internal beliefs of an organisation (Raskin et al, 2004)
- Scenarios are an appropriate way to recognise 'weak signals' or disruptive events and include them into long-range planning; as a consequence, planners are better prepared to handle new situations as they arise (van der Heijden, 1996 and Rotmans et al., 2000).
- Most importantly, the large number of different scenario techniques points out that the ways of building a scenario are very flexible and can be adjusted to the specific task/situation (Schwartz, 1998).

In contrast to these mentioned advantages, scenario techniques have several disadvantages:

- The practice of scenario is very time-consuming in general, especially, in participatory scenario-building exercise. Therefore, there could be a wish to condense scenario-building to a half-day or one-day activity. However, this may not give participants enough time (Schwartz, 1998).
- A more qualitative approach has to put a strong emphasis on the selection of scenario's factors, and in practice, this could not be an easy task to fulfil, which needs time for brainstorming and cause-effect analysis (Van der Heijden, 1996).
- Data and information from different sources have to be collected and interpreted which makes scenario-building even more time-consuming.
- It could be difficult not to focus on black and white scenarios or the most likely scenario during the scenario-building process, which needs careful thinking of uncertain factors that formulate the basic assumption of each scenario.

### **3.6.2 Scenario-building examples implications**

In addition, the two examples of Azores Region and Vision of Sustainable Europe scenario-building that previously explored demonstrate two different

scales and two different approaches. The Azores Region scenarios took a thematic approach in terms of assigning a theme to each scenario, such as environment and technology. The Europe scenarios example is more integrated in terms of sustainable development principles and different scales used in each scenario. The two examples will help in the next part to identify the methodological framework for the GCMR scenarios, in terms of the pros and cons of the two examples and delivering an integrated approach for the future scenarios proposed for the GCMR. Within the context of sustainable urban development proposal for the GCMR, it is important to determine if the use of scenarios will help in this situation, as the current urban context of the GCMR lacks a consistent vision about the future of sustainability for the biggest city in Egypt. In addition, sustainable development by definition is always associated with the future by preserving the rights of future generations to share the present natural and physical assets. Scenarios are a tool to help construct a vision for the GCMR and to identify the weak signals that could be considered as future development.

### ***3.6.3 The GCMR scenario-building factors selection***

In terms of selection of factors for the GCMR scenario-building, literature revealed a great deal of how carefully the selection of scenarios factors is important. because choosing scenarios factors is the critical point within the whole process of scenario-building, which in later stages they identify the basic assumption (s) of each scenario. Sustainable urban development conceptual framework in chapter two has identified the major aspects that influencing the GCMR sustainable urban development proposal. These aspects can be summarised as follow:

**Employment:** in order to deliver sustainability the community should have strong economic growth that allows sufficient jobs opportunities.

**Accessibility:** a sustainable community is well connected and avoids traffic congestions and private car dependency

**Environment:** providing open spaces, reduction of pollution sources and preserving the natural assets are crucial requirements to achieve sustainability.

**Built environment:** the urban form and activities spatial distribution is a tool to maximise or minimise sustainability.

**Urban governance:** transparency and strong local government is the key tool towards achieving sustainability by evaluating and monitoring urban policies implementation, initiate sustainability indicators, and engaging these indicators in an effective way in the urban planning process.

**Political government:** initiation of civic rights and engagement in the community is an important element in the sustainability process because it implies the equity within the all community citizens. In addition, decentralisation issues give flexibility and competitiveness for local government to act effectively with different policies.

Taking into consideration the previous aspects, in addition, the results of interview analysis in chapter five and six, which are dedicated to the analysis of current urban development aspects in the GCMR in order to identify the crucial requirements of sustainable urban development proposal. Both conceptual framework initiatives and crucial requirements from case study analysis are creating the main framework of the GCMR scenario-building factors selection in order to identify the major advantages and disadvantages of urban development process in “Chaotic Cairo”.

### **3.7 Conclusion**

This chapter discussed the methods to investigate sustainable urban development in the GCMR in order to achieve the research main objectives. It discusses the rationale of case study approach in the case of Greater Cairo, and how case study suits the exploration and investigation of a chaotic example such as Cairo. In addition, the inconsistency urban policy and the conflict between political and urban agendas are accelerating this chaotic situation, which support the selection of case study methodology to support this research. In terms of case study design, the chapter identify fieldwork structure, which consists of two main purposes. The first purpose is to investigate urban policy documents and case study data collection as supportive evidences of case study analysis. The second purpose is to conduct a series of interviews with major urban development stakeholders in Egypt in order to provide insights of the current and future orientation of sustainable urban development concerns in the GCMR. The chapter suggests using triangulation method in analysing the fieldwork documents

and interviews suites case study methodology as argued by Yin (1994) and others. Triangulation method will ensure providing robust evidences of the current situation in chaotic Cairo and will enhance the fieldwork analysis outcomes.

In addition, the chapter suggests using scenario methodology in order to deal with the GCMR has beneficial outcomes. First scenarios have the ability to provide foresights of unexpected events that could occur in the future. Second, scenarios suites the concept of sustainable development. Both scenarios and sustainable urban development are dealing with future and long perspective strategies. It can be concluded using scenario-building with the case of Greater Cairo suites the current unstable political and government situation in Egypt and the outcomes are strongly indicates the future of sustainable urban development in Greater Cairo.

The research next stage is to investigate sustainable urban development within the GCMR case study. Chapter 4 is dedicated to introduce an introduction to the GCMR urban policy, demographic characteristics, current urban problems initiated from previous urban policies and organisational structure of urban government in Egypt.

**PART 2:**

**CURRENT URBAN POLICY CONTEXT ANALYSIS  
AND SUSTAINABLE URBAN DEVELOPMENT  
CHALLENGES IN THE GCMR**



## **Introduction to part 2**

The first part of this research discussed the general theoretical concept of sustainable development and the emerging of sustainable urban development as an impact of the sorts of problems exist in the urban context such as transportation demands, lack of housing affordability and degradation of the natural and built environment. In addition, part 1 helped to inform the research with sustainable development practice in urban context through demonstrating international examples from both developed and developing worlds. By the end of part 1, a sustainable development working definition is identified and lessons are learnt from the international sustainable urban development examples, in order to inform the following parts of the research with the necessary issues that in need to be discussed within the sustainable urban development of the GCMR context.

Part 2 discusses the current and future issues that are related to the research's focus, which is the Greater Cairo Metropolitan Region. It analyses the current characteristics of Egyptian urban context generally, and GCMR specifically. This part discusses the sorts of urban growth problems, which are generated from GCMR current urban policy. In addition, it discusses current and future potentials and constraints, which are related to the achievement of sustainable urban development in the GCMR through the analysis of the fieldwork interviews. Part 2 ends by determining the crucial aspects -which is found through analysis of current urban context and interviews results- that are in need to be discussed in part 3 which is concerned with suggesting a suitable strategy for sustainable urban development in the GCMR

Chapter 4 discusses the current issues related to urban growth policy in Egypt and the GCMR. The chapter discusses the original GCMR master plan in 1970 and later modifications that occurred and their impacts on overall urban growth. In addition, this chapter discusses the major demographic characteristic of the GCMR and the sorts of problems associated with this

kind of rapid population growth. Lastly, the chapters demonstrate the current efforts by the government to manage the urban context in the GCMR. This chapter contributes to chapters 5 and 6 as a general introduction for the GCMR case study.

Chapter 5 discusses the analysis results of fieldwork interviews, which are conducted in February 2005, which is concerned with exploring the current and future attempts of achieving sustainable urban development in the GCMR. In this chapter, sustainable urban development aspects that are concluded from part 1 of this research are analysed and discussed within the GCMR urban context. The chapter analyses issues such as urban policy, transportation planning, environment and housing within the sustainable urban development perspective. In addition the chapter also emphasised the political impacts of urban planning policies in Egypt.

Chapter 6 discusses the part of the interviews, which is concerned with the opinions of interviewees concerning the achievement of sustainable urban development in the GCMR and how applicable the lessons learnt from sustainable urban development international examples to be adopted in the Egyptian urban context. The chapter ends by determining the central issues that are of concerned with the achievement of sustainable development in within the GCMR urban context in the future.

## CHAPTER 4:

# THE GCMR DEMOGRAPHIC AND PHYSICAL URBAN CHARACTERISTICS

### 4.1 Introduction

This chapter is an introduction to the GCMR case study. It discusses previous and current urban growth policy in Egypt generally and in the Greater Cairo Metropolitan Region (GCMR) specifically. The chapter focuses on the urban growth trend, examines the Greater Cairo urban policy and master plans in order to identify the impact of these policies, which cause environmental, social and economic degradation, on accelerating urban growth. The chapter contains a discussion of the demographic and physical changes associated with periodical changes to the Greater Cairo master plans. Finally, the chapter discusses the current government efforts to manage GCMR development, including recent changes in urban and environmental policy. The chapter fulfils objective 3 that is meant to explain, *“Why the GCMR is in need of sustainable urban development and what are the current urban development drawbacks that prevent the GCMR from achieving this objective”*. This chapter is one of three chapters that are concerned with examining and analysing the current urban problems in the GCMR case study in order to identify the essential requirements for promoting sustainable urban development in Cairo.

In order to discuss the current aspects of the GCMR urban policy, it is crucial to discuss the major issues related to the previous and current urban growth policy implementation. To achieve this goal, first, a discussion of rapid urban growth will be carried out, by exploring its demographic and physical characteristics. The second part discusses the master plans, which were previously drawn up for the GCMR urban growth within the national policy urban framework, and how these policies contributed to rapid urban growth associated with transportation, environmental and social problems. Thirdly,

the chapter discusses the impact of urban growth policy of the state on the GCMR's current sustainable development and current efforts that are related to managing the urban context within the GCMR.

#### **4.2 Cairo, the centre of the Egyptian economy**

The Greater Cairo Metropolitan Region (GCMR), with over 15 million people (CAPMAS, 2004), is now among the top twenty largest mega-cities in the world. The GCMR occupies 928 km<sup>2</sup> of central Egypt, located adjacent to the Nile River. The region contains the Greater Cairo Metropolitan Area (GCMA), which itself includes three major cities, Cairo, Giza and Qaluibia (Figure 4.1). After privatisation, economic reform and liberalisation of market mechanisms in the 1990s, the region observed a growth in the national economy, which expanded in real terms at an annual average rate of approximately 6.2% during 1994–1997 “boom” period (Rodenbeck, 2000).

Furthermore, the GCMR's role as the centrepiece of the Egyptian economy increased during this period and now accounts for over 45% of GDP and nearly 40% of manufacturing output (CAPMAS, 2004). The boom had its origins in the late 1980s when the Egyptian government adopted an economic reform strategy that followed the standard prescriptions of the International Monetary Fund and the World Bank (Bush, 2001). Greater Cairo increased by 52% during the 1985–1989 period leading to the emergence of a new industrial belt. However, due to a lack of effective land management policies, factories are scattered throughout the GCMR and interspersed with other land uses, making it difficult and costly to provide services. Furthermore, housing compounds, recreation and service development increased the burden on the GCMR. For example, housing developments in the 6<sup>th</sup> of October satellite town increased by 76% in the period 1994–2000. The structure of the manufacturing sector compounds lack of planning and services due to an absence of planning regulations, which are needed to mitigate the adverse impact of factories (Sutton and Fahmi, 2001). In combination with rapid industrial growth, other forms of GCMR-based development exacerbate a range of problems that have existed for many

years; these include inadequate infrastructure, widespread environmental degradation, and growing social inequity (Bush, 2001).

### 4.3 Demographic characteristics

A century ago, Cairo was already a crowded capital with more than half a million inhabitants. The 1996 census estimated the population for Greater Cairo to be 11.2 million and there are indications of an existing 15 million in 2004 (CAPMAS, 2002 and CAPMAS 2004). The GCMR population has increased by an annual average rate of approximately 4.7% since World War II, and currently totals over 16 million people. Moreover, the GCMR share of national population increased from 12.5% in 1960 to 22.7% in 1996, and may reach 25% by the year 2010 (CAPMAS, 2004). During the 1976–1996 period, population growth in urban areas accounted for 35.2% of the 20 million people added to the national population (CAPMAS, 1997). The trend of rapid urban growth will continue for the foreseeable future. While accumulating an increasing share of the national population, growth within the GCMR assumes an increasingly decentralised pattern. The population of Giza, Qaluibia increased by 49.5% during the 1976-1996 period, while Cairo increased by 24.8% during the same period (MHNCU, 1988 and 1992). This currently generates tremendous demands for housing, urban services of all kinds, motor vehicles and a wide range of other consumer items. This cumulative demand for goods and services places further strains upon environmental conditions (Sutton and Fahmi, 2001).

Governorate	1960-1966	1966-1976	1976-1986	1986-1996	1996-2005
Cairo	4.1	1.7	3.4	3.1	3.4
Giza	5.0	3.9	4.5	5.4	5.0
Qaluibia	4.2	4.3	5.8	6.2	6.2
Total GCMR	4.2	2.5	4.0	4.5	4.9

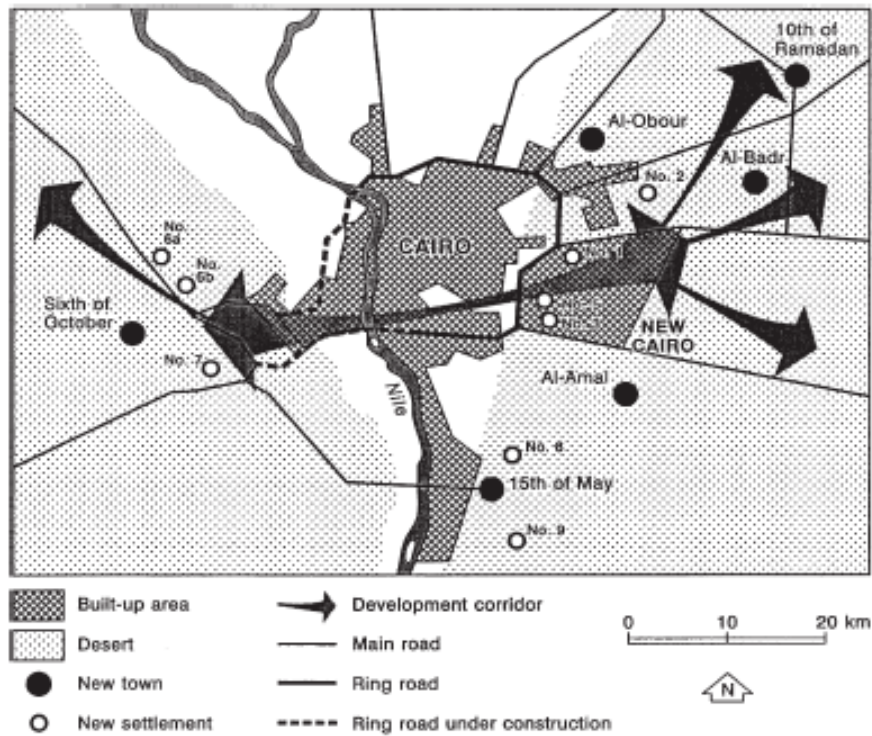
**Table 4.1: Rates of annual growth in the GCMR on the governorate level (NUPS 1992, CAPMAS 1987, CAPMAS 1997, and CAPMAS 2004)**

## **4.4 Cairo, the central issue in the national urban Policy**

### **4.4.1 National and Greater Cairo Region plans**

The concentrations of population, economic activities, wealth and power have led to serious urban problems, resulting in several attempts since 1960 to manage and reorganise the growth of the GCMR and to decentralise population and activities. At the national level, the country was divided into eight homogeneous planning regions in 1975, with the aim of developing peripheral regions in order to absorb the additional expected growth of urbanised areas. In 1982, a national urban policy study identified several goals for the future planning of the GCMR (Advisory Committee for Reconstruction, 1982). First, it was suggested that Cairo's urban growth be redirected from an essentially north–south axis to an east–west orientation on vacant desert areas in proximity to the current built-up area. Secondly, it was recommended that the de-concentration of central Cairo should be pursued through the establishment of secondary commercial, financial, industrial and administrative centres. Thirdly, it suggested policies to promote an improvement in the general quality of life. Fourthly, it advocated the creation of appropriate instruments of governance aimed at guiding and controlling an integrated set of spatial, economic, social and financial programmes.

At the city level, a master plan was formulated in 1970 incorporating two major concepts on which future management of the region be based (Ministry of Housing, 1970). First, it was suggested that a ring road surrounding the existing built-up area be constructed to control its growth and stop the invasion of agricultural areas. Secondly, it was recommended that self-sufficient new communities be established at suitable distances from the city to attract additional expected growth. Although the ideas of this plan were not fully implemented in the following years, they formed the basis for policies adopted in the 1970s and for the structural plan of 1983, which remains the major guide for the urban development of the GCMR to date. Figure 4.1 shows the future urban growth directions and locations of new towns suggested in the GCMR Master Plan.



**Figure 4.1: The new towns as an urban policy for Greater Cairo Metropolitan Region (Sutton and Fahmi, 2002)**

In the 1983 plan, demographic studies produced estimates that the population of the GCMR would increase from 6,700,000 in 1977 to 9,660,000 in 1982 and 16,500,000 by the year 2000, in addition to 1,400,000 people in surrounding rural areas that it expected to be included in the region by that date. This population would be absorbed both within and outside the existing built-up area.

Within the existing area, the population could be accommodated by incremental development in proposed housing projects on vacant desert land inside the ring road to the north and east and in pockets of agricultural land and peripheral areas to the north, east and west. Table 4.2 shows the expected distribution of the population by the year 2000. Estimates indicate that an additional 5,055,000 could be accommodated within the built-up area and on marginal arable land. Secondly, the rest of the population would be accommodated outside the built-up area through the establishment of new satellite or independent communities on major radial axes and 10 smaller

settlements adjacent to the ring road. It was estimated that 4,745,000 inhabitants would be absorbed in these communities and settlements by the year 2000 (Yousry and Aboul Atta 1997).

<b>New town</b>	<b>Target population</b>	<b>1996 population</b>	<b>Industrial jobs in 1996</b>	<b>2004 population</b>	<b>Industrial jobs in 2004</b>
<b>10<sup>th</sup> of Ramadan</b>	500,000	47,839	64,591	100,798	105,456
<b>6<sup>th</sup> of October</b>	500,000	35,477	27,809	120,375	72,834
<b>15<sup>th</sup> of May</b>	500,000	65,865	222	98,367	1,524
<b>Badr</b>	500,000	248	176	25,054	4,367
<b>Sadat City</b>	500,000	16,312	8908	75,836	3,485
<b>El Obour</b>	250,000	No data	No data	79,082	2,576

**Table 4.2: New towns population and jobs progress (CAPMAS, 1997 and 2004 Indications)**

#### **4.4.2 Master plans for Cairo**

An early 1956 master plan predicted a population of 4.5 million for Cairo by the year 2000 (Yousry and Aboul Atta, 1997). However, the city's population already numbered 6 million by 1966. Consequently, the 1970 master plan of the Egyptian Ministry of Housing anticipated strong population growth both from rural–urban migration and from demographic growth in order to guide Cairo's urban planning and expansion through 1990. The 1970 plan tried to contain the city within its built-up area and to divert further growth to new



towns built on desert land to preserve agricultural land, known as “green land”. Certain major road constructions would support these objectives. Thus, an essentially poly-nuclear approach was favoured with this series of new towns based on the London or Paris model.

Each new town was to have a sound economic base in order to be independent and not have to depend on the old metropolis for jobs. In addition to the city’s southern industrial extension of Helwan, the three new towns (Figure 4.1) were the 6th October, Al Badr and El Obour. The most successful new town was the 6th October, as shown by the fact that it is the most highly populated of the new cities (see table 4.2).

Later, additional, more distant, towns were added in the Delta towards Alexandria, and in the east towards the Suez Canal, namely Sadat City and the new town of 10th Ramadan. The building of each new town was entrusted to a public development corporation. However, the subsequent scarcity of public investment funds meant that the development of each new town had to rely on private capital for which they were competing with prestigious suburban developments, such as at Heliopolis in Cairo’s eastern suburbs. The master plan also favoured transport infrastructure that involved an outer ring road and new bridges over the Nile to the north and south of the city centre.

Some new towns, notably 10th Ramadan and 6th October, have been successful in attracting industry, which is attributed to their favourable location in the vicinity of Cairo. Others, such as Sadat City, have experienced slower economic growth (Meyer, 1996 and Stewart, 1996). However, success in encouraging people to relocate to the new towns has been limited, and most employees working in new towns near Cairo commute from Cairo (Stewart, 1996). A criticism of the Egyptian programme is that all the new towns together will only have absorbed a maximum of 20% of population growth by the year 2000, thus failing to provide a medium-term solution to population growth (Elaraby, 2002).

#### **4.4.3 The Cairo Master Plan of 1983**

As a result of Cairo's continuous urban problems of overcrowded conditions, massive housing shortages, poor infrastructure, and deteriorating environment, the 1983 master plan was launched in 1981 and Egyptian authorities approved it in 1983 (Yousry and Aboul Atta 1997). The master plan, a revised version of the earlier plan, had four main objectives:

- To meet the needs of a growing population, which was expected, incorrectly as it turned out, to reach 16 million by the year 2000.
- To protect farmland by establishing 10 new settlements on desert land to the east and west of the city.
- To reorganise and restructure the older built-up areas seeking to reduce the concentration of people and services in the existing central parts of Cairo.
- To upgrade public infrastructure and facilities in part through a new metro and a ring road.

A wider objective in 1983 was to involve the private sector in the process of urban development, with the new settlements to be a focus of private sector investment. On the other hand, the 1983 master plan's ring road project, which had been partly open in the eastern desert since the late 1980s, threatened further urban sprawl.

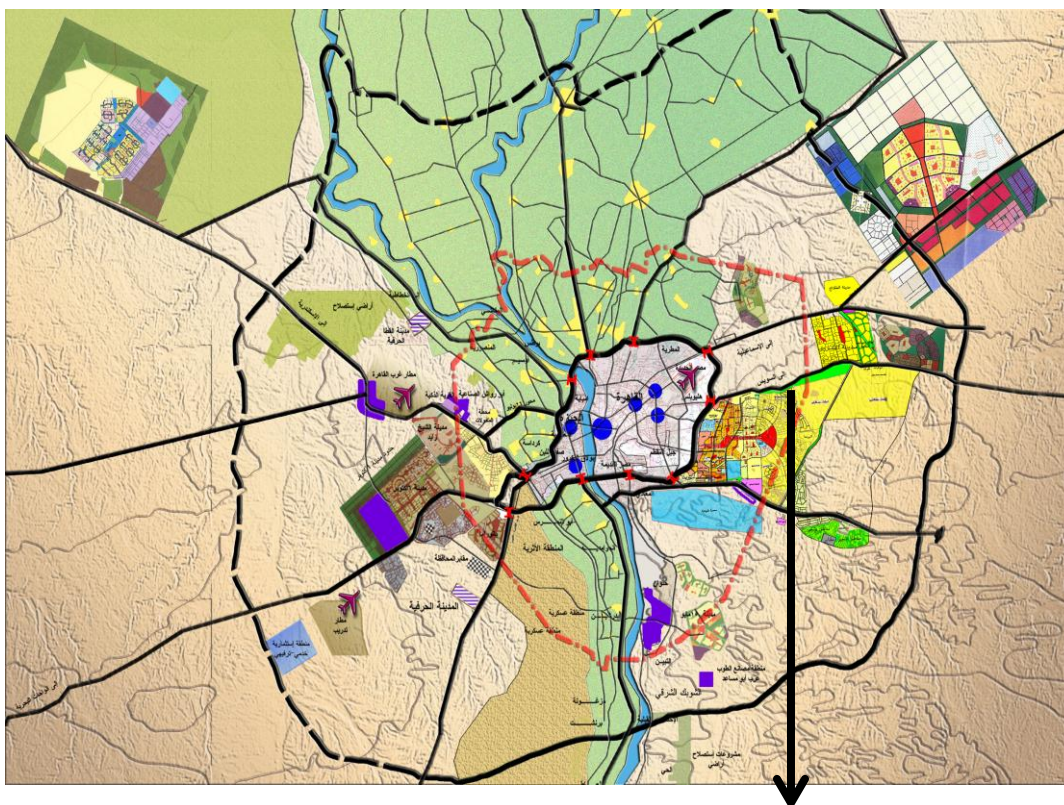
The early-to-mid 1990s ring road construction aimed to serve the new settlements and improve service provision to the farmland fringe. However, it also threatened to spread spontaneous urbanisation west of the Nile due to new intersections and access points. Although a key project to relieve traffic congestion inside the city and to promote urbanisation of the desert to the east and west by linking new settlements to the metropolis, the ring road also favours urbanisation north and south of Cairo.

The 1983 master plan originally planned for 10 new settlements ostensibly to house 2–3 million people. These were organised into “development corridors” to create urban poles to the east and west and around the earlier new towns. Nine out of the 10 new settlements were constructed, and concern was expressed that as they were located in the “hostile” desert they would prove to be unpopular with people (Yousry and Aboul Atta, 1997). In the meantime, financial constraints, weak urban planning, weak land management processes at the local level, and poor connections with planning authorities delayed the implementation of homogeneous sectors. The years 1991–92 witnessed some modifications to the 1983 master plan. Population forecasts increased upwards to 16 million for the year 2000 (GCUDS, 1992). The ring road route was diverted 2 km to the east through the desert, for military reasons. In addition, a western arc was built on arable land on Giza’s outer fringes towards 6th October.

Such modifications affected the location of some new settlements as well as contributing to the cancellation of the green belt project between Cairo and the new eastern settlements. This gave way to the emergence of “New Cairo City”, thus combining new settlements 1, 3, and 5 (Figure 4.2). There was also more concern with the ecological protection of archaeological areas in the south and east, as well as with environmental improvements within the old city.

Table 4.2 demonstrates the new towns’ failure to achieve population targets. In 1996, the 6th of October new town with only 35,477 people and the 15th May new town with 65,865 people were still well behind their target populations of 250,000 or more. The achievements of those new towns further out from Cairo, namely the 10th Ramadan and Sadat new towns, were equally unimpressive; research indicated more success in attracting factories and job opportunities than inhabitants to the new towns (Denis, 1997). Workers commuted out to these jobs from Greater Cairo, which did not comply with the planners’ original aim of self-sufficiency. The new towns are still behind schedule with their programmes, and the dream of 2 million

people in the 10 new settlements by the year 2020 appears unattainable (El Kadi, 1997).



*Location of settlements (1, 3 and 5) expanding the urban context of the region.*

**Figure 4.2: Modification occurred to the 1983 Master plan in 1993 to combine new settlements 1, 3 and 5 into one urban entity (New Cairo, final Report, 1996)**

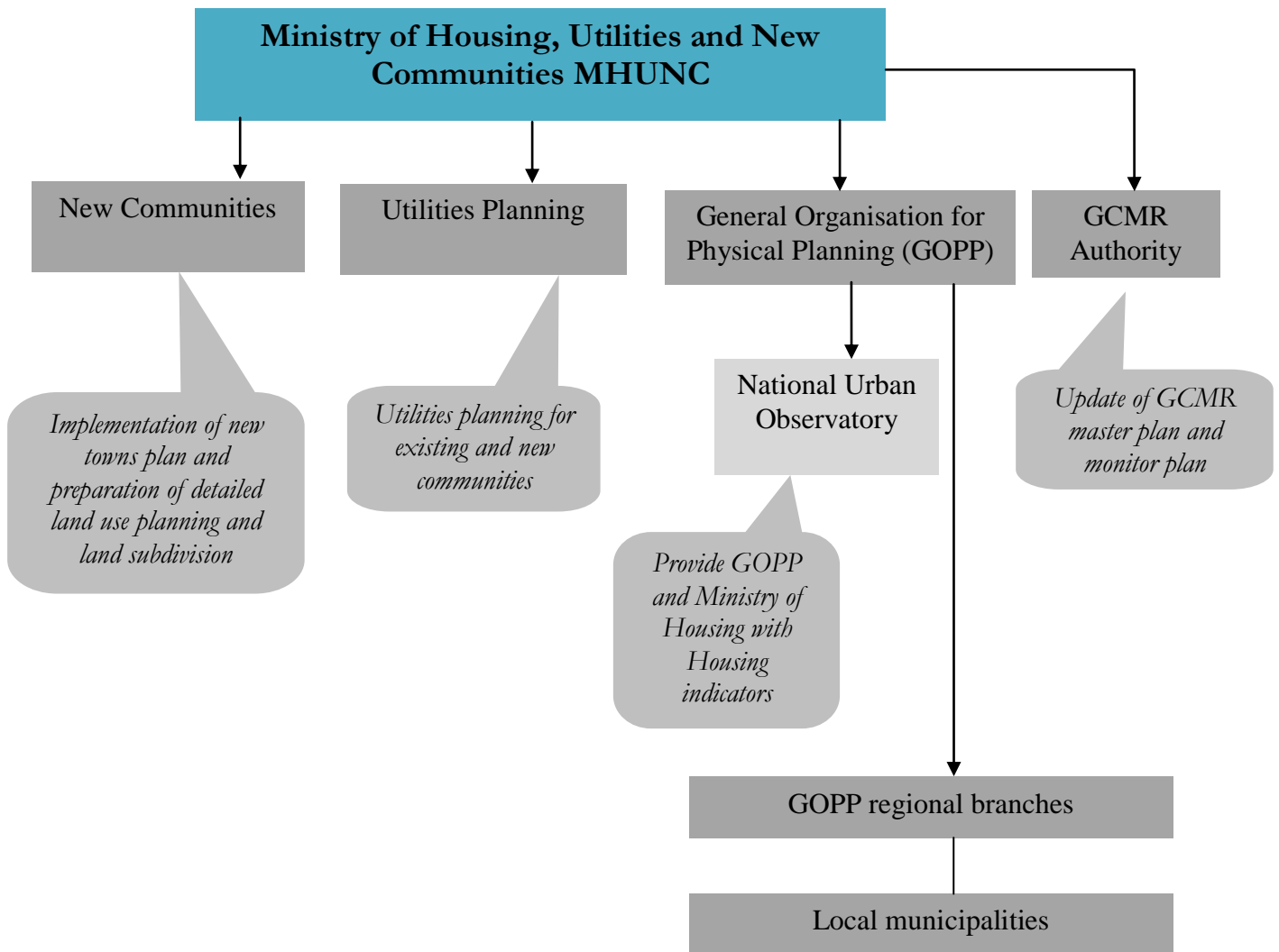
## 4.5 An evaluation of Cairo's master plans

### 4.5.1 Organisational structure of the Ministry of Housing, Utilities and New Communities (MHUNC)

A major concern of failure to control urban growth in the GCMR is the organisational structure of the Ministry of Housing, Utilities and New Communities because of its affect on the GCMR urban policy. The current structure of the MHUNC organises urban development policies into four divisions: the new towns authorities, the utilities planning division, the General Organisation for Physical Planning and the Greater Cairo Planning Authority. Figure 4.3 shows the main divisions of the Ministry and the responsibilities of each division in the urban development process. It shows the dependency of decision making of the GOPP and the Greater Cairo

Authority upon the Minister of Housing. Centralisation of decision making alters development plans according to the economic and political agendas such as the case of New Cairo, Cairo's Master Plan Modifications and green belt plans for 4000 rural settlements (Salem, 2006). In addition, the separation of new towns' management from the GOPP is due to manipulated land prices in new towns, which are considered a profitable sector in the Ministry of Housing. The presence of corruption and power groups cannot be denied, and this led to the forced resignation of the minister in the year 2005 (Salem, 2006).

Theoretically, a minister or secretary is in an administrative position that facilitates administration issues and coordination between different departments in order to implement policy. The minister should not exercise unlimited authority and his position must not hinder policy delivery or alter it for political reasons. However, in Egypt, conflict between political and administration boundaries is aggravated by the power and unlimited authority of the minister. It can be argued that one reason for the failure of achieving Cairo's master plan is related to the decentralisation of decision making and the current organisational structure of urban government represented in the form of the Ministry of Housing, Utilities and New Communities and the General Organisation for Physical Planning. The current organisational structure is in need of evaluation in order to ensure urban policy delivery without interference from the political agenda.



**Figure 4.3: Organisational structure of the Ministry of Housing, Utilities and New Communities**

#### 4.5.2 The failure of new towns

A second factor behind the failure of the master plans stems from the inability of the new towns to attract residents and increase their population. Their contribution, compared to the size and growth of Greater Cairo, has been minimal. Four satellite cities were planned for construction in the desert east and west of Cairo, but only three, 6th October, Al Obour, and 15th May, have made any progress in terms of target population and industrial activities implementation. Furthermore, the failure of the new settlements to provide 500,000 housing units over 15 years was aggravated by the inability to provide small, low-cost plots rather than ready-built houses (Stewart, 1996).

Housing in the new towns is too expensive for lower and medium class workers and has attracted speculators rather than residents (Stewart, 1996).

Poor basic services and the lack of social and educational infrastructure have also discouraged families from settling in the new towns. The majority of the “desert cities” remain empty due to lack of water, electricity and transportation infrastructures (Denis, 1997). By the early 1990s, the state had handed the future of these new cities over to private promoters and speculators who constructed villa complexes and enclosed elite compounds often with integral golf courses (Stewart, 1996).

#### **4.5.2 The ring road as an attraction for urbanisation**

The ring road, now complete in its northern, eastern, and southern sections (Figure 4.7), has proved to be a significant factor in recent land use and population changes around Cairo. The ring road has boosted development around the 6<sup>th</sup> October new town, which threatens further expansion. In addition, it has encouraged informal private development combined with social exclusion and it has affected the new settlements and new towns in a way not predicted by the master plan or by the GOPP. Similarly, to the east of the city, “New Cairo” has emerged, including the areas of new settlements 1, 3 and 5, which are continually being extended. However, much of this ring road-associated housing development is private rather than public and higher class rather than lower. Therefore, development has gone ahead despite, as much as because of, the master plan.

#### **4.6 Cairo urban growth broader discussion**

The official physical development goals for the city are shown in the 1970 Master Plan for Cairo. Cairo’s urban structure and its public facilities were laid down for 2 million inhabitants. As a consequence of the immense growth in Cairo’s population, the agglomeration dis-economies and disadvantages have become more and more challenging for the national as well as for the city government (Jenssen et al., 1981). Master planning in Cairo emphasises physical development such as the road network, water supply and sewage disposal (MHR, 1970 and 1976), which is probably a result of local political and technocratic attitudes towards urban planning and the management of a city. It remains doubtful, however, whether that plan has succeeded in

achieving its goals. The urban portion of the GCMR, at roughly 602 km<sup>2</sup>, has increased more than three-fold since 1974.

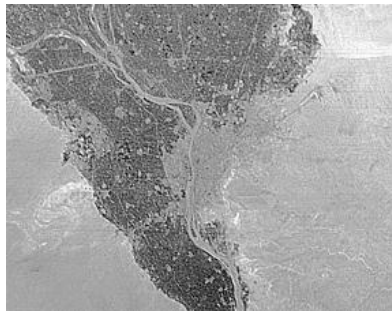
The population of the Cairo metropolitan area has increased from less than 6 million in 1965, to more than 10 million in 1998 (UNPD, 1999). Population densities within the city are some of the highest in the world, and the urban area has doubled to more than 400 km<sup>2</sup> during that period. This growth will lead to more spatial expansion of the region. Much of the land converted to urban use was formerly highly productive agricultural land. The extent of this resource lost during the period 1981–1988 alone was 340 km<sup>2</sup>. Moreover, farmland has often been replaced by development along major transport routes in ribbon-like fashion, particularly in areas outside the GCMA.

These corridors are intensively utilised to the point of severe congestion, in stark contrast to the large tracts of relatively under-utilised land located between major corridors. Furthermore, this form of decentralised development has been occurring at a rapid rate. During the period 1976–1984, for example, 45% of the land converted to urban uses occurred at a distance of 11–20 km from the urban centre (figure 4.4). The trend continued during the 1984–1988 period, when 45% of the land converted to urban uses occurred at a distance of greater than 30 km from the urban centre (PADCO, 1990). These extensive development patterns will guarantee higher infrastructure costs and increased energy consumption levels in the future.

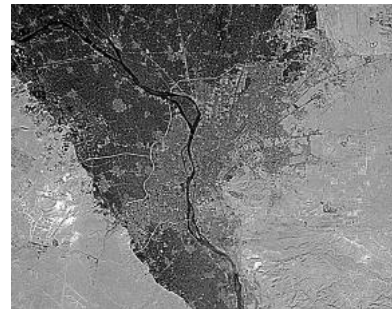
While plans were proposed in the past, none was formally adopted as an official “statement” regarding Cairo’s future until 1992. The new plan had been in draft status since 1965, influenced by powerful real estate interests and the corresponding lack of any institutionalised urban planning process or urban planning ethics. Thus, the lack of effective land management institutions and policies prior to and during recent economic changes has led to a predictable result: the congestive expansion of urban activities throughout the region (Sutton and Fahmi, 2001). Public sector inability to adopt effective land management policies, coupled with the emphasis on the



facilitation of rapid economic growth, has produced an urban region complicated by both problems and proposals for development.



Cairo Urban Area 1965



Cairo Urban Area 1998



**Figure 4.4: Cairo Urban Growth in 1965, 1998 and 1999 (NASA, 2001)**

## **4.7 The impacts of urban growth and urban policy on Cairo's Sustainability**

The following section discusses the major components of the urban context of the Greater Cairo Metropolitan Region; and in addition, how vast urban growth influences the increase of environmental problems within the urban context.

### **4.7.1 Transportation**

Transportation is currently the most widely debated development issue in the GCMR because traffic conditions are so severe and they affect so many people. It is increasingly difficult to identify peak travel periods, for congestion now exists throughout the metropolis from early morning to late evening. The

notion that one can escape congestion by moving to the suburbs has become more of an illusion in the GCMR than perhaps in any other city. In 1989, the average travel speed on main roads in the Cairo metropolis was 8.1 km per hour during peak hours especially in downtown areas (TETC, 1991, Executive summary).

Despite the design and execution of major transportation projects that include the Cairo subway, ring road and bridges (see figure 4.5), the GCMR is suffering from congestion, accidents and delays in many points of connection, and from bad road conditions. The principal causes are the rapid growth and the unrestrained use of private vehicles, a poorly developed road network, inefficient investment in the current mass transit system, lack of monitoring and maintenance, and poor planning and government indecision. During the 1978–1991 period, the number of motor vehicles registered in the GCMR increased from 0.5 million to over 2.6 million, an annual average rate of 13.5% (GCUDS, 1992).

While an average 446 vehicles were added to the GCMR motor vehicle fleet every day during this period, future projections are even more ominous, as the phase of large absolute growth of the motor vehicle fleet is only just beginning. By 2006, the number of private vehicles may have increased by three to four times the 1991 level. On the other hand, while the number of motor vehicles increased by 250% during the 1978–1988 period, the number of buses – owned or franchised by the Cairo Mass Transit Authority – increased by just 6.7% during the 1978–1989 period. Moreover, despite the low level of bus fleet growth during this period, the average number of passenger trips per day increased by 84.7% (TETC, 1990). A major reason for GCMR traffic problems is the lack of a fully developed road network, even though the government has introduced new ring roads, new bridges and direct expressways to connect different parts of the region. The GCMR will remain in contention for having the world's worst traffic conditions well into the future due to the limited potential of proposed projects to improve prevailing conditions, let alone solve traffic problems. It is evident that traffic conditions in major central parts of Cairo and Giza will be congested.

Among these proposed projects is the use of 'enforcement' bus lanes, with an increased number of public transport buses and a major reduction in the operation and number of private minibuses. Other measures include a reduction in the number of parking spaces, increased parking fees, encouragement of car-pooling, staggered work hours, road pricing, and area licensing schemes. The state of traffic conditions in 1996 prompted Egypt's Ministry of Transportation to estimate the cost of fuel consumed while idling in traffic at US\$ 500 million per year (Huzzayin, 1996).

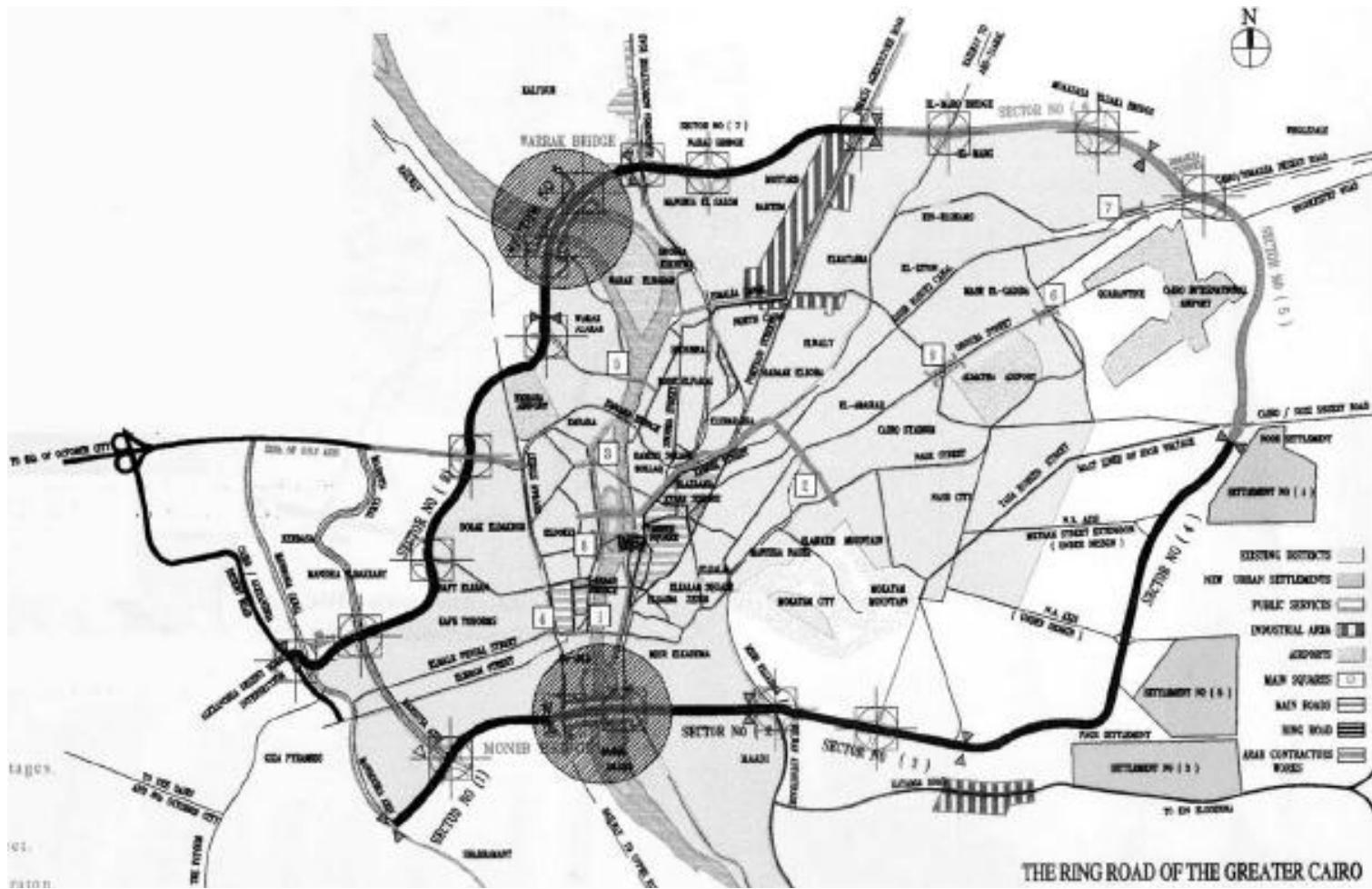


Figure 4.5: The ring road route around GCMR

### **4.7.2 Air quality and public health**

Motor vehicle emissions in 2006 account for 60–70% of all air pollution in the GCMR (CAPP, 2006). In addition to contributing to various atmospheric problems, vehicle emissions along major roads in the more intensively developed portions of the region were found to be dangerous to human health between 1989 and 1997, based on studies conducted by the national environmental board (UNCSD 1997). Using an air quality index of 100 as the maximum acceptable tolerance level, the board measured an annual average of 277. Another study found that approximately 900,000 GCMR residents, almost 10% of the total population, suffered from respiratory illnesses due to air pollution (Rodenbeck, 2000).

The introduction of low-lead fuel in 1991 was a positive step; however, it will take years of concerted effort to improve the city's air quality. Cairo's children now have the highest blood lead levels in the world, exceeding the levels found among the children of Mexico City, long viewed as the city with the worst air pollution in the world (UNICEF, 1990). Industrial emissions are the other major source of air pollution in the GCMR. Not only has the number of industries grown rapidly in the recent past, but also many factories now burn lignite (a soft coal) to cut operating expenses (CAPMAS, 1997). As long as pricing policies favour lignite over cleaner fuels – and readily available ones – the growing number of factories in the GCMR will also result in exceptionally high levels of industrial air pollution.

### **4.7.3 Water quality**

The river Nile and its canals that have not been filled in for use as roadways, along with the other waterways, now receive untreated industrial and domestic effluent and are dangerously polluted. The Nile river, for example, which nearly bisects the GCMR north to south, typically has a level of dissolved oxygen (a measure of the “ability” of water to support life and synthesize organic pollutants) of almost zero. Within the GCMR, about 1.5 million m<sup>3</sup> of wastewater are released into waterways every day. The latest in a long line of proposals to improve GCMR water quality is a US\$ 256 million sewage and secondary treatment system; however, this recently approved

system is only capable of treating 510,000 m<sup>3</sup> of wastewater per day, or only 33% of current wastewater volume. Even with the improvements of the wastewater treatment system, water quality is not anticipated to improve radically due to predictable population growth.

In addition, the GCMR was burdened with the task of collecting and disposing of 6100 tons of garbage per day in 1987. The total rose 17.6% to approximately 7000 tons per day in 2000 (UNCSD, 1997). By comparison, the GCMR population increased by only 4.5% during the 1987–1996 period, reflecting a trend found elsewhere of increasing levels of waste per capita as incomes and purchases of heavily packaged consumer items increase. In addition, although collection rates have improved dramatically over time, the treatment and disposal of waste is still a major problem. Runoff from the GCMR's three open waste disposal sites, for example, enters ground and surface water supplies, posing unknown and potentially hazardous problems. Furthermore, given current rates of waste generation, the waste disposal sites will reach capacity in six to seven years. Although roughly 90% of the refuse generated per day in the GCMR in 1991 was collected and disposed of, most of the 6000 tonnes per day that was not collected was either burned or dumped into waterways or onto unauthorized sites. Most of the estimated 2760 t of refuse generated daily in the five towns outside the GCMR was disposed of in a similar manner, due to much lower collection rates.

The rapid emergence of manufacturing activities in recent years has resulted in a shift from organic forms of refuse to greater quantities of hazardous waste. GCMR-based industries generated over 1.4 million t of hazardous waste in 1991, which represented 70% of the national total at that time (CAPMAS, 1997). Nearly all of this waste, along with increasing amounts of medical waste, is disposed of in much the same way as household waste. Only one hazardous waste treatment plant exists in the GCMR, however, it has a treatment capacity of only 40,000 t per year (UNCSD, 1997). Therefore, only 3% of the hazardous waste generated by GCMR factories in 1991 was treated prior to disposal.

Domestic and industrial waste generated in the GCMR has never been adequately and safely treated and disposed of. Additional GCMR growth in the coming years means greater generation of hazardous, toxic and medical waste, as well as the probability that these wastes will generate irreversible and significant adverse public health and environmental catastrophes.

#### ***4.7.4 The growth of slums and informal housing***

The link between poverty and environmental degradation in mega-cities is most visible in slums and informal settlements. These dense concentrations of human and economic activity are often located near factories, waste disposal sites, or other noxious activities where eviction pressures are low. While slum residents typically plan, finance and build their own communities, they do not have the financial resources to construct basic infrastructure such as waste disposal and drainage facilities. With little assistance forthcoming from outside the slums, these facilities are often inadequate, resulting in degraded and unhealthy living and poor environmental conditions. Informal housing and slum areas are, in most cases, a source of environmental pollution in the GCMR (PADCO, 1990).

### **4.8 Current efforts to manage the GCMR**

There are now over 30 local and national government agencies and ad hoc committees involved in some aspect of planning and management in the GCMR. However, only one region-wide institutional entity, the GCMR Development Committee, exists to address the many complex issues posed by rapid economic growth. It is extremely difficult to coordinate efforts or enforce existing regulations, let alone initiate new programmes designed to improve living and environmental conditions. As in other countries where government authority is highly centralised, local governments in the GCMR are unable to address the impacts of growth in an effective manner because they are dependent upon national government ministries for technical and financial resources.

Moreover, these ministries are typically focused on promoting economic growth rather than supporting local efforts to address the adverse impacts of

growth. These efforts are weakest in precisely the area of the GCMR that is growing fastest – the outskirts of the GCMR, which has an equally rapid deterioration of environmental conditions. This deterioration occurs because of ineffective planning policies and inadequate services.

Despite the conflicts noted above, recent political and institutional changes at the national government level enhance the potential to address CMR-based planning and environmental issues. The previous government of Prime Minister Atef Sidqi included a Ministry of Environment. With its creation, two major institutions were introduced to respond to pressing urban development issues. First, a new National Environment Act was enacted, which includes both investment incentives for would-be polluters and much stricter and more comprehensive regulations. The Act also created an Office of Environmental Policy and Planning within the newly created Ministry of Environment. This ministry replaced the National Environment Board, an advisory body that was not attached to any ministry. While the government's general concept of environmental awareness is the last chance to tackle the region's spatial development problems, some factors work against that.

First of all, most of the official development programmes and concepts lack economic vitality. They are, rather, purely physical planning concepts, which distribute land uses to suitable areas and claim immense investments in roads and facilities. These concepts are in part based on assumptions that politically, financially and economically turn out to be unrealistic.

Secondly, the informal housing and economic sector is an essential element of Cairo's urban economy and urban structure (Eldemery, 2002). This sector has not yet found official support. Unfortunately, this sector is still considered a parasitic element of underdevelopment. However, efforts to manage the region's environment have to take into account the impacts of rapid and uncontrolled development within that sector. Official policies do not recognise the positive factors of the informal sector for the development process such as job creation, community development and training – thus, these factors



are not introduced as an element in any ambitious environmental development programmes.

Thirdly, NGOs and other groups are now emerging as the most promising force to elevate the social and environmental consequences of growth to the status of issues on the government agenda. Government inability to manage growth, coupled with increasingly intolerable living and environmental conditions, has stirred the GCMR's elites to act. The government occasionally responds positively to the pressure of those elites. In turn, this governmental response may encourage other less influential groups to demand greater participation in addressing other environmental issues.

Fourthly, hindered by the often-criticised Egyptian bureaucracy that seems to be unchangeable under local conditions, development projects generally lack efficient management and responsible implementation. The local government performance is always questionable in terms of a lack of human resources and capacity building. In addition, exceptions and favouritism are common practice in local government, and influence the urban policy delivery effectiveness.

#### **4.9 Conclusion**

The GCMR region has witnessed dramatic economic changes during the last 40 years. The GCMR's role as the centrepiece of the Egyptian economy actually increased during this period, and now accounts for over 45% of GDP and nearly 40% of manufacturing output. As a centre of thought, power and resources, the main problem of managing GCMR growth is not the lack of attention, expertise or resources, but an inability to implement urban policy through the current existing organisational conditions that affect urban policy delivery.

Consequently, the failure of the GCMR master plan implementation resulted in rapid urban growth in the city peripheries and ineffective urban management of new towns. Statistics indicate a low occupancy rate in most new towns. In addition, alteration of the plan to create a giant housing project such as New Cairo had increased commuting problems because of a lack of

public transportation, which has affected both the natural and built environments. It can be argued that decentralisation of activities, services, industries, political power, governments and institutional bodies is a key factor if the government hopes to ease the current environmental crises in the region. Unfortunately, the degree of current efforts for managing the growth of GCMR does not bode well for the long-term environmental and economic sustainability of the GCMR. The following two chapters analyse and discuss the results of the case study fieldwork data and interviews in order to identify the crucial requirements to promote sustainable urban development in the GCMR, based on the current urban characteristics which have been discussed in this chapter.

## **CHAPTER 5:**

# **SUSTAINABLE URBAN DEVELOPMENT CURRENT EFFORTS IN THE GCMR: FIELDWORK ANALYSES**

### **5.1 Introduction**

Chapter 4 investigated the major urban components of the GCMR. One of the conclusions to emerge from chapter 4, which discusses existing urban aspects of the Greater Cairo Metropolitan Region (GCMR), is the severe lack of sustainable urban development in existing urban policies. This fact raises a crucial question about the absence of Cairo's urban policies from the international sustainable urban development mainstream. To answer this question, a series of questions must be asked in order to formulate an overview of the matter under discussion. These questions are:

- What has been achieved in sustainable development research in Egypt and what is the degree of interest in sustainable issues?
- What is the current urban policy and progress towards achievement of sustainable urban development in the GCMR?
- What are the drawbacks of current urban policies and government performance that constrain attainment of sustainable urban development in the GCMR?

Objective 3 is meant to explore and analyse existing and future plans for sustainable urban development in the Greater Cairo Metropolitan Region in order to define the aspects of intervention needed to achieve sustainable urban development in GCMR. According to the case study design in chapter 3, this chapter is devoted to the analysis of fieldwork interviews, which were conducted in February 2006. The purpose of the fieldwork was to investigate the previous questions with urban planning policy makers in order to give a

more complete overview of current and future sustainable urban development of the GCMR.

The following are the major themes that were used for each interview. They are summarised in this section, and then discussed within the Egyptian urban context:

- Transportation planning
- Environment
- Housing
- Urban policy and sustainable urban development.

These four aspects were chosen from the conceptual framework in chapter 2 which identified them as essential components in sustainable urban development; the research evolved for several reasons. First, these four aspects developed from the main aims and objectives of the research, that is, from the achievements of sustainable communities and how “the four aspects” of the urban features play an important role in the community. Second, the literature review in the early research stage identified these aspects as major themes for achieving sustainability within the urban context. In addition, through examination of the international sustainable communities’ examples in chapter 3, it was concluded that these four aspects are central to achieve sustainable development in the urban context. Last, these aspects represent the critical points that the GCMR is urgently required to deal with in order to promote sustainable development in the current Egyptian urban context.

## **5.2 Urban growth policy, politics and sustainable urban development in the GCMR**

### **5.2.1 Introduction**

Chapter 4 discussed urban policies in Egypt in detail, emphasising aspects that are also connected to urban policy at the national level in Egypt. The country was divided into eight homogeneous planning regions in 1975 with the aim of developing peripheral regions in order to absorb the expected growth of urbanised areas. In 1982, a national urban policy study identified several goals for future planning of the GCMR (MHUNC and GOPP, 1988).

First, it was suggested that Cairo's urban growth be redirected from a north–south axis to an east–west orientation on vacant desert areas in proximity to the current built-up area. Secondly, it was recommended that the de-concentration of central Cairo be pursued through the establishment of secondary commercial, financial, industrial and administrative centres. Thirdly, it suggested policies to promote an improvement in the general quality of life. Fourthly, it advocated the creation of appropriate instruments of governance aiming at guiding and controlling an integrated set of spatial, economic, social and financial programmes.

At the city level (Cairo), a master plan was formulated in 1970 incorporating two major concepts on which it recommended that the future management of the region be based. First, it was suggested that a ring road surrounding the existing built-up area be constructed to control its growth and stop the invasion of agricultural areas. Secondly, it was recommended that self-sufficient new communities be established at suitable distances from the city to attract expected growth. Although the ideas of this plan were not fully implemented in the following years, they formed the basis for policies adopted in the 1970s and for the structural plan of 1983, which remains the major guide for the urban development of the GCMR to date (MHUNC, 1992). Within the existing area, it was believed that the population could be accommodated by incremental development, in proposed major housing projects on vacant desert land inside the ring road to the north and east, and in pockets of agricultural land and peripheral areas to the north, east and west. This would require a restructuring of the metropolitan region using the concept of "homogeneous sectors" (MHUNC and GOPP, 1988).

In its attempt to guide Cairo's urban planning through 1990, the 1970 master plan anticipated strong population growth from both rural–urban migration and from demographic growth. To accommodate this population growth, Cairo would become a "super agglomeration" with satellite towns. The 1970 plan tried to contain the city within its then built-up area and to divert further growth to new towns built on desert land so as to preserve agricultural land, known as "green land" (Egyptian Ministry of Housing, 1970).

### **5.2.2 Current development of urban policy in the GCMR**

The current urban policy for the GCMR is still based on the development of new towns to lessen the pressure on the core city and on protecting the green land in the city periphery. In addition, due to the drawbacks of new towns and uncontrolled housing implementations in the city periphery, in the last five years voices inside the GOPP have been calling for an update of the urban plan for the entire region. This is because, if the existing policy continues, the target population in 2020 will be 24 million instead of 20 million (MHUNC and GOPP, 1998). Critical comments should be added to the current urban policy. First, the policy is based on the assumption that creating new towns will entice people to move from the core city. It can be argued that implementation of new towns without creating a reliable means of transportation and jobs slows down the expected urban development. For example, the target population for these new towns did not exceed 25% of the total capacity of new towns (Attalla, 2006).

Second, indications of a proper urban planning process cycle<sup>3</sup> for the GCMR urban policy is absent. The reason is that the urban policy for the GCMR is associated with government personnel such as the “Minister of Housing” more than the long-term policy itself (Salem, 2006). For instance, the former Minister of Housing made critical decisions and changes that affect the existing policy of the GCMR in terms of additional industrial activities in the new towns and metropolisation of new urban communities. Consequently, new industrial jobs created an enormous daily movement of commuters from the inner city to peripherals without studying the impact of these changes on transportation and housing policies. Another example occurred in 1997 when the ex-Minister of Housing reformed three separate satellite settlements (1, 3 and 5) located in the Cairo peripheral into one big settlement named as The New Cairo, which matches the core Cairo city in size (280 km<sup>2</sup>). This situation puts enormous pressure on the transportation network and daily commuting throughout the region (Salem, 2006). Government policy also affected the target social groups in the new towns. These changes gave

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<sup>3</sup> The urban planning process cycle is the analysis, planning, implementing, and auditing process where auditing is meant to evaluate the plan outputs and then update the plan with necessary changes in order to achieve urban policy objectives.

private investors the opportunity to create high-income housing, thus neglecting the low- and medium-income social groups. This phenomenon caused Egyptian town planners to create the famous term “Ghost Cities” because about 50% of the housing is owned by speculators who sell when land prices rise (Bakr, 2006 and Salem, 2006). It can be concluded that the absence of proper scientific methods of planning and the nature of Egyptian authoritarian government strongly affect the GCMR urban context in a way that makes the city unsustainable. Serious efforts are required to reform the existing urban policy towards sustainability (Bakr, 2006 and Wafiq, 2006).

### **5.2.3 Cairo urban master plan changes**

Cairo urban growth is the major problem for the GOPP resulting in a consistent policy by government officials (Wafiq, 2006). Government officials argue that Cairo expanded as a result of the decisions of the ex-minister who remained in the ministry for over 15 years, and was replaced by a Minister of Tourism in December 2005. Government officials argue that decisions came from the Minister of Housing and were based on Cairo’s official strategy update. It can be argued that this claim by government officials is more politically oriented because if we look at the number of changes and updates in the Cairo strategic plan, investigations into this research found that since the plan was created in 1970 it has been updated just once, in 1983. However, since the last Housing Minister took over, several updates have been carried out – one in 1991, another in 1994, another in 1997 and then the master plan received final confirmation in 1998. Another example is the period between 1976 and 1983 when Elkafrawy was minister; during this period, the urban policy focused on construction of a large number of vacant housing units in new towns. These units took around 15 years to be occupied. The reason behind building this large number was that Elkafrawy’s professional background was in building construction, and his philosophy was that the number of housing units built indicated how successful his ministry was; while the previous minister Ibrahim Soliman (between 1983 and 2005) came from a business background, and believed increased revenues from new towns reflected the success of his policy. Consequently, the policy changed to one of selling land subdivisions in the new towns (Salem, 2006).

This is clear evidence that urban policy in general is influenced solely by the decisions of ministers of housing and that the absence of a long-term strategy in the current policy reflects the administrative incompetence of government urban planning authorities.

At the same time, the urban policy established in 1982 is considered outdated according to town planning academics, because at the time it was released the socio-economic characteristics of the population were different. Now, demands for government housing and transportation are enormous. This explains why the government turned its attention to the development of new towns without thinking about the consequences and impacts on the infrastructures, or the urban growth burden for the GCMR (Wafiq, 2006). Moreover, the local government lacks an active role and does not possess the specialised urban experts needed to monitor and evaluate the urban planning process (Elshahed, 2006).

In addition, interventions by the governor and by local government to alter the master plan are notable. To understand the structure of government administrative authority, a summary is provided in Box 5.1. Improper decisions made by the governor – a political position – affect performance at the local government level and cause a dilemma, as local officials are caught between the governor's decision and the master plan document they are supposed to follow. Obviously, they follow the more powerful decision, that is the governor's, and this is written into the master plan.



Adding to the previous point, another issue concerning the urban management of the city is the nature of GCMR administrative boundaries “which include parts from three governorates Cairo, Giza and Qalubia”. This causes the decision-making process to experience administration and coordination difficulties, for instance implementing projects that relate to the GCMR planning level are always debated by the three respective governors, who tend to prioritise projects in their jurisdiction rather than at the GCMR level (Fahim, and Edward, 2006).

The 1960 Local Administration Law provides for three levels of local administration – the muhafazat (governorates), the markaz (districts or counties), and the qariyah (villages). The structure combines features of both local administration and local self-government. There are two councils at each administrative level: a mostly elected people's council and an appointed executive council. Although these councils exercise broad legislative powers, they are controlled by the central government.

The country is divided into 26 muhafazat. Five cities – Cairo, Alexandria, Ismailia, Port Said, and Suez – have muhafazah status. The governor is appointed and can be dismissed by the president of the republic. He is the highest executive authority in the muhafazah and has administrative authority over all government personnel except judges in his muhafazah and is responsible for implementing policy.

The muhafazah council is composed of a majority of elected members. Although it has not been possible in practice, according to law at least one-half of the members of the muhafazah council should be farmers and workers. The town or district councils and the village councils are established on the same principles as those underlying the muhafazah councils.

The local councils perform a wide variety of functions in education, health, public utilities, housing, agriculture, and communications; they are also responsible for promoting the cooperative movement and for implementing parts of the national plan. Local councils obtain their funds from national revenue, a tax on buildings and lands within the muhafazah, miscellaneous local taxes or fees, profits from public utilities and commercial enterprises, and national subsidies, grants, and loans (Extracts from Britannica, 2006 online resources)

**Box 5.1 Egyptian Government administrative system** (Britannica, 2006)

**5.2.4 Future orientation for GCMR urban policy**

The future of urban policies in Egypt is not encouraging considering the engagement of the government to achieve the President's ambitious five-year plan. Unfortunately, the 2005 human development report (UNDP, 2005) contributes to future urban problems. The report, released in early February 2006, was prepared by the Egyptian Institute of National Planning (INP) with technical cooperation from the United Nations Development Programme (UNDP). Significant focus was given to President Mubarak's 10-point political programme for his fifth period of ruling the country (between 2005–2010).

The report's 10 points can be summarised (in the report) as follows: "modernise organisational structures, reform the judicial system, update laws, promote political participation, simplify procedures and implement new training programmes, as well as reduce unemployment and regional disparities in basic public service provision and improve overall healthcare services, with health insurance for all socioeconomic groups" (UNDP, 2005 p: 3).

As a result of a previous statement by the INP, the government urban development decision makers were keen to initiate the president's programme, giving priority to the preparation of a greenbelt<sup>4</sup> physical plan for 4000 rural settlements, to which the GOPP devoted all its efforts with a large budget for preparing the master plan of each settlement (Salem and Fahim, 2006).

A positive sign can be seen in the GOPP's attempts to introduce sustainable urban development in the new proposed Planning Law that is under discussion in the People's Cabinet. So far, an initiative for a long-term plan for sustainable urban development has not been discussed. Madbouly suggests that since it will take a period of 5–10 years to introduce a sustainable urban development policy for Egypt, the only window for achieving it is through foreign aid agencies and organisations (2006). The GOPP official stand is that sustainable urban development preparation plans will take time to enter into practice (Madbouly, 2006) because of the current involvement with the President's 5-year plan mentioned in the previous section. The previous argument reflects the nature of Egypt's authoritarian

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<sup>4</sup> The **Green Belt** is a concept for controlling urban growth; to prevent urban sprawl by keeping land permanently open; the most important attribute of Green Belts is their openness. Green Belts can shape patterns of urban development at sub-regional and regional scale, and help to ensure that development occurs in locations allocated in development plans. They help to protect the countryside, be it in agricultural, forestry or other use. They can assist in moving towards more sustainable patterns of urban development (PPG 2, 1995 p:3)

government, which influences the policy plans of different sectors according to the political agenda.

### **5.2.5 Political impacts on urban planning policies in Egypt**

#### ***Historical background***

In order to take the proper analytical approach to the urban planning policies within the Egyptian context, it is crucial to understand the role of politics in this chapter's analysis. Egypt's political history since independence in 1952 has been through different phases of instability, with governments swinging between military dictatorship and parliamentary democracy. Between 1952 and 1973, the country was involved in two major wars with Israel, one in 1967 and another in 1973. During this period all the country's assets were prioritised to serve these wars, and consequently no effort was made to develop policies in general and urban planning policies in particular.

#### ***Political influences on urban planning in Egypt.***

It can be argued here that the Egyptian government fits into the famous "new Authoritarian"<sup>5</sup> model (Salem, 2006, Attalla, 2006 and Wafiq, 2006). This model has been applied in Latin America and several Arab countries. According to Collier (1979), it is not the authoritarianism of the individual or family dictatorship (such as Colonel Nasser in 1952) where the military play a simple supporting role. The matter of interest has expanded into a more sophisticated bureaucratic, authoritarian regime where the military, law enforcement and civil bureaucracy take the leading role, not to maintain a dictator in power, but to implement projects serving a political purpose. In Egypt, it takes the form of strong law enforcement to suppress the labour force and open the way to rapid economic growth. In both cases, the model is bureaucratic in the sense that in its structure it operates through a strengthened executive and strong central administration. At the same time, in its function, it has the effect of depoliticising the expression of social interests and of extending bureaucratic control over everyday life (Batley, 1983). It is important to mention several factors here in order to address the

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<sup>5</sup> **Authoritarianism** defined as favourable to the principle of authority as opposed to that of individual freedom (Oxford Definitive online English dictionary, 2006)

problem of the influence of politics over urban planning decision making. This problem includes political instability, elitism and political expediency.

Political instability has left a strong mark on the urban planning policy. One of the most famous features of urban development politics is that there has been much talk, but few policy plans, and consequently little policy implementation. The reason for this is that political leaders do not usually stay in office for long. As a result, the development of new policies often breaks down at an early stage. Newcomers tend to detach themselves from the policy intentions and plans of their predecessors. They want to make a fresh start and put their personal stamp on decision making (Attalla, 2006 and Bakr, 2006). To support this, they appoint their own advisors to high government positions. This not only causes serious delay, it also occurs at the expense of losing valuable knowledge and experience (Salem, 2006).

Another frustrating effect of instability at the top is inactivity at lower levels within the civil service. The Egyptian administrative system is hierarchically structured and decision making is top-down. This has two disturbing effects. Firstly, administrators are not inclined to delegate a great deal. Consequently, they themselves deal with many day-to-day matters concerning the interests of private citizens or groups, which should not be their first priority. Secondly, ordinary civil servants are rarely able to act on their own account since taking initiative involves risks that vary from being rebuked to being transferred or even fired. It is clear that having an independent and enterprising attitude can be a perilous quality for lower-ranking officials. Therefore, with a few exceptions, they act only with the direct approval of superiors.

The second political factor deeply affecting urban planning relates to the consequences of the elitist nature of the government. The gap between the elite and the masses is reflected in the sort of proposals that are launched to arrange or re-arrange urban space. Key people in the decision-making process are led by the desire for city beautification and orderly layout rather than focusing on essential urban planning needs. Basing decisions on poor political rather than good technical reasons is widespread in Egypt.

### ***The current government urban planning practice***

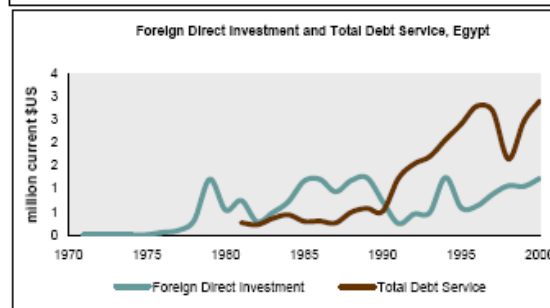
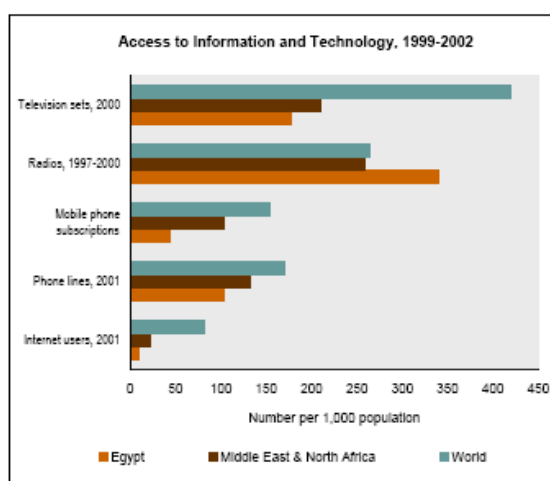
As in other developing world governments, the Egyptian government in general terms does not follow its stated policy on decentralising decision making from the top level down to the local level. On the contrary, the main function of any ministry in general is to answer the demands of top political level decision making. In other words, it responds to the political orientation of the event. For example, the GOPP devotes all its energy to accomplish the 4000 rural settlement green-belt plans because that decision came from the policies planning committee for national policies (Bakr, 2006).

An examination of this committee shows that the top government supporting bodies and their membership is limited to ex-ambassadors and ex-military ranks. Additionally, the person who is responsible for urban policies has a background in tourism education rather than in urban planning (Attalla, 2006). Beyond that, this committee receives its main orientation from one person, the head of the committee who is none other than Jamal Mubarak, the son of the President (Salem, 2006). Because of such government malfunction, this research argues that there has been no clear urban policy in the last 50 years due to the effects of the political regime on planning practices since the 1952 revolution. Moreover, due to the fact that the government swings between dictatorship and authoritarianism, top-level political bodies demand policies implementation without questioning them. This corrupted system is not easy to change after 50 years because the country is still ruled by the same ideology: “*the government in Egypt does not plan policies, but the presidency or elite ruling family who is the real policy planner*” (Salem, 2006). Signs of negative level of democracy, government accountability and performance in figure 5.1 reflect how difficult it is at the moment to implement sustainable urban development policy in Egypt under the current political regime. As can be seen in the first graph, Egypt is behind the Middle East and North Africa in the number of NGOs. In addition, the transparency international index indicates the level of corruption in the current government where a score of 10 is least corrupted and zero, most corrupted. The level of freedom in terms of political rights indicates 6, least free, and press freedom indicates 66, which means not free. Government

expenditure on the military is estimated as 1.8% of the total GDP. These indications are some evidence of the current government political system.

Another important issue is the presence of international organisations that are supposed to make changes in the government structure. On the contrary, these organisations “*Tango with the Regime [so as] not to change the government structure*” (Attalla, 2006). The reasons for a lack of coordination between the government and private organisations is due to the huge amount of bureaucracy and the fact that the government is selective of priority projects. For instance, if the phenomenon of Black Cloud (which is the result of burning leftover agricultural products) magnitude was less conspicuous, the Egyptian government would not give any priority to solving it. However, the extent of the impact of this problem was the main reason for initiating the Cairo Air Improvement Project.

Governance Indices	Egypt	Middle East & North Africa
Freedom House Indices (a), 2001		
Level of Freedom (free, partly free, not free)	Not Free	
Political Rights (1=most free, 7=least free)	6	
Civil Liberties (1=most free, 7=least free)	6	
Press Freedom (1-30=Free, 31-60=Partly Free, 61-100=Not Free)	77	
Polity IV Indices, 2000		
Level of Democracy/Autocracy (-10 is strongly autocratic, +10 fully democratic)	-6	
Level of Political Competition (a)	2 Supressed	
Transparency International Indices		
Corruption Perceptions Index, 2001 (10=least corrupt, 0=most corrupt)	4	
<b>Civil Society</b>		
Number of international non-governmental organizations (NGOs), 2000	1,892	20,519
NGOs per million population, 2000	28	49
Number of formally committed municipalities to Local Agenda 21, 2001	7	98
Agenda 21 national reporting status, 2002	submitted	
<b>Government Expenditures and Financial Flows</b>		
Development Assistance as a percent of government expenditures, 1995-97 (c)	10.0%	X
Govt. Expenditures as a percent of GDP		
Military, 2000	2.3%	X
Public health, 1997	1.8%	3.5%
Public education, 1996-1998 (c)	X	X
Foreign Direct Investment, net inflows, 2000 (million current \$US)	1,235	X
Total Debt Service, 1997 (million current \$US)	1,928	X
Development Assistance per capita, 1997 (current \$US)	32	X



**Figure 5.1: Egyptian Government performance indicators (Earthtrend, 2006)**

In addition, the government practices crises management rather than having long-term plans for urban management and policy formulation (Attalla, 2006, Bakr, 2006 and Salem, 2006).

### ***Sustainable urban development in the current urban agenda***

Consequently, it is clear that sustainable urban development is still absent from the urban planning agenda, except for a current project begun in January 2006 to update a strategic urban plan for Cairo. The vision of this update is different, at least in the framework of the proposal summary, because for the first time the concept of sustainability appears frequently as a term. However, an examination of the summary proposal shows that although it uses the term, no further elaboration on specific tasks and initiatives on how to achieve the sustainable urban development for the GCMR are provided. The project is in its beginning phase and further action has not yet been agreed upon (Madbouly, 2006).

### ***5.2.6 Discussion***

Examination of existing urban policy for the GCMR reveals the following critical points about how the (urban planning) process functions:

Political influences on urban planning in Egypt are presented in this case study. Authoritarian government and the process of decision making are associated with specific individuals rather than with clear, continuous and coordinated policies. These influences are not only represented in individual sectors, but can be seen in multi-sector policies and there is a lack of coordination between various sectors.

As a result of individual authority, ministers of different departments are authorised to alter or change the general guidelines of policies in order to tailor them to serve a political agenda. The government prioritises some urban sectors and neglects others according to the magnitude of each sector and its ability to serve political orientations, as in the case of Black Cloud and rural settlements' green-belt proposals.

As a result of this unclear urban policy, and the desire of the Ministry of Housing to demonstrate the success of its policy, the door opened to expand the built-up area located in between the new towns or merging satellite settlements in order to achieve maximum profits. This situation created uncontrolled urban growth in the GCMR.

The GOPP initiatives to alter the Urban Planning Law and to introduce the concept of urban sustainability are a positive first step towards an improved urban management of the GCMR. These initiatives need to be followed by clear vision and a multi-level framework for achieving urban sustainability and critical changes to urban planning bodies on the state level and local government levels.

The lack of coordination of the GCMR on the administrative level is due mainly to Cairo's administrative boundaries that intersect the three governorates. This slows the process of decision making. In addition, the local government is not adequately trained for monitoring the master plan implementations and always needs technical support from the state level. Moreover, the delivery of the existing urban policy for the GCMR is sometimes altered in the local government due to "favouritism" and may depend on the political connections of investors with the governor.

## **5.3 Urban transportation in the GCMR**

### **5.3.1 Introduction**

Despite the lack of a sustainable urban policy, urban transportation in the GCMR received attention from decision makers, especially in the areas of pollution and traffic management. Urbanisation expanded in Egypt at the beginning of the 20<sup>th</sup> century when only about 15% of the population was living in urban areas. Population jumped three times to about 44% in urban areas by the late 1980s and is expected to exceed 50% by the early 2010s (CAPMAS, 2004).

Egyptian cities were not originally built to absorb the increasing population. Thus, urban growth has put a heavy burden on infrastructure and utilities



including transportation, communication, water, sewage and electricity. Random urban expansion around big cities also causes social problems and unpleasant environmental impacts.

### **5.3.2 Sustainable development and transportation planning: an assessment of progress in the GCMR**

Since the 1970s, many projects have been authorised to plan expansion and to improve urban quality. For existing urban areas, an effort has also been made for infrastructure improvements and expansion since the early 1980s, such as the underground network and the second ring road. The following are examples of such projects:

- The Transportation department has constructed 40 flyovers, bridges, and elevated roads as well as new multi-storey parking garages that have been completed during the last 15 years to improve traffic circulation in the GCMR. Consequently reduce traffic congestion has been reduced, which is one of the objectives of sustainable transportation.
- The first metro line opened in 1987. This 42 km line carries about 2 million passengers every day. The second metro line, a locally financed project, opened in 1998 and carries the same number as the first line. In addition, planning for the third line is underway for implementation by the year 2007 and expected to be finished by the year 2010. The metro line is one of the crucial tools to promote public transport in the urban context.
- A new ring road around Greater Cairo was completed in 2000. This project is expected to have an impact not only on reducing traffic congestion but also on air quality, reduction of accidents, and noise levels. This is one of the solutions to divert traffic from the inner city core, thus reducing daily commuting in the city.
- In addition, there are cooperation projects with private donors to protect the environment and a large project with USAID to reduce pollution generated by daily usage of vehicles. Initiatives have been taken to use unleaded fuel and alternatives such as liquid gas fuel, but the dependence on kerosene fuel still exists because a wide section of

the population is ranked in the low-income category and kerosene is cheaper than petrol and liquid gas fuel (Attalla, 2006).

Government transportation policy attempts to connect the different parts of the GCMR. For example, the two ring roads have revived the new towns project and provide accessibility for the population to commute to and from the city. Therefore, the transportation project does not theoretically increase the rate of overall urban growth. In addition, the government does not allow building permits to be issued within a certain range of the two ring roads. Practice of the law and its application to local government remain problematic as pressures from local representatives in the political council to deliver favours for the local population create urban chaos at the local level (Elmiteeny, 2006).

### ***5.3.3 Impacts of transportation projects on the GCMR urban context***

Despite the fact that these transportation projects helped to connect the inner city with new towns, they also created overflow traffic problems represented in the congestion at the conjunctions of these roads with Cairo's local transport network. However, the transportation department is trying to solve the problems by restructuring the transportation network of the city. The main problems of existing urban transportation are the lack of a long-term policy and the lack of coordination between transport projects and urban development in the city (Wafiq, 2006).

Because of a misunderstanding of the impact of long-term policies, some of the governmental bodies concerned view setting policies as just recommending a set of new projects! Furthermore, many of those who set policies are preoccupied by day-to-day events to do with transport services and operations. The importance of establishing sound information is required for policy formulation and monitoring and is an issue that is not fully appreciated by city officials. Those officials who believe in the importance of establishing information systems, face the reality of either the non-existence of data or the extreme difficulty of obtaining it. The importance of an adequate information system escapes top politicians who frequently show more interest in short-term projects that achieve quick results, as in other

countries, both developed and developing (Elmiteeny, 2006). They therefore do not give full attention to the formulation of long-term policies.

#### **5.3.4 Organisational, institutional and financial constraints in transportation planning in the GCMR**

Within the existing institutional structure in the Egyptian government, as in developing countries in general, certain realities distort the scale of the expected output and achievements. These are related to the existing human resources, as qualified personnel are not necessarily appointed to the right job, although such jobs do exist in the job market (Salem, 2006). This problem exists in the domains of traffic management, bus planning, and urban transport planning in general (Elhakim, 2006).

Another important issue is the financing system of projects. Usually the financing of a specific project is allocated to the major implementation work of the project, while the complementary work is left to the local government. The USAID project is financed in this way (Sylvia, 2006). However, a lack of resources and technical support by the local government constrains the success of the project (Wafiq, 2006). This is the problem the government needs to examine over the next 10 years: the government has to restructure or reform the local government mechanism and create a way to strengthen decision making at the local level. This can be accomplished by instigating decentralisation with a clear agenda for the next 10 years (Salem, 2006).

Another issue is that sustainable development has an environmental element that depends heavily on transport that results from land use and urban growth. It is important to link land use, transport, and the environment, and not to plan for the former two without linking their impact with the latter (Wafiq, 2006). This research maintains that the most important issues for sustainable development are the linking of planning horizons to the achievement of environmental and economic objectives. In other words, it is necessary to create a practical linkage between transport plans in the short and medium terms and those set out for the long term. This is a realistic key issue for meeting present needs without compromising the ability of future generations to meet their needs.

Politicians and city managers feel proud to announce that they have scientific minds, and sponsor studies. Unfortunately, they do not have the will, the courage, the budget and/or the technical capabilities for implementing the studies' results. For example, it was reported that in the GCMR, more than 60 transport related studies were undertaken and only 15% were implemented between 1975 and 2000. This is a problem and a luxury that Egypt cannot afford (Elhakim, and Elmiteeny, 2006).

Finally, it is unacceptable that some giant projects in Egypt have found massive foreign (or local) financing while minor low cost complementary projects cannot find the required budget. An example is the construction of a new rail mass transit line without the approval of a budget of only 1% of the cost of the line to conduct studies in order to achieve integration with other transit services in the city! While the cost of the line construction is handled by the national government, which can obtain financing, the cost of the complementary integration project is in the hands of a local government that has difficulty finding funds due to limited resources. Budgets of local governments cannot bear such costs, neither can they secure external financing. Neglecting to implement these projects, however, has a serious impact on full utilisation of the larger project and, hence, making full use of the investment. It is therefore very important for central governments, donor countries and lending agencies, if they finance giant projects, to bear the responsibility of financing at the same time the required small-scale complementary ones. This is essential for achieving a transport system that is supportive of sustainable urban development (Elmiteeny, 2006).

### **5.3.5 Discussion**

There is some positive achievement in the transportation-planning field in the GCMR compared to the urban growth policy considered in the previous section. Evidence can be found of programmes dealing with environmental protection such as an unleaded fuel programme and mass transit transportation, but transportation planning still lacks a clear long-term policy. In addition, top-level decision makers and local councils are a key issue for introducing proper urban transportation long-term policy. Consequently, the

creation of an institutional framework that is capable of policy formulation, and monitoring and handling the required information system, is very important for making the development of urban transport supportive of sustainable urban development.

There is a need for some consideration of transport issues at the planning stages. These issues, such as the well-known need for linking transport planning and land-use planning, are very important if the Egyptian urban government is concerned with sustainable development for the GCMR. Such integrated planning is of particular importance especially in cases of new towns and urban expansions. For instance constructing another ring road “Elmehwar” to connect the city with new towns should consider the consequences and impacts on land-use change in these areas. Instead of establishing strong connectivity between the city and new towns, it may be better to plan a policy for increasing job opportunities in these new towns, which will reduce daily commuting on the ring road.

## **5.4 Housing in the GCMR**

### ***5.4.1 Housing policy***

The housing problem is considered among Egypt’s major concerns due to the complexity and interdependency of its characteristics, which result in far-reaching impacts on other sectors of the economy (MHUNC, 2004). The impacts of the housing problem are not limited to the provision of suitable shelter but extend to affect a large segment of society through its direct and indirect impacts on all economic and social activities. The Government of Egypt is actively promoting the rights of individuals and families to adequate housing and secure tenure. Promoting these rights is viewed by the GOE as an essential measure to ensure the provision of basic infrastructure, the control of squatter settlements, the reduction of urban poverty, as well as equal access of all sections of society to suitable urban land and credit (Madbouly, 2006).

Law 59 of the year 1979 regulates the construction of new settlements. These new settlements are to function as new population attraction centres

that will transform Egypt's development map. The Ministry of Housing has adopted a flexible and proactive approach to address actual population needs and existing problems (Madbouly, 2006). This approach focuses on improving performance and achieving results through strengthening the role of the private sector in developing new urban settlements. To facilitate private sector involvement, in 1996 the Ministry of Housing put plots of land of various areas (400–600m<sup>2</sup>) for residential real-estate investment out to tender to individuals, companies and associations. There was great demand for this land especially in the cities of Obour, Sherouq and settlements East of Cairo (Salem, and Edward, 2006).

It is undeniable that there is evidence of sustainability principles in the new towns. Specifically, from an urban design perspective, the idea of compact urban form is conspicuous in the majority of designs in more cities. In addition, pedestrian walkways and mixed land uses are a major theme for neighbourhood design in general and for new towns in particular. This is due to the fact that urban site planning and urban design is usually handled by private architects and planners, which provides a way of implementing environmental-oriented designs. However, it is necessary, adding to this neighbourhood vision, to make neighbourhoods liveable, by providing convenient means of mass transportation, that the locals can rely on instead of the problems involved in finding transportation on a daily basis (Helmy, 2006)

Since 1996 the State has achieved a tangible leap in the provision of middle- and low-income housing through the “Mubarak's Youth Housing Project” which aims at providing modern and affordable housing with suitable planning standards. The project allows for ample green areas and parking spaces as well as distinctive architectural prototypes (Madbouly, Fahim and Elmarsafy, 2006). The project adopted the mortgage system to create affordable housing for those of low income, and priority is given to the newly married. Figure 5.3 demonstrates the design elements in the project, which show the architectural and urban design of the project that offers a balance between green and built-up areas; architectural elements of the buildings

take into account the semi-arid climate in terms of shading and ventilation for each housing type.

#### **5.4.2 Impacts of housing policy on GCMR urban growth**

Housing policies up to 1975 focused on construction of new cities in order to urbanise the areas outside the Nile valley in order to concentrate population densities in existing urban settlements. Since 1985, the housing policy has shifted, focusing on new town development around the Greater Cairo region. It was intended to disperse the population away from the large city, and thus to achieve regionally balanced development.

Currently there are 19 new cities and communities all over Egypt with more than 230 thousand housing units. The government plans to increase such new settlements up to 44 by the year 2017. Figure 5.2 shows the new urban communities policy for the target year 2017; it shows the intentions of the policy to implement new cities in the east and west desert in order to create balanced spatial population densities away from the Nile Valley. New settlements also witnessed major growth when the Ministry of Housing designated whole districts for private sector investors. These districts are to be developed in accordance with the master plan prepared by the Ministry. Some 16,000 acres of land have already been allocated to private sector investors who are also responsible for extending basic infrastructure (Madbouly, 2006).

The region now has over 15 million people and over 40% of the nation's industries are concentrated there. This would appear to be far beyond the region's carrying capacity. The population density was 23.7 thousand persons per square kilometres in 1976, but it jumped up to 42.8 thousand persons in 2004, and the density is still on the rise (MHUNC, 2004).

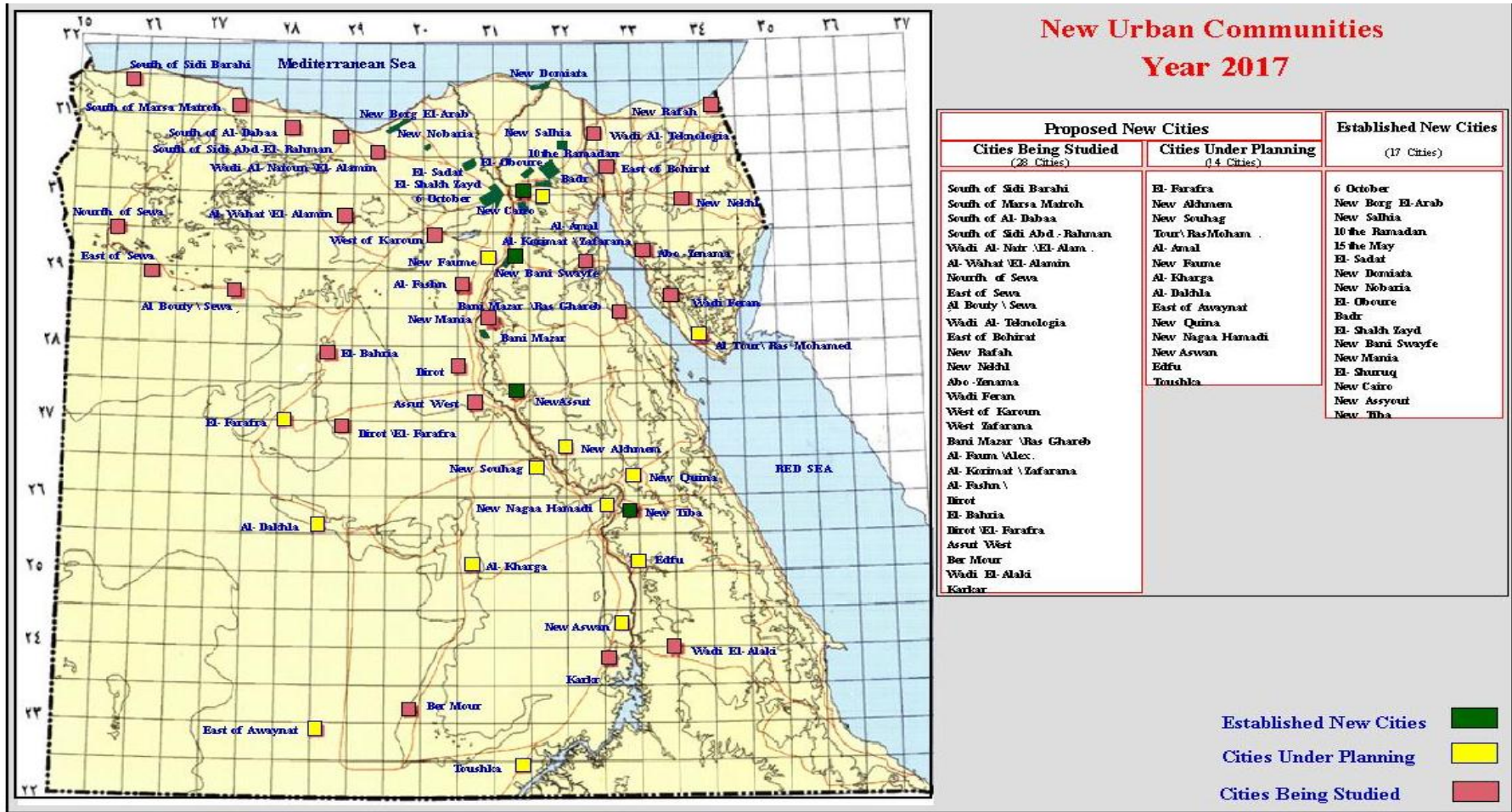


Figure 5.2: New Urban Communities Year 2017 (GOPP, 2004)





**Figure 5.3: Youth housing project architectural and urban design characteristics (GOPP, 2005)**

#### **5.4.3 Central and local government: current constraints**

One of the complaints often expressed by those central government planners is that local administrators and planners are incapable of understanding the complexity of housing problems, let alone solving them. According to Salem (2006), this is a misconception. An example is the decision by the central government to implement the “New Cairo” housing project, by combining three satellite settlements into one. Such a decision created massive opposition among academics and generated debate about the relationship between central and local government. The view was expressed that local government should be fully in control of urban management, while decisions such as the “New Cairo” project should be under evaluation and discussion. These kinds of decisions reflect just how dependent local government is upon central government.

Localities may lack a pool of well-trained experts and professionals, but nevertheless local officials should know their problems better than their opposite members in central government officials. In addition, external technical assistance such as planning experts and professionals can improve the performance of urban planning decision making at the local level. In the

meantime, local officials may need some professional training on a regular basis (Wafiq, 2006).

One of the primary responsibilities of central government is to help localities secure and maintain these elements on a competitive basis. In other words, the role of central government should be that of “enabler” and “facilitator”. Central government must effectively manage development funds, and the local governments must work out realistic and workable programmes and projects, and develop and submit detailed proposals for funding through central government (Osman, 2006). Central government must formulate a set of criteria to evaluate them. What the government needs is “a clearing house” and an institution that can handle local affairs as well as regularly monitor and assess the performances of the development projects so funded (Bakr and Salem, 2006). For instance, basic social and economic projects should be prioritised at the local level. In addition, building capacity initiatives is recommended in order to promote the organisational performance at the local level, and consistent evaluation criteria should be introduced when evaluating the development fund rather than rejecting projects on a national security basis.

#### **5.4.4 Discussion**

New towns can help to solve housing problems such as de-concentration and decentralisation of existing cities and massive housing supply. The impacts of the NT projects have not been thoroughly assessed, and thus it is not yet clear how successful they have been in achieving the two objectives. If a new town is intended to function as a counter-magnet to the existing city, it must be sufficiently large to serve as an accelerated growth centre. It should also be located far away from the core city. A few large new towns would have sufficed, located far away from the city of Cairo but fully provided with modern infrastructure facilities and utility services. If they had been provided with good infrastructure services, they could have attracted industrial firms more easily, being followed by a large number of people who would have sought employment opportunities there.

Obviously, new towns have contributed to a significant amount of new accommodation, providing residents with a clean and healthy living environment. Nevertheless, there seem to be an insufficient number of employment opportunities in and around the new towns. Consequently, people may have to commute to Cairo or other cities nearby for work, generating an enormous amount of traffic demand. Residential location must be as close as possible to the employment site if new towns are designed for the low- and moderate-income people.

It is clear that new town development strategy needs possible revision. The strategy must be focused on expansion of one or more new towns, making them attractive enough to induce both industrial firms and people. Some studies have indicated that the emphasis on economic growth and centralised investment strategy in many less developed countries has resulted in an unhealthy concentration of development and wealth, and a growing disparity between regions and classes in terms of standard of living (UNDP, 2005). The initiatives and accountability at the local government level are proven to be the key to any successful solutions to urban problems (Salem, 2006).

## **5.5 Environment**

### **5.5.1 Introduction**

Environment is an orphan child in Egyptian policies in general and in urban policies in particular. This fact was initiated when the Ministry of Environment introduced the environment policies in the early 1990s. As a matter of fact, the emergence of the Environment Department initiated from the attempts of the Egyptian government's intentions to focus development on the social and environment sectors as well as on economic development, in order to strengthen relationships with the international community. The reasons are related to several issues, such as; involvement in the international environmental mainstream, political orientation for international donors, an indication that interest is shown in the environment for World Bank development programmes (Salem, 2006).

### **5.5.2 Environmental law**

In January 1994, the new Environmental Protection Law was adopted by the People's Assembly. It was meant to complement previous environment-related laws but to cover areas that were not adequately addressed before, such as air and noise pollution abatement, protection of the marine and coastal environment, and hazardous waste management. The law also provided for the use of environmental management mechanisms which include command and control measures such as the setting of appropriate standards, the application of the polluter pays principle (through the implementation of penalties and fines) and the use of environmental impact assessments (EIA) (Fouda, 2006).

In addition, the law sets out the tasks and responsibilities of the Egyptian Environmental Affairs Agency (EEAA), providing it with the authority and leverage necessary to implement the law and its regulations. The EEAA has embarked on the ambitious task of implementing the National Environmental Action Plan, prepared in 1992 with assistance from the World Bank and the donor community. Concerning further enhancement of the decentralisation of environmental management, EEAA is currently in the process of establishing eight regional branch offices to cover the various Egyptian governorates. The branches are in different phases of completion (Fouda, 2006 and Attalla, 2006).

### **5.5.3 EEAA objectives for achieving sustainable development in Egypt**

To achieve sustainable development and environmental protection, Egypt's environmental policy seeks to achieve the following:

- Development of mechanisms to encourage participation of all members of civic society including the private and non-governmental sectors in environmental protection. The number of NGOs has increased in the last 10 years to 2000 organisation; a large sector of these NGOs are involved in social services but few of them have environmental orientations (Salem, 2006).
- Effective participation on the bilateral, regional and international levels in the field of environmental protection. Currently initiatives for refuse

collection systems are in preparation, such as the Shoubra Elkhieima initiative conducted by the Japanese International Corporation Agency (JICA).

- Effective enforcement of Law No. 4 of the year 1994 concerning the Environment and its executive regulations. Currently the executive section of the Law is not compulsory at the local government level due to lack of monitoring and human resources in the Environment Department (Salem and Bakr, 2006).
- Support for the implementation of sustainable environmental management systems. Currently this is focused on coastal management and natural preservation areas in the Red Sea, Sinai and Sharm Elsheikh. Preparation of sustainable environmental management in the urban context is currently focused on air pollution in various sources (Attalla, 2006).
- Updating of environmental policies and developing environmental regulations and standards as well as special guidelines for investment in the environment sector.
- Management of natural protectorates and protection of biological diversity.
- Strengthening of the institutional capacity of central and local agencies concerned with environmental affairs (Fouda, 2006).

#### **5.5.4 The Egyptian National Environmental Action plan (NEAP)**

To translate environmental policies into action, the first Egyptian National Environmental Action Plan (NEAP) was prepared in 1992. Actual implementation of the NEAP started with the issuance of Law 4/1994. Some of the most important programmes aimed at realising the NEAP's objectives are:

- *The River Nile Campaign* – focused on awareness initiatives of the importance of the river Nile as the main source of water supply, and monitoring of the discharge from industrial activities, located on both riverbanks.
- *The Environment Friendly New Industrial Cities Programme* – started in 1998 in cities such as the 10<sup>th</sup> of Ramadan, Borg El Arab, 6<sup>th</sup> of

October, Sadat and El Obour to declare the first environment friendly industrial city in Egypt by the year 2000.

- *The Cairo Air Quality Improvement Programme* – established a monitoring network consisting of 36 stations for measuring suspended particulate matter and lead concentrations in the Greater Cairo Area.
- *Environmental Education, Training and Media Programme*. This programme aims to increase environmental awareness among citizens with the help of national media and NGOs who are concerned with the environment
- *The Environment Friendly Technology Transfer Programme* – especially in the field of transportation and alternative energy sources such as natural gas.

Several measures have been adopted to promote environmentally sound transportation systems. Measures include reducing travel time within cities, securing traffic safety and controlling pollution caused by vehicle emissions (Fouda, 2006).

#### ***5.5.5 The Egyptian Environmental Affairs Agency (EEAA): A powerless or fashionable authority?***

Concerning the practice of the Environment Law, the EEAA has received a very low budget allocation for the enhancement of the urban environment in the GCMR, because the environment department is marginalised in terms of annual budget compared to other services departments such as education, health and national security. In addition, it is worth noting that when Egypt introduced the Environment Law in 1994 there were many drawbacks in the Law itself; for instance, the Law does not have the power to make detailed executive decisions (Fouda, and Salem, 2006). In addition, the power for monitoring plans over the country is limited to critical political issues such as tourism, and Black Cloud. In general terms, the ministry is meant to deal with a national crisis, but this has become the slogan for the department; for example, the recent Bird Flu epidemic meant that all the attention and

resources of the department were directed towards this problem (Salem, 2006).

Currently the only project directly related to sustainable urban development is the Cairo Air Improvement Project (CAIP). The documents describe what has been accomplished with regard to air pollution and propose policy changes. Some have already been carried out by the government and others have still to be accomplished by the year 2010 (USAID, 2004). "CAIP is designed to include activities that have some immediate impacts on reducing vehicular emissions and lead. While setting the stage for a long-term effort through demonstrations and pilot tests of alternative technologies and increased public awareness" (USAID, 2004 p: 3). The project targets for intervention were the 1.5 million vehicles that run in the streets of the capital, and industrial sources of lead, namely factories smelting lead scrap. Lead smelters became the top source of this toxic metal following the government's aggressive move to eliminate lead from gasoline, beginning in 1997(USAID, 2004).

## **5.6 Conclusion**

There can be no doubt that the interviewees revealed a number of issues about urban planning policy in Egypt and the GCMR. Issues such as current urban policy including the new towns' programme, housing policy, transportation planning, local government, and environmental practice are major keys to achieving sustainable urban development in Egypt.

The political influences on urban planning in Egypt are undeniable – the nature of the authoritarian government and the processes of decision making are more closely linked with the views of particular individuals rather than being clear, continuous and coordinated policies. The powers and the representations which are given to ministers in different departments authorise them to modify the general guidelines of policies in order to tailor them to fit the political agenda of the country. The government prioritises some urban sectors and neglects others, according to the importance of each sector impact, to serve the political orientations of the government by

increasing their popularity among citizens; for example, an improvement in social services and building on agricultural land during an election period (Salem, 2006), and this is also exemplified by the case of Black Cloud and rural settlements re-planning.

The lack of transparency of the urban policy and the willingness of the Ministry of Housing to show how successful their policy is regarding the original urban policy objectives, are illustrated by actions such as altering the new towns' policy which stated that new towns and settlements should preserve a buffer area from the core city in order to reduce daily commuting. The policy has been altered to encourage the joining of new settlements together, and the extending of built-up areas that sprawl in the buffer areas between the different settlements. This situation has created uncontrolled urban growth in the GCMR.

Taking the initiatives by the GOPP to alter the Urban Planning Law and to introduce the concept of urban sustainability is considered a first positive step towards proper urban management of the GCMR. However, it needs to be followed up by a clear vision and a multi-level framework on how to achieve it and what are the critical changes to the urban planning bodies at both the state and local government levels.

The lack of coordination of the GCMR at the administrative level is due mainly to the nature of Cairo's administrative boundaries that intersect with three governorates. This leads to a slowing-down of the decision-making process; it is also the case that local government is now not trained sufficiently to carry out the monitoring of the implementation of the master plan and always needs technical support from the state level. It is also mentioned that the level of corruption in local government is common practice – "favouritism" and political connections of investors with the governor facilitate building permissions that are not supposed to be issued under normal conditions. New towns can help to solve housing problems such as de-concentration and existing cities' population densities. The impacts of the new town projects have not been thoroughly assessed yet,



and thus it is not quite clear how successful they have been in achieving the two objectives.

The initiatives and accountability at local government level are proven to be less practiced in the Egyptian case, due to a lack of knowledge and training. Local government is proven to be the key to any successful solutions to urban problems. Creation of the necessary political will for policy formulation, implementing and monitoring among city managers, top-level decision makers and local councils is a key issue for introducing a proper long-term urban transportation policy. In addition, linking transport planning with land-use planning and environment is a necessary step towards achieving sustainability in the GCMR. Such integrated planning is of particular importance especially in the case of new towns and urban expansions.

Concerning the practice of the Environment Law, the EEAA receives a very low budget for enhancing the urban environment in the GCMR. The drawbacks in the Law such as the absence of an executive manifesto is weakening the practice of the Environment Law. In addition, the Environment Ministry is meant to deal with national crises that are more concerned with local environmental practices.

## **CHAPTER 6:**

# **ESSENTIAL REQUIREMENTS TO PROMOTE SUSTAINABLE URBAN DEVELOPMENT IN THE GCMR**

### **6.1 Introduction**

The previous chapter discussed in detail the current aspects of Egyptian sustainable urban development in general, and in Greater Cairo Metropolitan Region in particular. Conclusions emerged through discussion, which included the current political influence on urban planning decision making, the ambiguity of current urban policy and the extent to which it is influenced by political intervention. In addition, efforts have been made in the transportation and environment sectors in terms of mass transit, an environmental pollution programme for the GCMR and the introduction of environmentally friendly fuel in the Egyptian market. Many aspects are still absent from the existing urban framework, including land use and transportation integration, environmental impact assessment and urban growth management. In addition, the lack of an integrated indicators system to cover various aspects (social, economic and environment), is considered an obstacle to urban decision making.

The aim of Chapter 6 is to continue investigation of what the GCMR needs to do to achieve sustainable urban development. The chapter is concerned with exploring the last section of the interviews that considered the applicability of international examples conceived in the theoretical framework and whether they are suitable for the Egyptian urban context or not.

In addition, the chapter is concerned with linking the theoretical findings in chapters 2 and 3, concerned with sustainable urban development and sustainable communities, and the learning lessons from international examples of sustainable urban development. The theories and practice lessons in this chapter have reference to the case study “Greater Cairo Metropolitan Region” urban context. This interview section is concerned with

the opinions of the interviewees on how applicable these lessons are to the Egyptian urban context. This chapter is intended to answer the following questions: What are the effective components that assure the sustainability of the urban context according to the theoretical framework? How acceptable are these ideas according to the interviewees' opinions? What visions do the interviewees have for future sustainable urban development in the GCMR? In addition, what obstacles are facing the GCMR in seeking sustainable urban development? This chapter lays the foundations for achieving the main aim of this research – to formulate a sustainable urban development proposal in the GCMR – by discussing the current and future constraints and opportunities that exist in the Egyptian urban context.

The last section of interviews was concerned with the applicability and feasibility of using international examples of experiences of sustainable urban development in the Egyptian urban context in general and for the GCMR specifically. The rationale of this chapter is that in order to provide solutions for the future of GCMR sustainability, it is crucial to study these international examples and thereby provide examples for Egyptian urban planners of SUD applications and, in addition, to explore the decision makers' acceptance of these examples in order to identify their applicability to the Egyptian urban context. The responses of interviewees concerning the future of SUD in the GCMR urban context have been collectively analysed in the form of a number of discussion topics. The findings of the conceptual framework in chapter 2 lay the foundations for determining these topics, with the aim of linking the GCMR current urban context to the theories and practice of sustainable urban development. The conceptual framework has stressed a number of points, that can be summarised as follows:

- The importance of a strong long-term city strategy, coherent governing/design values and a focus on integrated systems that successfully align the actions of planning departments to meet strategic objectives.
- Ensuring planning continuity and success regardless of political, economic and social challenges by making substantial contributions

as a laboratory for finding creative, integrated solutions to urban planning problems.

- Commitment to local values such as accessibility, transparency, social justice and poverty reduction and efficient resource management.
- Institutional aspects and building capacity, and citizen participation.
- Creative, cheap solutions that fit the condition of the city can provide better solutions than more expensive approaches.
- The role of indicators as benchmarks for monitoring the urban development progress is an important key in the sustainable urban development process.
- Independent monitoring and evaluation is an important part of the formula, to ensure transparent sustainable policy.

To answer the previous questions a number of topics are identified based on the literature review findings and international examples of sustainable urban development to analyse the present and future obstacles to sustainable urban development in the GCMR; these topics are:

- The role of indicators as an important instrument for urban sustainable development.
- Land-use planning and urban form.
- Urban growth policies.
- Political environment.
- Participation and civic engagement.
- Urban policy integration, independent monitoring and evaluation bodies.

## 6.2 The role of indicators as an important instrument for urban sustainable development

“Indicators can provide crucial guidance for decision-making in a variety of ways. They can translate physical and social science knowledge into manageable units of information that can facilitate the decision-making process. They can help to measure and calibrate progress towards sustainable development goals. They can provide an early warning, sounding the alarm in time to prevent economic, social and environmental damage. They are also important tools to communicate ideas, thoughts and values because as one authority said, “We measure what we value, and value what we measure.”

(United Nations, Division for Sustainable Development (2001 p: 2)

One of the widespread initiatives of sustainability planning is the development of a tracking system to monitor progress towards sustainable development. These systems are known as indicators. The international cases described in the literature review in chapter 3 have developed such a framework, including Portland, Vancouver and London. It is worth mentioning that one of the best-known indicator systems is that of Seattle city in the United States. Developing indicators can undertake a crucial role in sustainability planning, as witnessed by the fact that the Seattle indicators system had positive impacts on the formulation of the 1996 General Plan of the city (Wheeler, 2004). In addition, revisiting the list of indicators over time to update these indicators may help to improve the overall system; for instance, applying an indicator at the local level sometimes produces some practical difficulties which may require modification in order to overcome these problems. For example, the Seattle indicators system was set up in 1995 but revisited in 1998 and 2000 in order to update the strategy according to the feedback received from the local authorities (Sustainable Seattle, 2006).

Sustainability indicators can be a strong instrument in the hands of urban planners for monitoring the performance of sustainability plans. However, so far urban indicators in Egypt are considered as a supplementary tool for the urban planning master plan process and are mostly oriented towards

providing politicians with evidence rather than contributing to the performance evaluation of the plan (Bakr, 2006). The existing function of the Egyptian National Urban Observatory (NUO) and its relationship with different planning tiers is described in figure 6.1. The NUO is institutionally related to the GOPP, and its current practice of collecting the indicators, as the figure shows, is to collect them from the local urban observatory in order to provide the GOPP with indicators. It may be more effective if the NUO monitors and evaluates the GOPP and MHUNC urban policy performance and reports to a higher level, thereby improving the overall urban policy evaluation. In addition, the current focus of the urban observatory for the GOPP is in generating housing indicators. The unit is focused on collecting a large amount of data for the housing sector, with the purpose of providing the evidence of the progress achieved by the GOPP (Bakr, A., 2006). However, the emphasis of this unit's work should be in the wider context of urban decision making and the sustainability planning process.

*It is unprofessional/and reveals a lack of transparent action that the government is evaluating and monitoring itself. This job should be done by an independent entity, which has the authority to evaluate the government and inform the public about their government performance.*

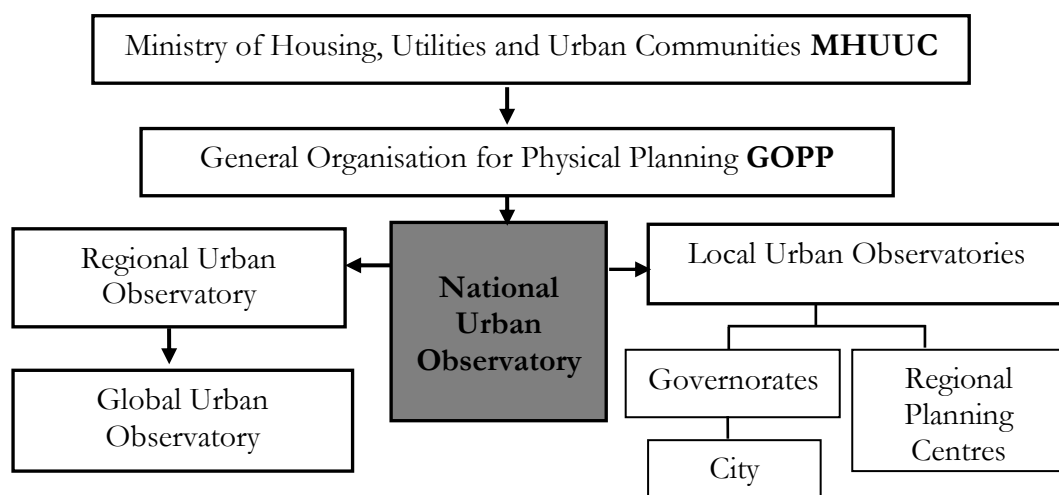
NGO 1, 2006

*Evaluation and monitoring urban policy by a government-funded authority is a big joke.*

NGO 2, 2006

In addition, it is not acceptable that the authority that is concerned with urban indicators is a government funded entity – this implies a degree of political manipulation in order to serve the government development agenda (Salem, 2006). Salem – an independent development consultant involved in the evaluation of a considerable number of urban and environmental policies for the government – elaborated on the concept of the monitoring and evaluation process in the Egyptian government. He mentioned in the interview that, in general, evaluation and monitoring in Egypt lack multi-sectoral characteristics. He noticed in his various consultancy tasks that each sector of the government is working independently, while the cross-sectoral

coordination, monitoring and evaluation appear to be non-existent. For instance, the environmental sector is working in complete isolation from the urban sector (2006). This research agrees with the point of view of interviewees as various evidences confirmed these arguments, such as environmental considerations receiving less attention in the urban policy report, released in 1998. Furthermore, in the urban planning preparation tasks, environment tools and instruments such as Strategic Environmental Assessment (SEA) do not exist.



**Figure 6.1: The organisational structure of the national Urban Observatory (GOPP, 2006)**

There is a consensus among the interviewees about the importance of using urban indicators in the sustainability process of the GCMR. They should play a crucial part in the planning process, and it should be independent in terms of funding so it can produce independent evidence about the urban policy progress and whether the GOPP performance is following the urban policy or not (Wafiq and Fahim, 2006). The existence of the urban observatory is an essential first step in monitoring and evaluating urban activities. However, looking at the NUO activities so far, there are extensive efforts devoted to housing indicators and international publicity for achievements in sustainable development indicators in the Egyptian context. It is meant to promote the Egyptian government's achievement in development within international

organisations as part of attracting various aid and donors, at the same time enhancing the government's political reputation as a democratic system (Salem, 2006). The existing database is, however, full of holes and drawbacks – for instance the other social economic and environment indicators are missing from the database. The reason for this is that the sources of these data are scattered among the different administrations and there are no initiatives to coordinate these administrations in order to build an integrated database in the national observatory. Cultural issues in the sharing of data are important here. Data are still treated with a degree of secrecy within each administration, because the concept of “holding the information coincides with the level of power and ability to influence decision making” (Attalla, 2006).

In conclusion, it is important to liberate the national observatory from government control and hand it over to a level of decision making that is capable of monitoring and coordinating with other administrations in order to build an integrated database for enabling urban decisions concerning sustainable urban development for the GCMR.

### **6.3 Land use planning and urban form**

The first part of the literature review discussed the theoretical concept of sustainable urban development in terms of urban design and urban form. The urban form of a city should be considered as an important factor in achieving sustainability. In fact, the shape of the settlement pattern determines the patterns of private transport, fuel consumption, emission and public transport. Breheny (1993) argued that urban form at all scales may be a significant determinant of the prospects for sustainability, Rogers (1998) argues that mixed land uses can be acceptable within the successful sustainable urban neighbourhood. It is possible to argue with some degree of certainty that some types of urban form are more sustainable than others. Maybe this is clear within metropolitan or large cities, where sprawl is a common ingredient. In that case, the urban form of the city will determine how successful sustainability will be.



Through exploring the international examples at the neighbourhood scale, especially in the case of San Jose and the London New Millennium Project, the focus of sustainability issues in these projects is characterised by environmental urban design and the ability to create a marriage between building and the natural environment.

The Egyptian urban context is strongly characterised by Islamic architecture principles, which encourage compact urban design and mixing of land uses within the community. This is due to cultural and climate conditions – surprisingly, the urban design characteristics of the elements of Islamic architecture encourage some of the current sustainability principles (Edward, 2006). In terms of mixed land use for instance, the Islamic urban form is characterised by mixing land uses at the neighbourhood design level, which reduces daily commuting to the city centre (Osman, 2006). It can be argued that the inner core of the GCMR, including low income and slum areas still preserve this concept. In the new development on the periphery of the city, the essence of Islamic architecture is still preserved, however, with more open and green spaces. As an example, the new development in the 6<sup>th</sup> of October, Elshrouq and New Cairo Projects represents these design characteristics – see Figure 6.2. The figure illustrates a comparison of the urban design, building materials and green open spaces between the international sustainable examples and the new development in the GCMR.

However, mixed land use by itself does not provide sustainable urban development. Other aspects of urban development are crucial to the sustainability process at the neighbourhood level – aspects such as jobs, accessibility and environment protection. The existing urban development plans lack integration with other urban aspects. The crucial question is, assuming the Egyptian urban development officials are serious about creating sustainable urban development for the GCMR, how far are they willing to restructure the planning regulations and procedures in order to achieve sustainable urban development. Aspects such as transportation planning, environmental protection and social aspects are still absent in the development process. Besides urban and landscape considerations in terms

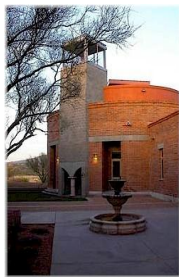
of open and green areas, Egyptian planners should focus more in the planning stages on issues such as mass transportation planning, providing job opportunities in the community, and decreasing the dependence on private automobiles. These planning considerations need solutions at different urban levels: regional, city and neighbourhood.

This starts with a clear definition of the existing urban context assets and goes on to consider how they can be integrated into one holistic long-term framework (Osman, 2006). Transit-Oriented Development (TOD) advocates such as Peter Calthorpe (1993) describe TOD as consisting of residential and commercial Centres that are designed to maximise access by public transportation. A TOD neighbourhood has a centre with a rail or bus station, surrounded by relatively high-density development, becoming progressively less dense as it spreads outwards. For example, the neighbourhood centre may have a transit station and a few multi-storey commercial and residential buildings surrounded by several blocks of townhouses and small-lot single-family residential and larger-lot single-family housing farther away (Calthorpe, 1993):

- The neighborhood is designed for cycling and walking, with adequate facilities and attractive street conditions.
- Streets have connectivity and traffic calming features to control vehicle traffic speeds.
- Mixed-use development that includes shops, schools and other public services, and a variety of housing types and prices, is a feature of each neighbourhood.
- Parking management is designed to reduce the amount of land devoted to parking compared with conventional development, and to take advantage of the parking cost savings associated with reduced automobile use.



Greenwich Millennium Village Urban Design, London



Compact building design, GMV, London



Building materials and outdoor landscape design consideration in Civano, Arizona and San Jose, California.



New development urban design details of Elshrouk community and environmental design perspective



Urban design similarity in the Egyptian urban context in new communities development and the design elements which encourage compact urban design, the consideration of environmental design and building material.



**Figure 6.2: Urban design elements, building materials and environmental design comparison between the examples of international sustainable communities and the Egyptian new urban development**

Within the Egyptian urban context, many of the features of Transit-Oriented Development already exist in the new development projects in the GCMR, especially in the new settlements and towns, as a large section of private urban developers have recently become aware of the principles of environmentally oriented planning (Osman, 2006). In addition, the government's biggest housing project "Youth housing project" is devoted to a healthy environment design (Madbouly, 2006). Madbouly pointed out that the missing ingredient of the TOD in the Egyptian urban context is "how to convince residents to alter private car usage and depend on public transportation alternatives when public transportation and connectivity is in urgent need of improvement first?"

An urgent need to update the Terms of References (TOR) and building regulations of urban housing projects is required from the Greater Cairo Region Authority in order to achieve sustainable urban form and to maintain a level of urban environment that is suitable for living (Osman, 2006). In addition, the government should seek improvements to the public transportation network not only in terms of traffic management but also in terms of transportation planning of the existing transportation network, in order to achieve connectivity of the different parts of the city and convince the residents to use public transportation (Elhakim, 2006).

#### **6.4 Urban growth policy**

The international examples, especially those from North America, give much attention to smart growth. The purpose of smart growth is not to curb the urban growth of the city, but rather to control this growth according to sustainable development principles by preserving the agricultural land, wilderness, important natural habitat and native species of fauna and flora (for Example Portland and Greater Vancouver). Urban growth is one of the most pressing challenges for sustainable urban development – cities cannot expand forever. However, the solution always has been to put into practice the regulations and management tools for controlling urban growth in the city. Uncontrolled growth causes many secondary problems such as private car use, congestion and pollution. Consequently, one of the policies for

controlling urban growth is the “compact city”. Advocates of the compact city, such as Breheny, suggest that the compact city can reduce automobile dependence and save energy through increasing the population density and mixed land use. The researcher agrees with Breheny, in the case of the Egyptian urban context, as the characteristics of the compact city exist in Cairo’s urban core and part of the city periphery. The population density in these areas has reached more than 1500 per square metre. In addition, daily commuting is generated because of a lack of job opportunities in these areas.

Apart from the compact city, urban growth policies suggest that land use and transport integration could control rapid urban growth. In Curitiba, Brazil, for instance, zoning laws were set in place and structural avenues were designed to direct linear growth by attracting residential and commercial density along a mass transportation lane. This allowed the city to meet strategic objectives that sought to minimise downtown traffic. In addition, the policy encourages social interaction by providing more leisure areas and pedestrian zones in the centre of the city. Also, the use of public transport and cycling is encouraged in order to achieve an environmentally healthy city.

In Vancouver Regional District, Canada, liveability remains the central guiding theme; this is embodied in its regional growth management strategy, the Liveable Region Strategic Plan (LRSP). This focuses on land use including the green zone, regional town centres and higher density centres including downtown Vancouver, and on transportation policies. Its aim is “to help the region develop in a way that maintains and protects the environment and at the same time guides the location of urban activities to create a high quality of community life” (GVRD, 2006 p: 15). The growth management focused on regional and municipal town centres. The policy’s philosophy is that, by creating communities that are more complete, it would result in more jobs closer to where people live and accessible by public transport, and shops and services nearer to home. In addition, the policy advocates a compact metropolitan region, by increasing transportation choice through the

use of public transport, walking or cycling. Another example is in Portland, United States: the strategy prepared for the region, referred to as region 2040, and developed through an extensive public process, is enabling the region to expand by encouraging urban form in the city. The policy is steering urban growth into a series of centres along the spine of the light rail system. The goal is for 85% of new residents to be within a five-minute walk of a public transport station.

With regard to mass transportation in the GCMR, both public transport and private vehicles are considered as vital means of transport in the Egyptian urban context. The excessive use of private vehicles is the result of the public transport system not being efficient enough to serve a large population such as Cairo has. Consequently, alternatives have been initiated to solve the need for daily transport such as private buses and mini buses. Yet the biggest project to have been conducted in the last 20 years is the GCMR underground with two lines connecting different parts of Cairo (apart from new towns). In addition, a third line is under construction. Although a large section of the population depends on the underground, the project itself did not prevent private automobile ownership increasing. This implies a critical question: is it a cultural issue and a matter of prestige in the GCMR to own a car or is there a lack of community education about how useful public transport is to protect the built environment? Actually, the answer to that question is complicated; one of the interviewees argues that:

*The notion of owning a car in Egyptian society is related to the concept “everyone is looking for prestigious social rank, and a car is one of the necessities, which is correlated to power, power in the sense of giving the impression of how important the citizen is in the society and how citizens are evaluated in Egyptian social life”.*

Government official 1. 2006

The concerns about mass transit transportation and Transit-Oriented Development, have been accepted within the Egyptian urban concept, and the starting point for this application should be the new towns and new development (Madbouly, 2006). The urban development characteristics of the new cities in terms of environment design, open spaces and mixed land

match the principles of sustainable development, but still lack elements such as the connectivity in terms of public transportation. The current transportation system in the new towns is designed to encourage automobile dependence in these isolated areas (Fahim, S. 2006).

In addition, another reason that new towns are unsuccessful in attracting residents is the lack of job opportunities, as most of the jobs available are located in central Cairo. The urban policy fails to connect urban development in new towns with job opportunities and this creates a huge amount of daily commuting from new towns to the inner city. This discussion raises questions about the basic urban planning procedures that are followed when preparing master plans. The new urban planning movement is concentrating on action plans and small projects as a key for successful urban planning. This shift between master plans and action plans initiatives may be a step forward to achieve sustainable urban development in the GCMR. However, in order to achieve this, substantial changes need to be implemented in the old Urban Planning Law, as the Law has not been updated since 1982. It was mentioned in chapter 5 that the Law is currently being revised by the People's Council. The step towards changing the Law in a way to introduce sustainability is a first step; followed by specific, detailed regulations on how to alter the existing procedures and introduce a set of principles and tools to achieve sustainability, such as environmental planning, Strategic Environmental Assessment, Ecological footprints and sustainable urban indicators.

## **6.5 Political environment and urban governance**

The last chapter, which analysed the existing urban situation in the GCMR, stressed the point about political influences on urban decision making and the inability of local government to sustain urban development plans at the local level. Through reviewing the international case studies, it was obvious how important a strong local government is in relation to the need to achieve consistent action plans. This related to the strong institutions and regulations adopted in the developed world and part of the developing world, such as the case of Curitiba, Brazil. Although Curitiba is considered as a city in a

developing country it has nevertheless succeeded in maintaining a level of consistency in delivering urban policies even in times of crisis and political conflict. There are a number of issues that need to be addressed within the urban government in the GCMR in order to ensure that urban planning decisions are taken by officials who are capable of separating themselves from the political agenda and focusing on creating long-term urban policy. To address these issues, a number of topics need further discussion; issues such as institutional development and capacity building urgently need to find a place in the mainstream of the existing urban government of the GOPP in Egypt.

### **6.5.1 Institutional development**

Chapter 2 indicated the importance of institutional aspects to achieve sustainable development. In addition, the international examples demonstrated that one of the keys to achieving sustainable development relies on institutions. A clear definition of the roles and responsibilities of actors – including the private sector – enables them to carry out their responsibilities effectively. In addition, training programmes at local levels are necessary to improve skills and adopt advanced technological knowledge. The lack of coordination among the GOPP on one hand, and between the GOPP and the private sector on the other causes too many delays and sometimes-inappropriate urban decisions.

*The Egyptian urban planning process needs revision in terms of stakeholders' roles, strengthening the role of NGOs and private organisations; the existing role is more supplementary and only applies to certain types of projects, but it should be involved in all aspects of the process.*

NGO 3, 2006

### **6.5.2 Capacity building and development**

Lack of adequately trained and skilled individuals is among the major challenges facing those responsible for human settlement planning and management. In the Egyptian urban context, the State has directed major efforts to human resources development (HRD) through expanding opportunities for continuous education and on-the-job training. Training programmes in the field of human settlement plan to address economic,



social, political and environmental topics and issues. Presently, there are many HRD initiatives and approaches such as:

- The integration of analytical approaches to problem solving, research in training courses and the production of various training materials.
- Training encompasses equipping people with the knowledge and professional skills necessary to develop positive attitudes to responsibility and productivity.
- Combining on-the-job training and demonstration projects along with traditional in-class training modes.
- Developing and expanding training institutions (Salem, 2006).

The total number of vocational training centres at the local government level has increased from 873 in 1995, to 1126 in 1997, reaching 1197 centres in 1999. Consequently, the number of trainees has increased from 61230 in 1997 to 65442 in 2005 (Salem, 2006). Moreover, the total number of Computer Science and Information Technology Centres reached 150 centres in 2005 (CAPMAS, 2004). These centres provided specialised training to some 200,000 individuals. By 2006, the total number of Information and Decision Support Centres reached 2490 (Elshahed, 2006). The GOPP provides training to local government employees as part of the agreement for joint collaboration between the Ministry of Housing, Utilities and new Communities and the Ministry of Local Development (Fahim, 2006). The GOPP also provides training to improve the skills of its staff as part of the agreement with the United Nations Development Program (UNDP) pertaining to the Human Settlement Development Program in the South of Egypt (Elshahed, 2006).

As part of the Dutch–Egyptian Joint Cooperation Training Program, the National Centre for Housing and Building Research established a training unit in the field of housing and urban development. This training unit specifically targets government officials at all levels, representatives of NGOs and the private sector, as well as specialists from Arab Countries. Training the local officials in terms of computer skills and decision making is essential

in the urban planning process, but in order to achieve sustainable urban development this training should be extended to cover areas of topics such as urban decision making, environmental tools for urban development, transportation planning and management and social issues.

Limiting the training to computer skills is making the process of sustainable urban development very superficial; the heart of the urban planning process should be in how to achieve sustainable urban development through using the right approaches such as indicators, consensus building and environmental assessment. In addition, the involvement of academics and NGOs is essential to this process because of their long experience in teaching urban issues and capacity building. Recently, in 2002, the GOPP asked the research centres in different universities in the country to take part in the project of preparation of the green-belt action plan for 4000 rural areas. The university centres have been asked to prepare plans for one third of the 4000 rural areas. However, the GOPP needed to draw up a standard replicated format in order to accelerate the process,

*The results are disappointing within the academic community as their job is limited to mimicking the format provided by GOPP. It was a process of tailoring each rural settlement according to the population size and built up area!*

Academic 2, 2006

This research argues that, instead of spending money on preparation of the terms of reference report and the 4000 consultations, it would have been better to invest this money in the preparation of a sustainable urban policy for rural settlements that is useful for the current process and for the future sustainable urban planning of the rest of the settlements (rural and urban).

### **6.5.3 The shift towards decentralisation**

The main objective of decentralisation is to reduce the role of central authorities in regional administration by handing down authority to the local level. Decentralisation involves establishing mechanisms to ensure that local authorities have the necessary authority and flexibility to carry out their responsibilities effectively. It stresses the importance of popular participation for successful implementation of development plans.

To facilitate decentralisation, the Ministry of Housing, Utilities and New Communities (MHUNC), represented by the General Organization for Physical Planning (GOPP), established regional centres for urban planning in six of Egypt's seven regions. The sub-regional centres work independently, but in practice, the situation is described as dependant on the central GOPP in terms of decision making (Salem, 2006). The important question here is to what extent these mechanisms allow independent decision making in GOPP sub-regional centres. Moreover, in the case of the GCMR, the urban decision-making process interfered with political interests. De-centralisation in terms of technical decision making is what the government should promote in the case of the GCMR. Because of the political nature of the GCMR as the biggest urban entity in Egypt, political pressures and power groups are always interfering with the overall urban strategy, which has contributed to the existing chaotic urban situation. It is crucial to revisit the government decision makers' thinking concerning the GCMR; also, it is important to consider the city as a unique urban entity that has its own committee to prepare, implement and evaluate the GCMR urban policy.

## **6.6 Participation and civic engagement**

Both theories and international examples recognise the importance of participation and social consciousness as key principles for achieving community development, and encourage the participation of local authorities, the private sector and NGOs. The research's investigations in the case of London and Portland, where there were many partnerships between the local authorities and NGOs, these partnerships increase the number of social, economic and environment initiatives in terms of urban environment enhancement and job opportunities. The following example is evidence of the GOPP failure to cooperate with international sponsors and imply the degree of planning cultural issues within the Egyptian urban context.

### **6.6.1 Ismailia Sustainable Project (ISP)**

One particularly successful example in Egypt – in terms of public participation and NGO involvement – is the Sustainable Ismailia City and Markaz Development Project (initiated in 1993) where the Governorate of Ismailia applied the participatory planning approach to policy formulation and

implementation. Ismailia has suffered from rapid population growth and urbanisation over the past two and a half decades, specifically after the Egyptian–Israeli war in 1973. The postwar reconstruction starting in 1974, the rebuilding of basic infrastructure and the establishment of a new industrial zone in Ismailia constituted a major engine of growth for the local economy. However, in the absence of strategic planning and a holistic approach to development, this growth pattern had explicit effects on natural resources, for example; agriculture drainage, municipal and industrial waste – an estimation of chemically loaded waste from discharges by agriculture alone accounts for 82% of the waste entering the main fishery resources. Furthermore, the mismatch between the city’s extensive water network and the inadequate capacity of the sewage system continues to pose serious public health threats in addition to polluting fishery resources (Habitat ISP, 2001)

### ***Project background***

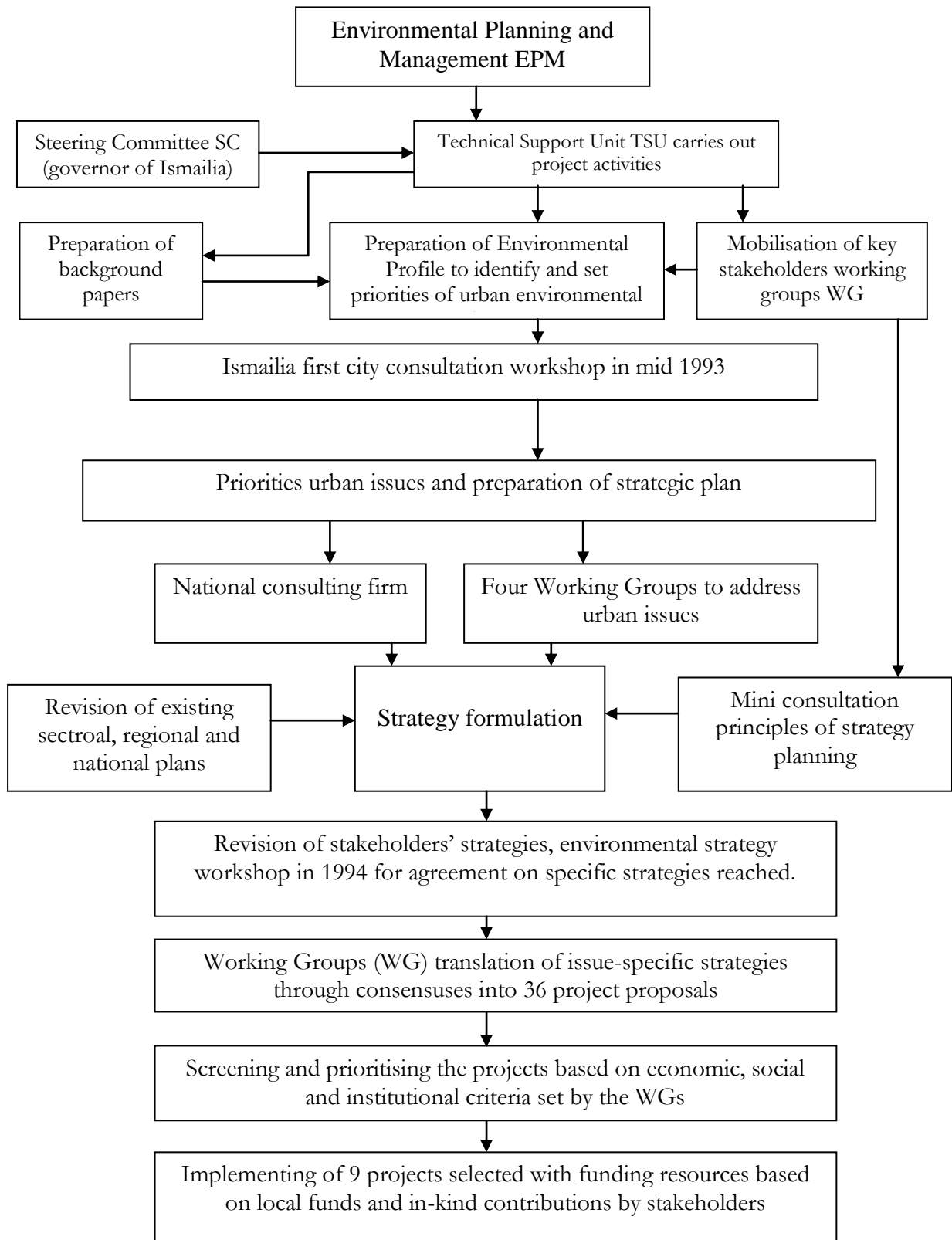
In the early 1990s, the Environmental Planning and Management (EPM) model developed and sponsored by the United Nations Centre for Human Settlements (UNCHS/Habitat) emerged to manage the urban environment for Ismailia City, the city selected for the first sustainable city demonstration project in the Arab region in 1992, through the launching of the Sustainable Ismailia Project (SIP). The United Nations Development Programme (UNDP) was the major funding agency while UNCHS assumed the role of technical cooperating agency. The project aimed to promote environmentally, financially and institutionally sustainable development within the city through the preparation of a Strategic Development Plan for Ismailia; and in addition, the building-up of a portfolio of technical assistance projects and strengthening of public and private institutional capacity to plan, coordinate and manage urban development and growth with emphasis on coordination and community-based participation (Habitat ISP, 2001). Figure 6.3 shows the stages of Environmental Planning and management EPM process, which started by the setting up of a Technical Support Unit (TSU) to carry out project activities. In addition, to ensure institutional and legal support a steering committee (SC) chaired by the Governor of Ismailia was also formed

to guide the process. A summary of the steps taken by the project is in Box 6.1.

### **The Ismailia sustainable Project strategy**

1. Identify and prioritise the urban environmental issues concerning the city
2. The preparation of an Environmental Profile, the mobilisation of key stakeholders and the preparation of a number of background papers covering broad urban/environmental issues.
3. Ismailia's First City consultation was held in mid-1993. The results stressed the need to address the four priority issues, namely managing Lake Timsah, urban development, agriculture and management of land reclamation, and industrial development. Followed by the establishment of four working groups (WGs) to address these issues – the Urban Development working Group was one of these four WGs.
4. Working Groups supported by the TSU and a national consulting firm began the strategy formulation stage that involved the revision of existing sectoral, regional and national plans. Throughout this phase, stakeholders applied the principles and tools of strategic development planning and discussed their strategies in mini-consultations held for this purpose.
5. Strategies emanating from the WGs were collectively reviewed at an Environmental Strategies Workshop in 1994 where agreement on issue-specific strategies was reached.
6. WGs translated the issue-specific strategies into a long list of 36 project proposals. These were screened and prioritised according to a number of environmental, economic, social and institutional criteria set by the WGs.
7. Nine priority projects were selected for which financial and technical pre-feasibility studies were prepared
8. Implementation proceeded simultaneously on two fronts. First, using local funds and second, in-kind contributions by stakeholders – resource mobilisation for the nine priority projects required a total investment of US\$ 20 million.
9. A Funding Consultation gathering local and international funding agencies and interested parties in 1996 agreed to support these projects (Habitat SIP, 2001)

***Box 6.1: The Ismailia Sustainable Project key strategy stages (Habitat SIP, 2001)***



**Figure 6.3: Sustainable Ismailia Project: key stakeholders and stages of strategy implementation.**

### ***Environmental planning and urban development strategy obstacles***

The project faced a number of obstacles; the following are the important issues concerned with the main research:

First, the flow of data is a major issue in every planning project in Egypt, in the ISP project, the collection of data phase which was conducted by the Working Groups was not an easy task, as important data had to be obtained from the various stakeholders and government sources. This was not straightforward for a number of reasons. First, securing sectoral data from some departments and institutions proved problematic owing to the unwillingness of some entities to disclose and share data. Obtaining data is a common problem in Egypt where information is often obscured with secrecy and viewed as a source of power (SIP, 1999). This problem was particularly pronounced for the Urban Development Working Group, one of whose major stakeholders was unwilling to cooperate due to a misconception of the SIP. Second, data inconsistencies among various sources, even for the most explicitly straightforward variables such as population statistics, were a common problem. This is due to the absence of unified definitions that imply data reliability for certain indicators. Third, routine and bureaucratic procedures often control information flows. In addition, since there are no automatic channels for information flow, entities have to make formal requests in writing for obtaining data. The requests often have to pass through several levels before approval. WGs have invariably stumbled across this cumbersome time-consuming procedure (Habitat, 2001).

In addition, obtaining information from the private sector was as difficult as from the government. "Weary and sceptical of the process at first, private firms and establishments in the industrial zone would not disclose any information regarding their production capacities, pollutants etc. to the Industrial Development working group out of fear that this information could be used for taxation purposes" (Habitat, 2001). The most significant development appears to be the change in attitude brought about by the EPM process over time, concerning information sharing. Stakeholders and entities unwilling to disclose or share information have gradually become more

transparent and forthcoming, perhaps more than any other element in the EPM process (Wafiq, 2006).

The Urban Development Working Group faced considerable constraints from the beginning resulting from the unwillingness of a key stakeholder to share information and coordination (GOPP regional division in Ismailia). Ismailia's master plan dates back to 1976. Attempts made to update it by the GOPP Regional centre have not been successful due to capacity shortages. A structural plan was developed by SIP in 1993. Again, this was not officially adopted. As a result of this rigidity, urban planning is still centralised and master plans require approval centrally by the GOPP. The Third Region responsible for planning does not coordinate or follow-up with CUP on implementation of the master plan. In addition, the army and Suez Canal authority own prime land in various locations in the Governorate and consequently impede implementation of the master plan. As a result of these bottlenecks, the UDWG choose the relatively more straightforward route by targeting implementation where the city had previous successful experience, namely upgrading projects (Hai Al Salam district and Abu Attwa (SIP, 1999 working groups).

### ***Pros and cons of the Ismailia Sustainable Project ISP***

The Ismailia Sustainable Project ISP is considered as a successful attempt by international organisations (Habitat SIP, 2001) in terms of promoting public participation in the sustainable urban development process. The next section describes the main points of the pros and cons of the project:

- ***City size and magnitude of problems***

The relatively “contained” nature of the city of Ismailia in terms of physical size, population, limited number of stakeholders and “intimacy” of the city has facilitated the process of bringing people together, reaching consensus on priority issues and agreeing on strategies and interventions. Experience gained in SIP has substantially enhanced the manageability of the process in the subsequent replication to the entire Governorate (Salem, 2006).



- ***Political support***

Since its launch in 1992, the project has enjoyed a consistent level of political support and backing from the Governorate's political leadership. Even though three successive governors with somewhat different agendas have come to office since the launching of SIP, the project seems to have enjoyed a good measure of stability and support. Much of this support owes to the fact that the project is backed by two neutral and credible UN agencies, UNDP and Habitat (ISR 21, 2006).

- ***Technical support and project management***

Technical support provided through joint Habitat/UNDP assistance was an important element in initiating and maintaining the EPM process activities. This support was particularly instrumental in building local capacities for undertaking key technical and nontechnical activities such as facilitation of WG meetings, generating digitised maps and developing and reviewing project proposals (Habitat, 1999). The Ismailia synthesis report indicates that project management has a central factor in Ismailia's success story and a driving force for current Governorate-wide replication of the EPM process within the context of the sustainable Ismailia project phase 2 (ISR 21, 2006).

- ***Legislative constraints***

The existing Egyptian local administration regulations and procedures that govern development management in Egyptian cities serve the highly centralised and sector-oriented decision making, while granting local councils some autonomy, but little room for strategic decision making. This legislative set-up has restricted progress on the institutionalisation of the EPM process since changes require amendments in the existing laws or ministerial and governor decrees (UNDP, 1997).

- ***Limited private sector and civic society participation***

Predominantly a city of bureaucrats and technocrats, Ismailia lacks a vibrant business community or strong private sector. It is also characterised by a lack of community participation base. The number

of NGOs and CBOs is to date very limited. Though present in some WGs, EPM process activities could have benefited from the presence of a stronger private sector and civil society (Salem, 2006).

- **Funding**

Scarcity of funds and resources is an inevitable constraint during the implementation phase of the EPM process. Because environmental concerns are not always at the forefront of local development agendas, consequently generated projects may not necessarily receive the necessary funds. Central funds are usually devoted to national projects, thus, alternative and non-traditional sources of funding have to be approached, such as in-kind contributions by different stakeholders (Habitat, 2001).

### **6.6.2 Conclusion and general discussion of the project**

The project proved the success of an effective approach to participatory urban and environmental planning and management. As such, the project has introduced a process that represents a complete break with previous centralised top-down approaches (Kedebe, 1997). Furthermore, SIP has created lasting changes in attitudes regarding coordination, teamwork and information sharing. Equally significant is the fact that it has applied comprehensive strategic planning, a process which is yet to be embraced by local authorities (Habitat, 2001).

The project succeeded in implementing a number of environmental and social services projects apart from the area of urban development. As it mentioned in the analysis of the project, the GOPP regional branch in Ismailia did not cooperate in terms of sharing information and flexibility of altering the master plan to integrate the proposed urban projects in the overall master plan. The reason for this was explained by one of the interviewees.

*The project was not a great success within government corridors because it was fully financed by private funds, NGOs, and project personnel considered out of the mainstream of the urban government (GOPP) because at the end of the day, the government has no hand in the process and success was related to private donors.*

(NGO 4, 2006)

*The implicit attitude taken by the government is not to promote the project because it has foreign financial resources, but the explicit attitude is to use the project politically to promote the government achievement in the field of sustainable development at the international level.*

(Academic 2, 2006).

The attitude of the government should allow more room for transparency in order to replicate the experience as a prototype of sustainable planning principles in other places in the country. The need for transparency in government should be put into practice, in their daily routine.

One of the crucial reasons for success is that the project was operating under an international organisation umbrella (UNDP). The principles of the project had no place in the urban government mainstream as mentioned before, which raises the question of the existing planning culture of the GOPP and the insistence on rejecting projects achieved by NGOs, because the success always related to the NGOs and not the urban government. It can be argued with confidence – based on ten years of experience in government consultancy – that the level of stubbornness and the closed mentality of urban officials are the main reasons for this situation. It is urgent for government officials to learn how to work and cooperate with non-governmental organisations and academics in order to achieve consistent success for urban planning policies in Egypt.

As a matter of fact, in order to achieve full cooperation with different planning stakeholders, the urban government of Egypt should start to encourage the participation of the private sector and NGOs in various development activities, especially in the housing sector. The investors' role in the field of housing is evident in the activities of the "Society of the Future" which is responsible for the Future Housing Project, which aims at constructing 70,000 housing units within six years with a total cost of LE 2100 million, of which the Government of Egypt will contribute LE 1100 million (Madbouly, 2006). Moreover, the private sector should play a major role in community urban management. Private sector involvement and active NGOs are desirable within the local government in the GCMR in order to raise income

and the quality of life. The earlier experience with the Ismailia Project proved that the local community can play an active role in urban development, and showed the willingness of local officials to learn that new tools are endless when it comes to international sponsors (Wafiq, 2006). For instance, local officials are operating a geographical information system unit to collect and monitor sustainable indicators for the Ismailia Sustainable Project. This is due to the organised training programme conducted by the NGO during the project, which differs from the regular training programme conducted by the government in terms of course organisation, time schedule, resources and well-trained instructors.

### **6.7 Urban policy integration, independent monitoring and evaluation bodies**

There can be no doubt that working through a clear and transparent strategy is the key to a successful sustainable community. An overarching strategy informs all aspects of urban planning, can improve the different aspects of the urban context and makes urban planning policy implementable with a minimum number of obstacles. For example, in the city of Curitiba, the Brazilian example, urban planners realised that transportation and land uses can be used as integrative tools of development in compliance with these guidelines. On the other hand, the Egyptian urban authorities lack continuity and transparency in terms of urban decision making, which makes keeping track of long term-urban policy a difficult task.

The GCMR currently lacks independent bodies to assure sound unbiased evaluation; such independent assurance is important as can be seen in two of the examples mentioned previously in the literature review. The first example is the Research and Urban Planning Institute of Curitiba (IPPUC). Rabinovitch (1998) stressed that the IPPUC played a critical role in the master planning of Curitiba, by assuring continuity, which was essential to the long-term implementation of the city plan, even under difficult political circumstances as, for example, during the military dictatorship and times of economic crises. The second example can be found in Portland, Oregon, where constitutions secure the rights to civic society to evaluate, monitor and

intervene in sustainable policies in order to ensure that objectives are met according to strategy guidelines (Wheeler, 2004).

Wafiq (2006) argues that, what Cairo needs now, as an initial step to promote urban sustainability, is an independent committee that is not subject to government manipulation, for developing and monitoring urban plans for the GCMR. This committee's main responsibility will be monitoring the urban development progress of the GOPP, rather than the existing body, the Greater Cairo Planning Authority branch of the GOPP, which currently still relies on the GOPP in terms of decision making. Furthermore, it is interesting to mention that the GOPP “favours a limited number of academics from the rest of the academic community in terms of technical consultancy in urban planning strategies” (Osman, 2006). Osman added that a considerable number of academics are known to have been blacklisted by the GOPP, because they have expressed their honest opinions regarding the drawbacks of GOPP urban strategy. The GOPP tends to avoid those particular academics in terms of consulting on urban strategy studies. This has had the effect of making other academics concerned about expressing their opinions, with the consequence that academics tend to express consensus opinions so that they can be identified in the mainstream of GOPP thinking.

*In order to overcome the problems of interrelated administrative borders of Cairo because the city shares borders with three different governorates, the first initiative is to make sure that independent committee for urban planning management of GCMR having the institutional and executive power to prepare, approve and monitor urban activities, members of this committee should be selected from the government officials, academics, and NGOs*

Academic 1, 2006

Another problem encountered by urban planning and not yet thoroughly addressed by government, is the need for consistency in implementing urban plans in the various spatial scales. Specifically, if plans and zoning in local government do not follow city master plans or state growth management goals, then these broader planning frameworks become meaningless. In chapter 5, this problem was addressed in terms of *favouritism* power to alter land-use plans at the local level. Also, if local officials or city commissions do

not uphold officially approved plans, or grant numerous exceptions to them as frequently happens in practice, then these planning tools become meaningless (Wheeler, 2004). A single planning framework between different scales of government can be difficult to achieve in a country like Egypt, but on the other hand, a lack of consistency between these levels – in terms of ensuring that local government stick with broader plan objectives – can defeat the whole purpose of planning. One of the international examples, Portland, began to adopt consistency requirements mandating that different levels of plans are consistent with one another, at the same time giving the public the legal power to monitor and enforce policies implementation. In the case of the GCMR, the degree of corruption and favouritism – at both local and state levels – decreases the possibility of achieving consistency of urban policy delivery. Sustainable urban development in the GCMR needs transparent, consistent and long-term strategies that are respected by the government, while at the same time are secure from regular changes “to serve the political agenda” of statesmen officials.

## **6.8 Conclusions and central issues concerning the future of sustainable urban development in the GCMR**

The chapter is concerned with the impacts of the lessons learnt from international examples and sustainable development theoretical findings on the interviews exercise. Part of the interview meant to discuss the opinions of the interviewees, which concerned with the applicability of international examples within the Egyptian urban context. The discussions revealed a number of crucial or central issues concerning the future of sustainable urban development in GCMR. There are number of observations to be made about the issues discussed and the previous chapter concerned with fieldwork analysis namely:

- In terms of urban policy integration and consistency provision, the issue of urban planning integration depends upon clear urban policy, which is capable of integrating different sectors such as transportation, environmental, social and physical aspects in one consistent policy. Present circumstances indicate that this is difficult to achieve because

policy coordination between different sectors is missing in the Egyptian urban policy. To overcome this problem, the urban government has to take into consideration the level of cooperation within various sectors (social, economic and environment) in order to achieve integrity and consistency. In addition, urban policy at various spatial levels (national, sectoral, regional and local) should be revised in order to update the policy with sustainable development objectives in social, economic and environment aspects.

- The role of indicators is crucial in the sustainable urban development process, the current focus of indicators in the GOPP concentrated on housing indicators, while neglecting other aspects could results in weak urban policy. The function of NUO will continue this weak role unless it is revised, updated from its current function that informs the GOPP to a function that evaluates and monitors GOPP performance. In addition, although a great deal of decentralisation has been achieved by the urban government in terms of having regional branches of GOPP to facilitate urban policy delivery, the organisational issues still inherited among government officials, which obviously mentioned in the case of Ismailia Sustainable Project, GOPP still lack of flexibility and cooperation issues especially with international donors in a way that slowing down urban aspects progress in these project. Issues, the ability of initiatives done by international donors failed to find a place in the urban government mainstream, in addition, the rigidity of master plan regulations failed to integrate the master plan with pilot projects provided by ISP that makes the GOPP considered an obstacle for the project progress. An issue such as data sharing and secrecy of data is a common problem affecting sectoral different policies. Initiatives to increase data sharing awareness are useful at this stage to enhance the level of co ordinations between various sectors.
- Land use planning and growth management in Egyptian urban context proved to be weak in terms of integration with other aspects such as transportation, environmental and social aspects. The new urban development projects are reflection of such a lack of integrity, although

the urban form and environmental planning issues are achieved in these projects. Other aspects are neglected such as public transit and local jobs availability. To maintain a firm urban growth policy, an independent committee was suggested by most of the interviewees. It is suggested that this committee is selected from academics, NGOs and government officials in order to achieve continuity of urban policy. In terms of urban form, compact urban design is one of the famous characteristics in Islamic architecture, unsurprisingly a number of the sustainable urban design criteria exist in housing and city centre projects. An update of transportation alternatives and public transit point is essential, also studies of job opportunities within the community are essential to enhance the social and economic characterises of the neighbourhood design.

- One of the important results of the interviews analysis discussions is the urgent need for an independent committee for the GCMR urban policy. As Cairo is the biggest entity in the country, 17 millions and containing 25% of the Egypt total population, and the administration borders embrace three different governorates (Cairo, Giza and Qaluibia), which causes administrative problems. For instance, in Qaluibia and Giza Governorates informal housing is spread in the periphery due to corruption in the local government. Urban growth problem in these areas should be encountered by a one planning unit to set up planning regulations in the three governorates. This unit should be responsible for delivering and monitoring the urban policy for GCMR to ensure a level of control over illegal urban growth.
- The capacity building programmes conducted for GOPP officials are focused on IT technology, while they should extend to a variety of subjects such as environmental planning, sustainable urban development, urban decision-making and civic participation and participatory planning issues. A sign of success can be seen in the Ismailia Sustainable Project while provides an example of how local authorities can provide strategic decision in the urban planning process.



Table 6.1 represents the results about the opinions of the interviewees as to what features are crucial to the achievement of sustainable urban development in GCMR. The table indicates that there is a consensus between the three groups (Government officials, Academics and NGOs) for three subjects: civic participation and participatory planning, the importance of indicators in urban planning process and urban growth management. Although government officials are not practising these issues but some of them are aware of their relative importance in the urban planning process but their argument, is that existing institutional and organisational system of GOPP not helping to achieve these aspects.

	<i>Government officials</i>	<i>Academics</i>	<i>NGOs</i>
<i>Political environment</i>			
<i>Independence monitoring and evaluation bodies</i>			
<i>Civic participation and participatory planning</i>			
<i>Urban planning integration</i>			
<i>Indicators and its importance in urban planning process</i>			
<i>Land use and transportation integration</i>			
<i>Environmental consideration in urban planning process</i>			
<i>Urban growth management</i>			

**Table 6.1: The interviewee's opinions concerning the importance of issues to achieve sustainable urban development in the GCMR (dark grey means crucial and light grey means less crucial)**

Academics and NGOs are agreed upon the importance of the political environment as an essential key for sustainable urban development policy in the GCMR in order to provide urban policy with the mechanisms for implementation. In addition, academics stressed the importance of conducting independent monitoring and evaluation of the current urban policy, in order to seek solutions to introduce an urban planning integration approach and environmental considerations in the urban planning process.

The central agreement, which is concerned with adopting the lessons from international examples can be concluded as: adaptation of these international examples in the Egyptian urban context depends on a number of prerequisite requirements. For example to achieve independent monitoring and evaluation of the urban policy, an integrated urban policy is required first, and in addition, certain institutional and organisational changes are required within the GOPP to assure sustainable urban policy delivery. Moreover, encouraging civic participation and participatory planning is important to achieve sustainable urban development in small-scale projects. The same concept applies to the urgent intervention required to update the urban planning process in order to introduce new actions, initiatives and procedures to ensure achieving sustainable urban development goals in the GCMR. It can be concluded that if the urban government in Egypt wants to achieve sustainable urban development there are a number of issues that need to be given serious consideration:

1. Formulating new integrated urban policies for the region is essential. The crucial point about this policy is it should work for long-term achievements and should be aware of the existing urban growth problems.
2. Defining goals and time schedules to meet urban environmental quality standards (on the level of regional plans, urban master plans and urban action plans) and the supplementary initiatives to implement these goals. In addition, establishing environmental standards for: air, water and soil, gaseous emissions, and quality control of various products. Encouraging the adoption of effective environmental management measures and providing necessary training, guidance and supervision including assistance in the preparation of environmental feasibility studies is an urgent requirement for achieving sustainable urban development. Monitoring compliance with environmental laws and regulations needs to be activated through executive tools such as requirement of SEA or EIA study for new urban development projects and disseminating of environmental information to the public.

3. The need for an independent committee for the GCMR that is not related to the GOPP, but maybe to the Prime Minister, to assure its independence in order to implement targets and plans, and monitor the implementations of the plans, without the GOPP interfering.
4. Increasing coordination and collaboration among the various ministerial and governmental sectors, agencies and authorities, and the governorates in order to solve the problem of data secrecy on the one hand, and on the other hand to understand the concept of multi-sectoral integrated planning. This will be useful for the case of the urban government as evidence was provided in this chapter that the GOPP is so far not willing to share information. There is a lack of coordination and support between the GOPP and NGOs such as in the case of the Ismailia Sustainable Project.
5. The need for monitoring and evaluation in general; it is not acceptable that the government should monitor and evaluate itself. This job should be done through a fully independent body such as the urban observatory, which at the moment relates institutionally to the GOPP. In addition, the function of the Urban Observatory should extend to different aspects such as environmental, social and economic indicators; thirdly, its role should be integrated into the urban planning process, as its function now is supportive.
6. In terms of urban form and design, to an extent the principles of environmental design in housing are present in the current project, but a further study of how to integrate the design with the Transit-Oriented Development concept is advisable to create a more liveable social environment.
7. Targeting educational awareness campaigns to all sectors of society of the importance of civic participation on the urban planning process and what are the impacts of building their own urban environment.

**PART 3:**

**LOOKING INTO THE GCMR FUTURE: SCENARIOS  
AND OPPORTUNITIES FOR SUSTAINABLE URBAN  
DEVELOPMENT**

### **Introduction to part 3**

In part 2, the research has analysed the current obstacles that prevent achievement of sustainable urban development for the GCMR in the future. The discussions in part 2 had revealed that issues such as political environment, civic participation, academic and NGOS involvement in urban planning process and organisation of Egyptian urban government are important are major challenges to propose the suitable strategy of sustainable urban development in the Egyptian urban context generally and in GCMR specifically.

Part 3 discusses possible future scenarios for promoting sustainable urban development in the GCMR by utilising scenario-building methodology -which is discussed in the methodology chapter-based on the findings of parts 1 and 2 of this research. The scenario-building approach enabled us to generate three possible future scenarios for the GCMR, which are evaluated in order to identify the crucial issues within the proposed sustainable urban development strategy. Consequently, part 3 discusses the objectives and main component of proposed strategy including the prerequisites that are required in order to achieve the proposed strategy. Then this final part ends with the major findings and conclusions of the research followed by a series of recommendations for the achievement of sustainable urban development in the GCMR.

Chapter 7 discusses scenario-building analysis of the GCMR. The methodology chapter justified the contribution of scenario-building approach to contribute to the GCMR sustainable urban development. Chapter 7 identifies the major actors, sectors and factors that are involved in future scenarios in the GCMR. Followed by construction of three main scenarios storylines generated from the exercise. Then the chapter discusses the evaluation of these three scenarios so that has enabled us to formulate the crucial issues that have to be discussed in the proposed strategy for the GCMR.

Chapter 8 discusses the major outlines, statement and objectives of the proposed strategy to achieve sustainable urban development in the future concerning the GCMR urban context. The proposed strategy suggests a number of prerequisites that have to be fulfilled within the government national level, also issues related to organisation of the current Ministry of Housing, Utilities and New Communities (MHUNC). In addition, this chapter discusses the pillars of the new strategy, which are focused on suggestions for future urban growth policy, integration of transportation, land use and environmental aspects in the national, regional and local urban policy. Then the chapter discusses in detail the issues related to housing policy in terms of required studies and issues related to attracting population in new towns scheme. In addition, the required change in the organisational structure of the MHUNC in order to improve evaluation and monitoring of the future sustainable urban development strategy.

Chapter 9 discusses the main findings of the research including a discussion of each research objectives and it has been approached by the researcher. In addition, the chapter discusses the overall conclusions and contributions of this research. In addition, the chapter suggests a number of recommendations and further research areas for urban researcher in Egypt when they consider the achievement of sustainable urban development in the Egyptian urban context in the future.

## **CHAPTER 7:**

# **THE GCMR SUSTAINABLE URBAN DEVELOPMENT SCENARIO-BUILDING**

### **7.1 Introduction**

The previous chapter was concerned with identifying gaps that need to be filled within the existing urban context of the GCMR in order to achieve an acceptable sustainable urban development level. Solutions focused on institutional and policy changes as well as the potential roles of different stakeholders. This chapter proposes solutions to the question of the direction of urban planning and sustainability in the future of the GCMR.

Sustainability deals with the future, and scenario building is concerned with looking at the future from different angles. Scenario building has the advantage of providing a wider spectrum to deal with future scenarios. Scenario building envisions the future by using the uncertain factors found in the development process, then building a set of scenarios dealing with these uncertainties that might change the course of the future. In that sense, scenario building allows research to explore future development in the GCMR taking into account uncertain circumstances and events that could influence the process in the future.

In addition, scenario building informs decision makers of the consequences of their actions rather than suggesting what actions they should take, which is a sensitive issue in Egypt. The main purpose of scenario building is to picture the future in different sets of assumptions rather than providing a specific solution to problems. Using scenario building, urban planners envision the advantages and disadvantages of each scenario in a way that rationalises the decision-making process (see chapter 3, section 3.4). The process of scenario building allows researchers to define the actors, driving forces and sectors that are influenced by each scenario. Utilising this technique contributes to the main aim of this study – to propose a suitable sustainable urban development strategy in the GCMR based on the constraints and

opportunities of the existing urban context. This chapter provides answers to the following questions:

- What is the scenario-building approach and how does it can contribute to this research?
- How can the scenario-building approach be applied in sustainable urban development in the GCMR, and what are the requirements for the GCMR that can be considered as starting points, including actors, sectors, and driving forces for GCMR sustainability?
- What are the different future scenarios based on previous analyses of existing organisational, institutional, and urban planning policies for the GCMR to achieve sustainable urban development in the GCMR, and what are the possible areas of intervention that need to be addressed for each scenario?
- What are the forms of intervention(s) needed for each area or the themes required for each scenario?

The questions addressed in this chapter relate to the fifth research objective, which is concerned with a suitable strategy for sustainable urban development in the GCMR by providing solutions that are applicable to Egyptian circumstances based on the lessons learned from international sustainable examples. This chapter covers a number of issues:

- ***GCMR scenario-building methodological framework:*** this section discusses and analyses the methodological framework to conduct the scenario-building exercise for the GCMR. This section analyses the GCMR scenario-building steps that include building assumptions, the derivation of uncertain factors from different scenarios, and building scenario storylines that describe the predetermined aspects of each scenario in terms of sustainable urban development, as set out in chapters 2 and 3. These aspects include environment, employment, transportation, public participation, equity, and political and institutional aspects.
- ***GCMR scenarios evaluation:*** In addition, this section evaluates the different scenarios for the GCMR in order to reveal the pros and cons of each scenario that leads to a number of requirements and



expectations in the proposed sustainable urban development strategy in the GCMR.

- ***From scenarios to strategy:*** this section discusses the process of transferring the scenario outputs into strategy, which involves refining the outputs of scenario evaluation for central issues that influence the formulation of the proposed strategy.

## **7.2 Future sustainable urban development for the GCMR: scenario-building analyses**

Based on the scenario-building literature described in part one, the question however remains of how to apply the scenario-building technique in the case of the GCMR. The previous analysis of the GCMR urban context, fieldwork, and sustainability literature provides a firm basis upon which to identify the actors, driving forces, and sectors involved in the GCMR scenario-building exercise. In addition, for methodology, this research utilises an integrated approach rather than a thematic approach in order to account for the different aspects of sustainable urban development. Each scenario contains all the factors that are involved in the sustainable urban development process. In that respect, the process of scenario building for the GCMR is based on the two pillars of integration. The first pillar is the integration of the actors, factors, and sectors related to the sustainable urban development process. The second pillar is the spatial scale, which means that scenarios are discussed at multiple scales (global, national, regional and local) that could influence the sustainable urban development of the GCMR. Figure 7.1 illustrates these two pillars; it shows the integration between the two pillars in the scenario-building process, and also how the process formulates the GCMR scenarios.

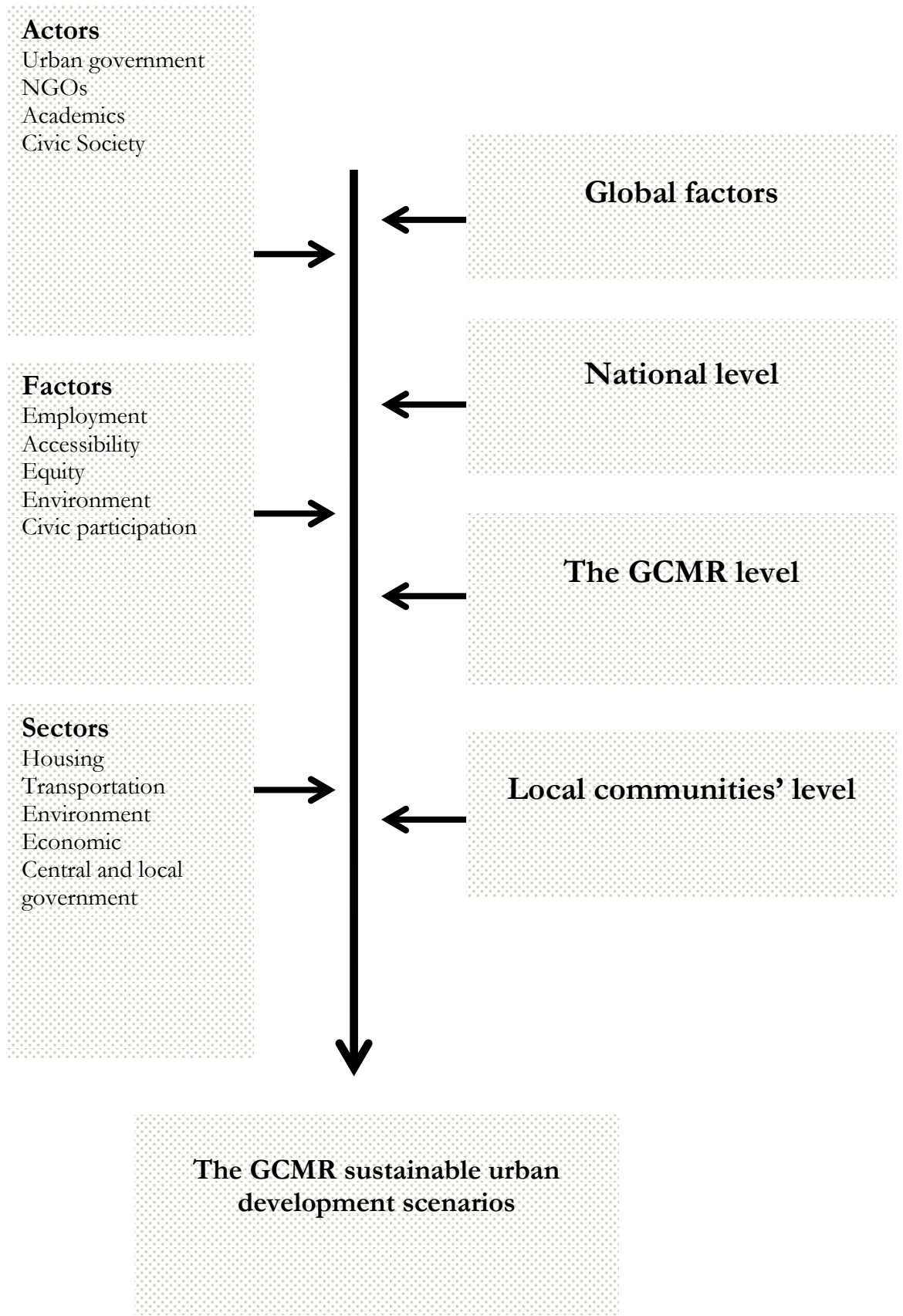


Figure 7.1: GCMR scenario-building: actors/factors/sectors

The next stage of the process is to identify the context of the scenario-building process and the different phases that are required for completing the scenario-building model for the GCMR. The first part of this chapter discussed the components of scenario building, which informs this stage with the essential steps for carrying out the model of the GCMR. Consequently, this stage required brainstorming and a preliminary analysis, such as cause and effect and tree analysis, in order to reach the framework outline for this model.

The model took 20 hours of drafting and refining the results. The scenario-building framework phases used in this study can be summarised as follows:

- Formulation of the focal question that the scenarios discuss.
- Determination of the main actors, factors and sectors, which relate to the focal question, and substantiating the main elements in the next phases of the scenario-building process.
- Deciding which factors involve high uncertainty, which formulate the direction of different scenarios, and how many scenarios are available.
- Formulation of each scenario assumption(s), which helps to build up the scenario.
- Preparation of each scenario storyline, which is a process of narration of each scenario to explain the sequences and events that occur.

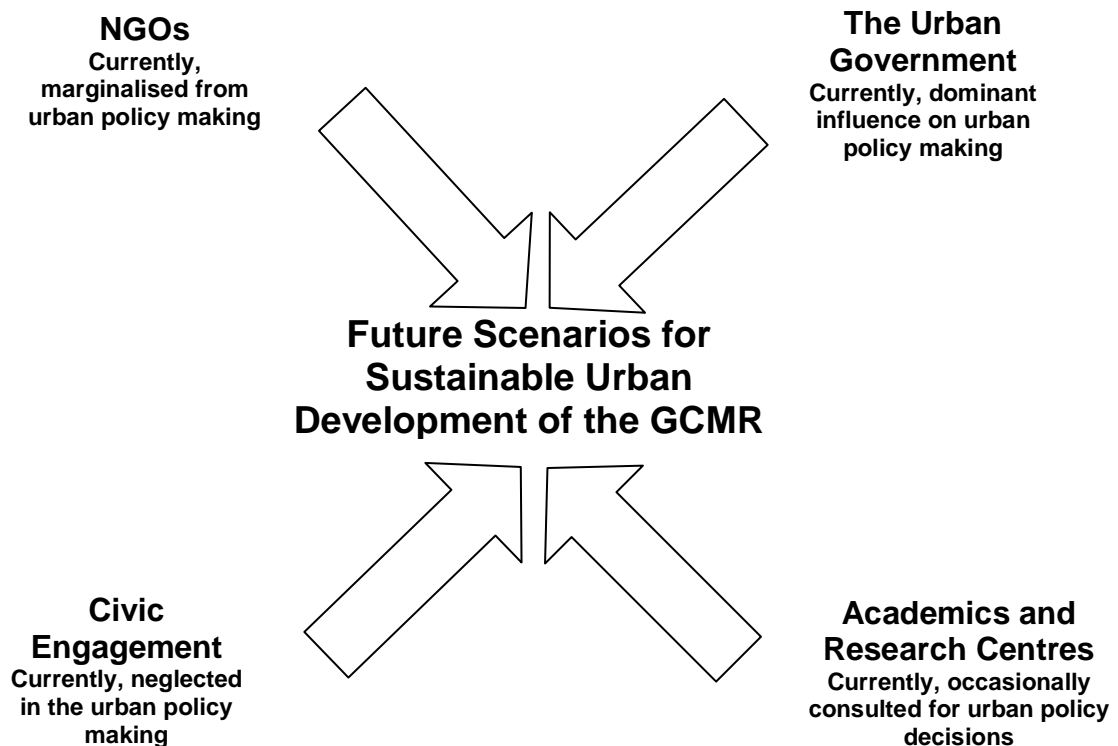
These steps now make it possible to construct the necessary scenario-building phases for the Greater Cairo Metropolitan Region case study.

## **7.3 The GCMR scenario-building component**

### **7.3.1 Actors**

The scenario-building process for the GCMR starts with defining the actors/stakeholders concerned with the sustainable urban development of the GCMR. The literature revealed a number of key actors who assure policy making and implementation of the sustainable urban development process. Within the context of this research, the three types of actors in scenario building are represented in Figure 7.2. Firstly, the urban government, represented by the GOPP and the Ministry of Housing, Utilities and New

Communities (MHUNC), which is currently in charge of urban planning policy and implementation. Secondly, NGOs consisting of international aid agencies, private consultancies and local community groups; their current role has been marginalised from urban policy making. Thirdly, the academics group consists of urban planning practitioners, university research centres and individual experts. Their current role is not a formal one, but rather, an occasional one, according to personal preferences. As a result, some academics are involved in the process and others are not. Fourthly, civil society forms a group, including parliamentary representatives from the local government and members of society who are interested in improving the quality of the urban environment.



**Figure 7.2: Scenario-building: main actors in the proposed sustainable urban development of the GCMR framework**

### **7.3.2 Factors and sectors**

Scenarios factors – sometimes called Driving Forces – are the key factors that influence the success or failure of sustainable urban development in the GCMR. The characteristics of sustainable urban development were discussed in chapters 2 and 3, and the requirements of sustainable development in the GCMR were discussed in chapter 6. In order to achieve sustainable urban development, these issues must be addressed (described in detail in Box 7.1):

- Global factors: global influences, such as foreign investment, international donors, global climate and oil prices have a large impact on the citizens' daily life, and must be considered when building scenarios for the GCMR.
- Economic development: in order to deliver sustainability the community needs strong economic growth that allows sufficient job opportunities.
- Transportation and accessibility: a sustainable community is well connected and avoids traffic congestion and over-dependence on the private car.
- Environment: providing open spaces, reduction of pollution sources, and preserving natural assets are requirements to achieve sustainability.
- Built environment: the urban form and spatial distribution of activities are tools to maximise or minimise sustainability.
- Urban government: transparency and strong local government are the key tools towards achieving sustainability by evaluating and monitoring urban policy implementation, initiating sustainability indicators, and engaging these indicators in an effective way in the urban planning process.

## Driving forces for achieving sustainable urban development in the GCMR

**Employment:** in order to deliver sustainability a community should have strong economic growth that allows sufficient job opportunities. The job distribution and availability aspects are not integrated in urban development proposals.

**Accessibility:** a sustainable community is well connected and avoids traffic congestion and private car dependency.

**Environment:** providing open spaces, reduction of pollution sources and preserving the natural assets are crucial requirements to achieve sustainability.

**Built environment:** urban form and spatial distribution of activities are tools to maximise or minimise sustainability. The principles of urban design in the Egyptian context is characterised by land-use mixing in a way that can contribute to the sustainability issues in the GCMR.

**Urban government:** transparency and strong local government are the key tools towards achieving sustainability by evaluating and monitoring the implementation of urban policies, initiating sustainability indicators, and engaging these indicators in an effective way in the urban planning process.

**1. Central decisions:** Urban planning decisions are centralised and sometimes based on political agenda.

**2. Planning Regulations:** the current master planning process is not giving attention to sustainability considerations, such as environmental indicators, nor is there any and evaluation in the master plan.

**3. Policies integration:** lack of integration of transport, employment, and environment data in the master plan is evidenced in the day-to-day problems of the region, such as daily commuting, insufficient public transportation, pollution.etc.

**4. Human resources:** training of GOPP planners in different topics is currently running, with concentration on IT training; efforts for capacity building are being exerted in NGO projects such as the Ismailia Sustainable Project.

**5. National Urban Observatory:** is responsible for indicators collections from different sectors

**Political government:** initiation of civic rights and engagement in the community is an important element in the sustainability process because it implies the equity between all community citizens. In addition, decentralisation issues give flexibility and competitiveness for local government to act effectively regarding different policies.

**Global factors:** the global perspective has its influence on achieving sustainability in the GCMR; factors such as foreign investment, international donors, global climate, and oil prices are strongly interrelated with the daily life of citizens and should be taken into consideration while building the scenarios for the GCMR.

### ***Box 7.1: Scenario-building for the GCMR sustainable urban development driving forces***

- Political government: initiation of civic rights and engagement in the community are important elements in the sustainability process because they imply equity between all citizens in the community. In addition, decentralisation issues give flexibility and competitiveness for local government to act effectively with regard to different policies.

### **7.3.3 The process of generating scenarios**

The process of generating scenarios begins with the definition of the focal question, which is “*How can sustainable urban development be achieved in the GCMR?*” The first paragraph in part two of this chapter describes the process of generating scenarios for the GCMR; Figure 7.3 describes the initial steps of this process.<sup>6</sup> The factors are divided into a micro- and macro-environment. The micro-environment refers to the factors that may directly affect the answer to the central question. The macro-environment consists of the factors within the wider environment that may affect the way in which the central question is answered.

The next step is to rank these factors according to their effect on the central question. The ranking process identifies which factors will be most significant in determining the answer for the focal question; coupled with this is a rating of the level of certainty or uncertainty for each factor. Significant factors that are associated with a high degree of certainty will probably be present in all possible futures. However, significant factors that are highly uncertain may help us differentiate among the scenarios that are created. The process identifies three major uncertain factors that can help us to formulate the next step. These three major factors are global influences, political government and civic society, and cultural change. A critical characteristic of previous experiences in scenario building explored by Rotmans, et al. (2000) is that most scenario building falls into the trap of assuming that the present situation will be sustained. In their view, this assumption is false because one of the characteristics of scenario building is dealing with the un-expected, and sometimes to open windows of imagination to explore critical and

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<sup>6</sup> The process is described thoroughly in the literature, see Scenarios: An Explorer’s Guide by SHELL London, Peter Schwartz’s *The Art of the Long View*.

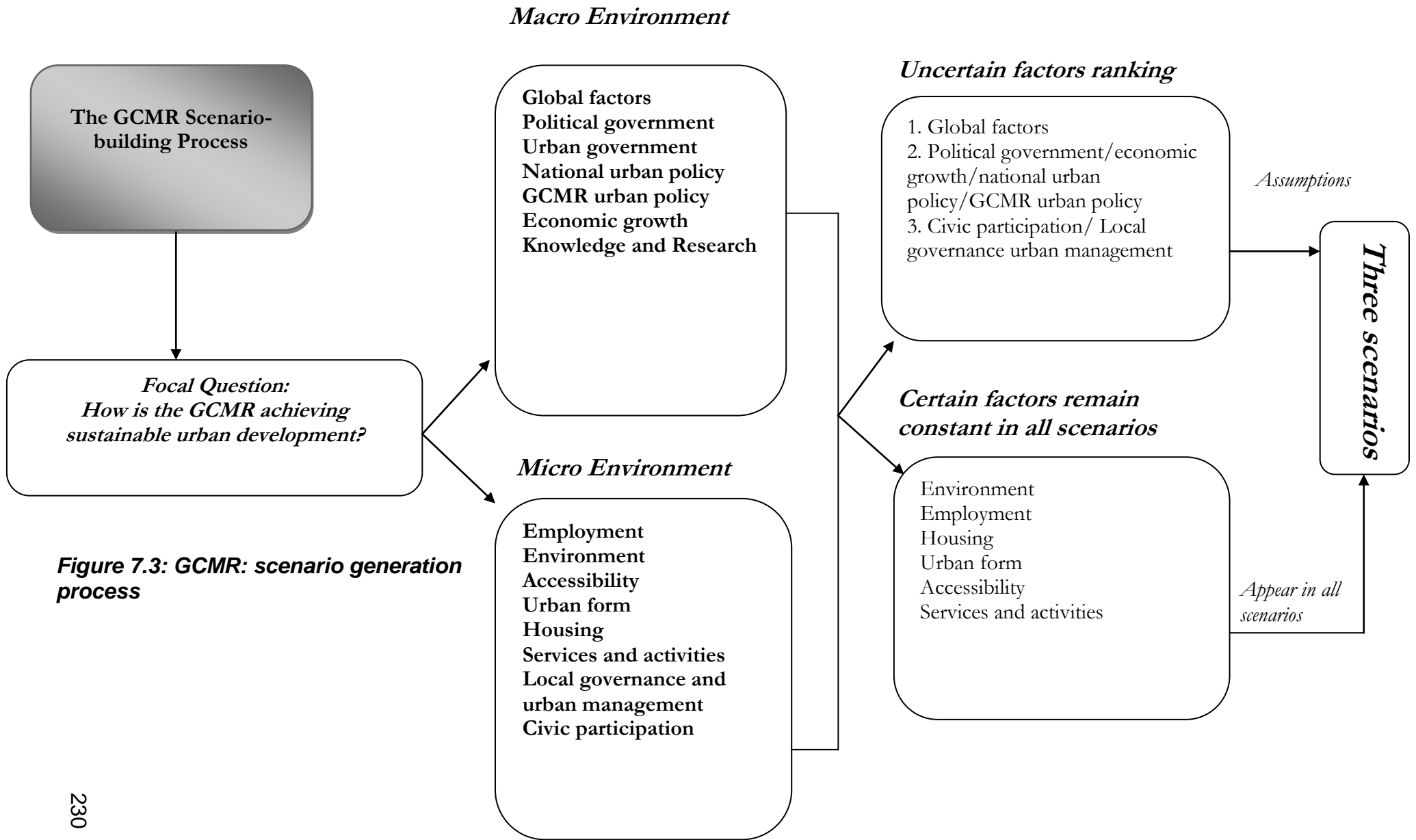
unusual ideas. The next step is to formulate the assumption(s) for each of the three scenarios this research has developed for the GCMR. Figure 7.4 describes the three scenarios and their assumptions, which have been generated by the scenario-building process.

The first scenario is labelled as “**Sustainable urban development under the political status quo**” and is based on political and urban governance. The assumption made was: “Egyptian political instability may accelerate the elections for the presidency to assure continuity of the existing regime. This would result in a continuity of the existing government and urban practice administrations. Consequently, the government administration would sustain the present urban planning drawbacks, such as inefficient urban policies represented in terms of national and local urban policies, economic trends, transport, employment and environment, which are considered as constraints to achieve sustainable urban development in the GCMR.”

The second scenario is labelled “**Sustainable urban development: changes from the inside out, winds of change**” and based on civic society and cultural change, assuming that civic society may witness cultural change. Civic society is frustrated with the current political body, resulting in critical changes in the political body leading to it being replaced with an effective and coherent government, and consequently a new way of thinking coupled with initiating new national and local policies.

The third scenario is labelled as “**Sustainable urban development: an international view**” based on global factors, assuming that global factors such as democratic, economic and social reform pressures from the international community will influence the political and urban government performance. Consequently, this would lead to an increase in international partnership, financial and technical assistance between the government and international community. International technical and financial support would concentrate on achieving sustainable urban development from the bottom-up approach by working at the local community level to encourage changes to occur in higher government policies.

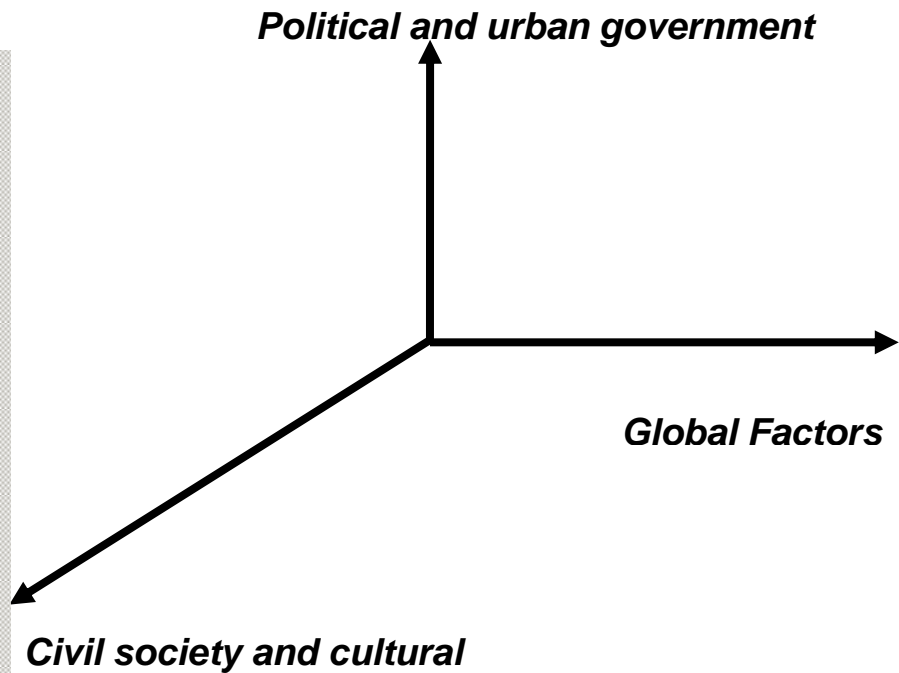




**Figure 7.3: GCMR: scenario generation process**

Assumption “political instability of Egypt may impact on the continuity of existing political and urban authorities. As an impact, continuity of the existing government and urban practice administration in terms of inefficient national and local urban policies, economic trends, transport, employment and environment”

Assumption “civic society may witness cultural change and in turn become frustrated with the current political body leading to critical changes in the political body resulting in it being replaced by effective and coherent government, consequently new ways of thinking coupled with the introduction of new national and local policies.



Assumption “global factors such as democratic, economic and social reform pressures from the international community will influence the political and urban government performance, in turn, international technical and financial support will concentrate on achieving sustainable development from a bottom-up approach instead of the top-down central government approach”

Figure 7.4: GCMR: scenario assumption generations process

## 7.4 Building the scenarios and storylines

Concerning this part of the scenario-building process, a brainstorming analysis conducted by the researcher, which included cause–effect and indicators trend projection analyses. Previous techniques are utilised to build the sequences of events and to explain the outcome of each scenario and where they lead in the target year 2036. The outcome of each scenario is discussed in the following sections through scenario storyline, supported by evidences and available indicators that are utilised to build each scenario. Finally, drafts of each scenario will be refined and narrated in the form of a storyline.

### **7.4.1 Scenario one: Sustainable urban development: under political status quo**

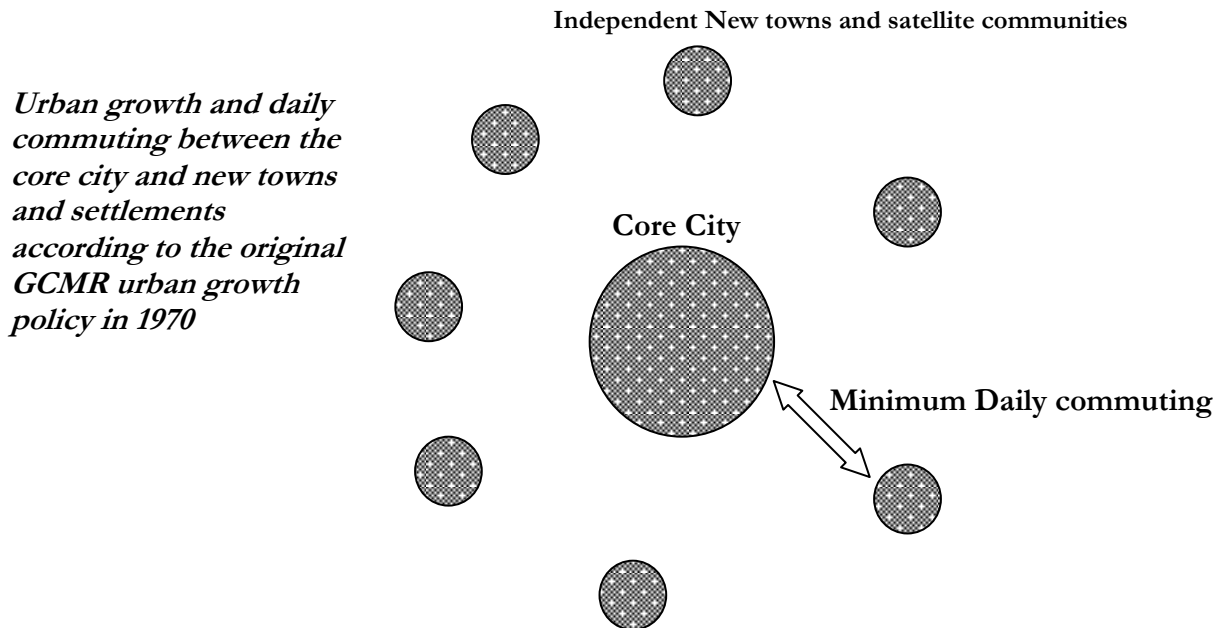
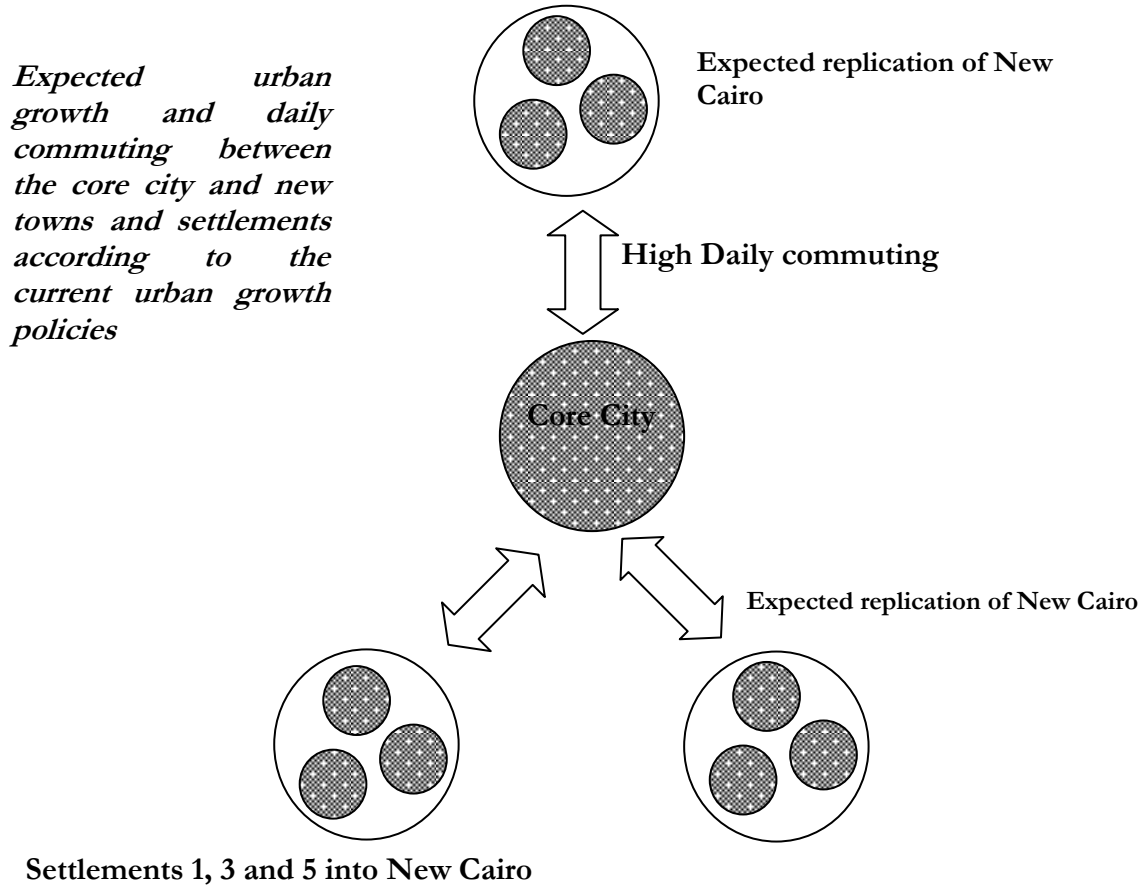
**Assumption** *“Egyptian political instability may accelerate the elections for the presidency to assure continuity of the existing regime. As an impact, a continuity of the existing government and urban practice administrations. Consequently, government administration will sustain the present urban planning drawbacks. Inefficient urban policies represented in terms of national and local urban policies, economic trends, transport, employment and environment are considered as constraints to achieve sustainable urban development in the GCMR.”*

#### **Storyline**

Consequently, the existing urban government and political constraints on achieving sustainable urban development will continue in various forms:

The inconsistent policies of management of the GCMR will continue in terms of developing new housing in new towns and ignoring transportation and employment issues.

1. New settlements on the periphery of the city will appear, patterns of scattered new development will spread and the case of the New Cairo Development Project (combining settlements 1, 3 and 5, labelled “metropolisation” by the Egyptian government) will replicate itself in other settlements.



**Figure 7.5: GCMR original policy for urban growth and future scenario expected according to the current updates in the master plan**

2. The urban context of the city will end up with spatial urban sub-agglomerations around the core city. Absence of transportation links between them will encourage private car dependence and increase the number of vehicles from 1 million to 1.8 million in 30 years.

The refusal to recognise and deal with the problems of a rapidly expanding population beyond the limits of the GCMR's resources will continue. Fig. 7.5 shows the expected trend of urban growth in the GCMR compared to the original urban policy in 1970, suggesting the seriousness of this problem.

3. Private car ownerships increases due to cultural behaviour that considers owning a car a sign of status, although the international rise in oil prices represents a burden on the household income. Consequently, the number of private cars is increasing annually which affects the economy and environment in terms of pressure on fuel prices and monthly income for the average household.

In addition, the continued creation of urban sub-agglomerations around the city without socio-economic studies, the increased pollution rate and traffic congestion will continue, and daily commuting will put pressure on the transportation infrastructure (see Fig 7.6).

4. Academics and NGOs will work within the current limitations. Research centres will propose improvements to the urban context in the GCMR but their work will end up on a library shelf in a university or research centre. The gap between research and practice will widen to an extent that isolates the academics from urban planning decision making. Nevertheless, the government will consult with a limited number of academics on urban issues that do not conflict with the political agenda. NGOs will be interested in some major environmental projects.

5. A centralisation problem in terms of decisions and employment availability will continue, and in-migration from other regions will increase from 12.5% to

25% of the total immigrants (total number of inner immigration is 3.1% of Egypt's total population) annually. This will put more pressure on the urban form in terms of green open areas and house prices, as well as increased pressure on infrastructure and informal housing.

6. The lack of coordination between multi-sectoral departments will cause waste of financial resources. Duplication of studies is an inevitable consequence given, due to data sharing problems especially in the urban government.

7. For political propaganda, the giant projects will continue, such as the Toshka Project in Upper Egypt, as well as the giant project of planning 4000 rural green belt settlements, which will absorb a large amount of financial resources. Consequently, the political expenditure on giant projects will affect policies of other sectors such as health, education and environmental protection.

8. Regional planning policy does not exist now and this missing link between the national and local policies will continue to occur, causing delays in policy implementation, monitoring and evaluation of national urban policies. The GOPP regional branches will continue the miscommunication trend with private urban development projects and act in isolation from international organisations' projects.

9. The GOPP with its legal framework as a branch of the Ministry of Housing, Utilities and New Communities will continue to act according to the decisions made by the MHUNC; the dependency of GOPP and the National Urban Observatory will retain their existing policies by following the political decisions made by central government and the Minister of Housing.

10. Public participation and civic engagement will continue to be ignored by the government. Consequently, public demands for more freedom and involvement in decision making will increase. This will in turn lead to an increase in the number of protests and incite anger among the population.

The national security forces will keep the people in check and human rights will be violated creating a situation where people will no longer accept the government and turn to violence as a means of change.

11. On the GCMR level, due to the lack of coordination between the GOPP and the GCMA, the impact of rapid urban growth trends on the new development areas can be seen. Future merging of satellite settlements such as New Cairo will be inevitable due to constant alteration of GCMR urban policy by the Housing Minister. Financial resources will be scattered among different projects, effective urban management will be nonexistent and the gap between housing supply and demand will increase due to the focus of the housing policy on promotion of high-income housing units instead of low-income affordable housing. The new development will lack the basic needs for healthy communities such as employment, transportation and infrastructure. Population growth in new towns will increase slowly and the concentration of the population in the core city will continue to increase.

12. Urban planners will struggle to integrate environmental evaluation and monitoring into the GOPP urban planning process, impeded by bureaucratic resistance and the rigidity of regulations. The Environment Department will be concerned with national crises, and efforts towards implementing environmental measures will be neglected. Current corruption in the local government in the form of favouritism will increase, and as a result, the urban management of the GCMR will face difficulties in curbing urban growth.

13. National Urban Observatory activities will continue to focus on the Department of Housing agenda (housing indicators), neglecting other indicators that could help in the critical monitoring and evaluation of urban policies.

14. Transportation planning efforts will fail to reduce dependence on private cars because of government subsidies for fuel prices. Daily commuting in the region will create pressure on the transportation infrastructure and management.

15. At local level, the result of the absence of urban policy will be reflected in informal housing, environmental problems, lack of open spaces and green areas, and pressure on infrastructure in the core of the city. The ability of local governments to follow up on urban planning development plans will face several difficulties, due to inefficient data sharing, technical skills and management problems. These problems will be manifested in the daily delays in local urban government because of the essential technical consultancy required from the GOPP. In addition, favouritism is another factor which will interrupt the implementation of urban development plans and fail to question political demand at local level.

By the year 2036, the region's total population will double and be concentrated in the core city. It will be coupled with rising unemployment due to a lack of employment policies integrated with land use and transportation policies, which will increase daily commuting in the region. Population densities will increase rapidly in the core and slowly in the new towns and settlements. New towns will suffer from a shortage of population due to increases in house prices coupled with an imbalance of housing supply and demand, which will focus on medium- and high-income categories. Human and political rights will be violated, civic participation will be minimised to a level that eliminates the people's ability to influence urban policies, encouraging them to pursue their individual interests rather than promoting community values and ethics, resulting from a feeling of inequity. Efforts to reduce pollution will be doubled due to rising public expectation, while refuse management and local environmental considerations will be ineffective due to the absence of environmental awareness. Instead, the priority will be to meet basic needs such as infrastructure and housing.

The involvement of academics and NGOs in urban development will be limited, the gap between academic research and practice will increase and involvement in decision making will be limited due to the GOPP's lack of consistent criteria for academic consultancy. This is because the political orientation and popularity among the GOPP's officials will remain the rule.



### ***Scenario implications***

In this scenario, the effects of a continuation of the current trends and constraints on the future of sustainable urban development in the GCMR is examined. It reveals the danger of ignoring sustainability principles in relation to the future of urban growth, transportation, employment and environment in the GCMR. The scenario informs the decision makers about the problems that could occur if immediate action is not taken concerning urban, institutional, economic and social problems. The lack of coordination and integration between different government policies will lead to degradation of the environment, and in addition, resources will be wasted due to lack of integrity between national and local policies' implementation and focusing on political propaganda projects.

Is there cause for concern? Does this scenario sound like a doomsday prediction? Indeed, the future is gloomy if we continue on our current path. Now that we have reflected upon what will happen if we maintain the status quo, let us consider alternatives that attempt to address problems in the GCMR.

#### ***7.4.2 Scenario 2: Sustainable urban development: changes from the inside out, winds of change***

##### ***Assumption***

This scenario is based on the assumption that civic society may witness cultural change. Consequently, civic society will become frustrated with the current political body, which will lead to critical changes in the political body causing it to be replaced with an effective and coherent government. This will permit a new way of thinking coupled with initiation of new national and local policies.

##### ***Storyline***

The current Egyptian government answered the call for radical changes in the government structure due to urgent and angry calls from the people, and to global influence for more democratic practice and transparency. Finally, Egypt has a democratic, transparent government that works for the people, and enhances the economic, social and environmental daily life for

Egyptians. This will lead to a re-thinking of the current performance of different policies on the national, regional and local level. To do this, a range of stakeholders (academics, NGOs and government bodies) joined to discuss the future performance of current policies and to suggest actions and initiatives for a new government.

An integrated urban policy taking into consideration the multiple scales (national, regional and local level) was introduced. The result is an urban policy that takes into consideration economic growth, population, and spatial aspects at the national policy level (with the help of academics and NGOs). Sustainability has been accounted for in new government policies, including environmental protection, economic growth, employment distribution and spatial activities that have the following results:

1. Formation of a new integrated urban policy will work in a horizontal direction with the rest of the government sector policies, and vertically in terms of different tiers of planning at the national, regional and local levels. The new policy encourages decentralisation of decision making and gives flexibility at the regional and local levels so that they may tailor their decisions according to their objectives and targets. In addition, the policy creates incentive policies for regional and local government in terms of bonuses and best practice of sustainability in a way that introduces competition between different local governments. This consequently encourages local governments to carry out various initiatives to compete with other local communities. This will improve overall sustainable urban development implementation at the local community level.
2. The new urban policy will allow independent evaluation and monitoring of policy implementations through independent research and academic centres that have the power to inform and suggest new approaches to existing policies.

3. The urban policy will give civic society and NGOs the opportunity to participate in urban policies through enhanced institutional rights by the new government to agree or oppose the deployment of a new policy.

4. Through the new policies, an effective role of the GOPP regional government will positively affect the urban development policies in the region, working under a consistent national policy coupled with decentralisation enhancement. Immediate decisions will be fast and not require bureaucratic central department approval. Plans for regional sustainable development will be conducted according to each region's potentials and constraints, and more attention will be given to the social, environmental and economic development of the region.

5. At the GCMR regional level, a first step will be initiated to re-evaluate current urban growth. With the help of academics and NGOs a new policy is proposed, which integrates transportation, land-use activities, and the environment. The new policy will be able to take into consideration the spatial distribution of activities by linking employment opportunities with new housing development in new towns, which will encourage an increase in population densities in new towns. Incentives initiated for moving from the inner core to the new cities will balance population distribution, which will resolve inequity between different classes by having sufficient services and urban open spaces and green areas in different parts of the GCMR.

6. Implementation of the New Cairo Project that equals the size of the old Cairo urban area will be re-evaluated and integrated into a new urban growth policy to achieve sustainable urban development in the region. New rules and regulations for urban development will be introduced as necessities for future and existing urban areas. New regulations will ensure that the plans consider the number of job opportunities required by a new community to reduce daily commuting in the region. Transportation planning policies will be modified to encourage the use of public transportation through a series of incentives and regulations used to restrict private automobile usage, especially in Cairo's old centre.

7. Practising democratic life in society will influence new policies by encouraging civic society to participate in policy formulation. Rising household incomes, resulting from economic growth will mean that daily expenses no longer account for a substantial proportion (currently up to a third) of household expenditure. Separation of the GOPP from the Ministry of Housing will allow for independent work concerning the evaluation by the Ministry of Housing and infrastructure plans. The GOPP will take the role of monitoring and evaluating urban policies suggested by the Ministry of Housing. In addition, the National Urban Observatory will take on the role of evaluating both GOPP and Ministry of Housing performances and inform the national policy makers in cases where it is to take appropriate action for specific policies.

8. The transportation-planning department will conduct a large-scale project to connect the region with public transportation by extending underground routes to include the new cities and communities implemented in the desert. Thus, the idea of a transit-oriented district will be promoted.

9. On the local level, the urban local government, helped by academics, will be able to deal with urban management problems and take effective action to implement urban policy initiatives. Cooperation between local government and NGOs and private donors will be initiated in order to provide funding and expertise to the urban local government. The NGOs will play a critical part in raising environmental awareness as well, by introducing environment initiatives and actions to local communities.

It is now the year 2036. The region is spatially well balanced and increasing population densities in new towns have an effective impact on the overall population distribution in the region. A new employment policy in new housing development has affected both the number of job opportunities and the reduction of daily commuting into the core city. More open space green areas have been created in the core, but the total population is still increasing, transportation problems still exist due to the cultural fact in Egyptian society that car ownership is an indication of social class. Illiteracy

rates have been reduced from 45% to 25%. The disappearance of old political attitudes from before 2006 means that participation in the democratic process has increased from 10% to 45%. Scientific and academic contributions to society are acknowledged, the level of cooperation between the government and international donors has increased, even doubled. The housing market has increased in terms of variety and prices, and sustainability is being taken seriously by the new government.

### ***Potential impact of the scenario***

The above scenario offers a number of potential impacts on future sustainable urban development in the GCMR. First of all, it encourages integration in urban policy at different geographical levels (national, regional and local). Secondly, the missing link is inserted between national planning and local planning by the introduction of regional planning policies. This link will be an important step in ensuring implementation of national plans consistently, and will provide a performance evaluation link between local and national policies. Thirdly, the scenario offers a chance to achieve transparency by allowing different stakeholders such as academics, NGOs, and the public to participate in the process of policy formulation. In addition, the scenario promotes a more effective performance of urban government by separating the GOPP and National Urban Observatory in the monitoring of implementation of sustainable urban development plans and in informing decision makers on a regular basis about the performance of specific policies.

### ***Scenario constraints***

This scenario faces a number of challenges, which can be summarised as follows:

The scenario implies a great deal of change in the way the government conducts its business, particularly at the executive level and at the level of national policy makers. The scenario involves a considerable amount of re-structure in different sectors. In addition, the scenario faces the challenge of time, which is needed for these changes to occur, and requires a large national budget to implement it.

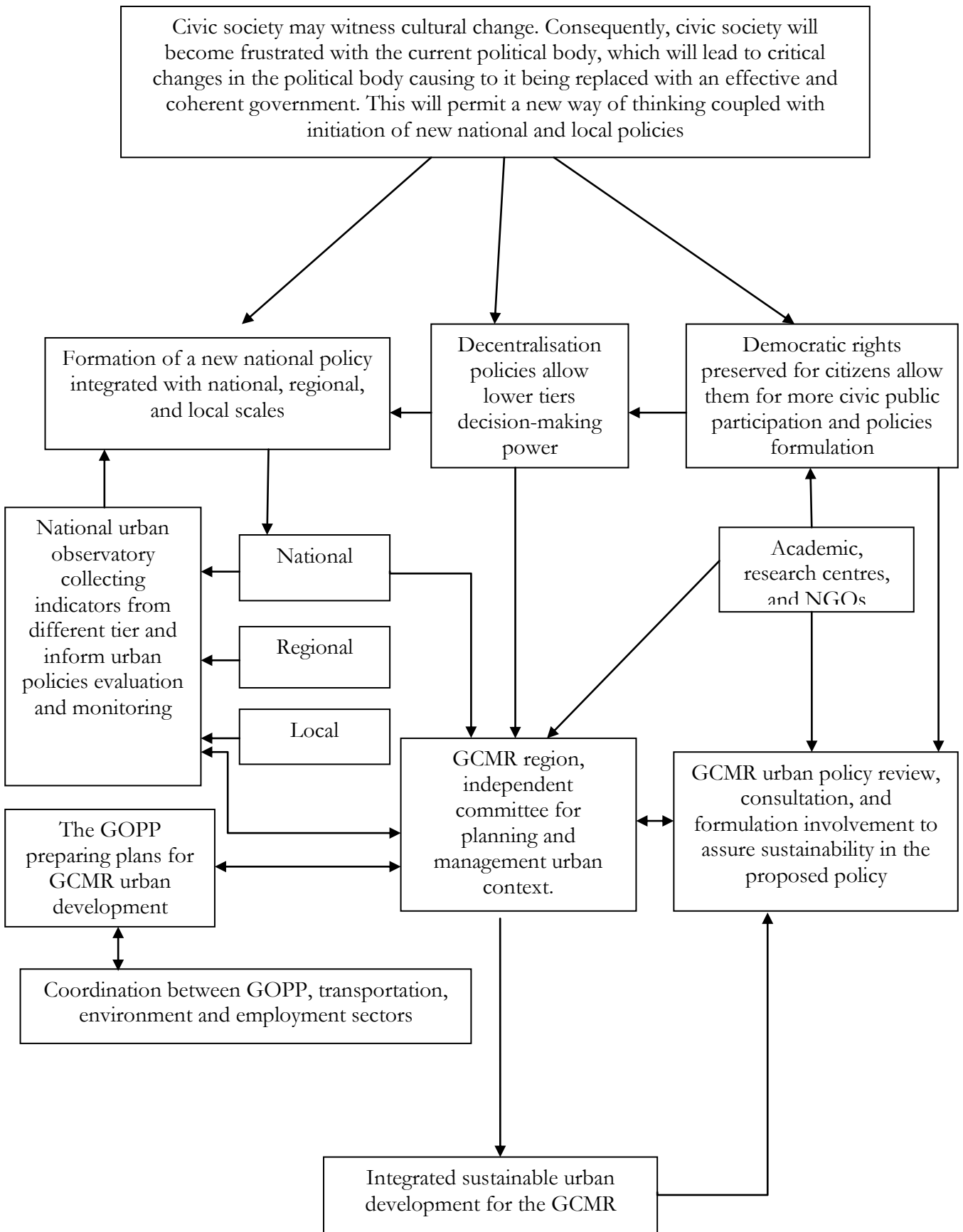


Figure 7.6: Tree analysis of scenario 2

To encounter the limited national budget, wise economic resources management will help increase the national income, as well as putting a halt to unfeasible projects such as the Toshka Development in Upper Egypt, which was implemented for the sake of political propaganda. Orienting government resources to the basic sectors of health, education and environment will affect the overall future of sustainable urban development in the GCMR.

The scenario also requires a great deal of change in civic society. Issues such as private car dependence, lack of use of public transport, environmental ignorance and absence of political participation take decades to be changed. It may require a considerable amount of time to make major changes in political rights, laws and regulations, resulting in possible delay in implementation of this scenario.

### ***7.4.3 Scenario 3: Sustainable urban development: An international outlook***

#### ***Assumption***

The third scenario is based on the assumption that global factors such as democratic, economic and social reform pressures from the international community will influence the political and urban government performance. Consequently, an increase in international partnership, financial, and technical assistance between the government and international community will take place. International technical and financial support will concentrate on achieving sustainable urban development with a bottom-up approach by working at the local community level to encourage changes in higher government policies.

#### ***Setting up the scene***

This scenario assumes that global factors have the ability to influence the sustainable urban development of the GCMR. Global factors, such as technical and financial support from NGOs could increase in the future with a major impact upon the implementation of sustainable development at the local level. Organisations such as UNDP, Habitat, and GTZ have a long history of working with the Egyptian urban context, and through the help of

these organisations, sustainability could be achieved by taking a bottom-up approach and by starting at the local level, which would in due course affect the higher tiers of urban planning in the country.

### **Storyline**

The current government in Egypt focused on development, and partnership was established with various stakeholders. NGOs played an active role in the partnership policy to improve urban development in Egypt. These partnerships extended from current national environment activities, such as environmental conservation of the Red Sea and environmental coastal zone management proposals, to focusing on environmental and urban initiatives at the local level. These initiatives included housing, education, transportation and social activities. Partnerships between the government and NGOs allowed certain protocols to be initiated such as evaluation and monitoring, human resources, and expertise. Consequently, the NGOs required consultancies from academics in order to carry on the urban initiatives. In addition, new partnership projects required close working with the local government and civic society. As a result, academics and the NGOs got the chance to practice sustainability on a small scale.

As a result of these initiatives:

1. Programmes will emerge in local authorities in the GCMR, and initiatives such as local environmental awareness programmes and new environmental classes will be introduced in the primary educational system.
2. Refuse collection programmes will be inaugurated, which will generate new jobs within the local community, such as exchanging refuse for metro tickets, as the metro has proved to be the most reliable public transportation system. Environmental projects will help to enhance the built environment and increase health indicators, especially in the poor informal housing area in the GCMR core city; also, this will encourage people to use public transportation.
3. A number of studies will be conducted through these partnerships to evaluate various policies such as employment, housing and new towns, and urban growth policies. These evaluations will have a considerable amount of



academic contribution, including expert and public opinions that will enhance the inputs for a new local urban policy. Consequently, the partnership between the government, NGOs and academics will lead to specific initiatives:

- Environmental initiatives for local government technical training and consultancy which in turn will focus on environmental issues at the local level, including air pollution, refuse collection, environmental education, environmental studies, and engagements in urban management.
- Social initiatives, including civic participation programmes, education and health services.
- Transportation, traffic management and awareness programmes to promote the benefits of public transportation use.
- Employment initiatives, including programmes for generating jobs, and studies of local economy improvement.

The results of these partnership initiatives will become apparent after 5-7 years in the daily lives of citizens, and will be recognised by the GCMR authorities, the GOPP and politicians in the people's parliament.

4. Calls for more involvement from NGOs and academics to improve obsolete government programmes and policies will be demanded from several parties of the parliament.

5. Pressure from the parliament and the tangible success of previous partnerships will encourage the government to move to the next stage for the GCMR and other large cities in Egypt such as Alexandria, Ismailia and Elmansoura.

6. NGOs and academics working at the GCMR level will analyse the existing situation of the urban context in the region, and these analyses will conclude in a number of recommendations:

- Revision of the existing urban policy for the GCMR, including urban growth, housing, transportation and the economic and social sectors.

- Integration of social, economic and environmental policies in the CM urban policy.
- Revisiting new towns' policies with evaluation of current performance and the possibility of the creation of jobs and affordable housing.
- Institutional recommendations concerning the GOPP and its dependency upon the Housing Department, such as a separation of the GOPP, the National Urban Observatory, and the Housing and Utilities Department.

7. The positive results of partnership at the local level will raise the question of extending these partnerships to national policies, concerning the environment, transportation, the social and economic domains, and will include public participation.

8. At this point, the requirements suggested by the NGOs and academics will face bureaucratic resistance and will take some time to implement. This process could, however, be accelerated due to the current trend of privatisation and decentralisation by the government.

9. The need for an integrated urban policy that takes into consideration the national and local level will lead to the creation of a regional level of policies in order to implement national policies. The new system of planning will therefore consist of three tiers: national, regional, and local. This will require a restructuring of urban planning organisational bodies. In addition, new institutional regulations will be expected from GOPP regional branches, including consistent definitions for various issues such as spatial regional policy requirements for environment, transportation and employment. Cross linkages between different departments with the GOPP will be needed to ensure that sustainability principles are achieved in urban policies. These changes will take a considerable amount of time to be achieved because of organisational culture in the Egyptian government.

10. At the GCMR level, the impact of new changes in the structure of the urban planning bodies will generate three important issues:

- The separation of the GOPP from the Ministry of Housing, Utilities and New Communities Department will mean that GOPP resources are concentrated on producing urban development plans with sustainability requirements. In addition, the MHUNC will be responsible for housing policies, which are consistent with the policies of the GOPP.
- The National Urban Planning Observatory will evaluate and monitor progress by both the Housing Department and the GOPP and signal any weak performances concerning housing, social, economic or environmental indicators.
- The ability of NGOs and academics to monitor and evaluate the implementation of government urban policy are recognised

11. Benefits from the partnership between the government, academics and NGOs will have several aspects over the long term:

The contribution of academic research will be acknowledged and adopted. Research will focus on employment and the spatial distribution of activities in a way that promotes the adoption of low population densities in new towns. Incentives will be initiated to encourage people to move from the inner core to the new towns. This will balance the spatial distribution of population densities, and in so doing resolve inequity between different classes by having sufficient services and urban open spaces and green areas in different parts of the GCMR.

- Re-evaluation of current urban policy will curb the implementation of the New Cairo Project, which is considered by most Egyptian academics to be an urban growth catastrophe, because it almost matches the size of the core city. Instead, new urban development will be implemented according to the new urban policy to achieve sustainable urban development in the region. In addition, the sustainable planning projects conducted by NGOs, and previously neglected by the government, will be integrated into the mainstream of the government by applying the experience to the urban planning process. A Project such as Sustainable Ismailia could turn out to be a

remarkable prototype for achieving sustainable urban development in other cities including the GCMR.

- New rules and regulations of urban development will be introduced as necessities for future and existing urban areas. New regulations within the plans will deal with the number of job opportunities required in a new community in order to reduce daily commuting in the region. Transportation planning policies will be modified so as to encourage public transportation use through a system of incentives and regulations restricting private automobile usage, especially in Cairo's old centre.
- The NGOs' and academics' involvement in the urban planning process will cause the level of civic participation to increase, through training, participation, and the implementation of such plans as the Ismailia Sustainable Project case.
- Economic growth due to the increasingly efficient management of resources by NGOs and academic research will be reflected in household incomes by a reduction in daily expenses such as travelling costs. These daily expenses currently account for about a third of household expenditure (Wafiq, 2006).
- Public transportation and environmental awareness in the community will increase due to local initiatives undertaken – in the scenario's early stages – by NGOs and the government.
- The technical and financial support provided by NGOs will improve the performance of urban government in dealing with urban management problems as NGOs will evaluate and monitor the urban policy of the region and take effective actions to implement the urban policy initiatives.

It is now the year 2036. Changes have occurred as a result of the bottom-up approach, increasing sustainable urban development practice in the country. These changes may be seen at the local level by the number of programmes and initiatives dealing with sustainable urban development. At the regional level, conflicts between NGOs, academics and urban government still exist

due to the insecure behaviour of government officials toward NGOs; however, in general, sustainability issues are taken seriously. Environmental awareness will increase and the use of sustainability indicators is notable, which will influence urban policy formulation at different levels of urban planning. As a result of new urban policy for the GCMR, the government succeeds in generating and allocating jobs in the new towns, which in turn increases the current low population densities in these towns. In addition, environmental and transport initiatives and programmes have helped the region to limit daily commuting, reduce traffic congestion, and introduce environmental regulations for communities such as refuse collection, open spaces, green areas, and a healthy built environment.

### ***Scenario potentials***

This scenario suggests that a bottom-up approach could achieve sustainable urban development. The advantage of this approach is that achieving sustainability on a small scale provides concrete evidence of the benefits of sustainability in different sectors of the community, such as health, education, transport, environment and employment. Physical evidence is usually a powerful tool to convince decision makers to adopt and extend the approach on a large scale.

In addition, this approach gives NGOs and academics an opportunity to prove to decision makers their capabilities in innovative thinking and management skills, and improve the local environment. It suggests that critical changes in local government will encourage national government to improve their policies based on the success of local policies. This scenario requires a considerable amount of time and effort from all stakeholders to cooperate and work together to serve the community, especially concerning civic participation, which will benefit from this approach.

The evaluation and monitoring of government policies would be conducted by different stakeholders with different interests instead of the current government practice, whereby the government alone is responsible for the implementation, evaluation, and monitoring of policies. This is an overlay

rigid approach and can lead to manipulation of the results according to political purposes. The slow pattern of changes will allow a considerable amount of time to transform the old system into new institutions, regulations and policies. By 2036, this approach will attain the targets for sustainable urban development in the GCMR.

### ***Scenario constraints***

Several constraints can be summarised for this scenario:

The level of cooperation between the government and NGOs requires effort from the government to attract international financial support. To do so, a degree of positive economic growth is needed, which is considered as an important mandatory criterion for international donors to allocate funds to certain projects. If this scenario is implemented, the government will be expected to re-evaluate current expenditure in specific sectors such as the military and the internal law enforcement sectors, which may delay proceeding with the scenario as it conflicts with current political leadership agendas.

This scenario requires a level of transparency between the government and other development stakeholders. For instance, the government may be transparent with international donors and NGOs, and not transparent with the public and academics. In order to achieve consistency with all stakeholders, an improvement in current political daily practice is required.

The scenario requires changes in the organisational culture in terms of cooperation between government officials and the rest of the stakeholders, instead of the existing stereotype pattern where any non-government structure is seen as an enemy; another aspect required is cooperation between different government sectors in terms of data sharing and consultancy.

### ***The scenario main themes***

The approach of this scenario takes into consideration slow economic growth, which is a major challenge because partnerships between the scenario stakeholders require financial resources, which could be a burden to

the current economy of the country. It gives the opportunity to the government to improve its public image and demonstrate its willingness to cooperate with different stakeholders in order to ensure the urban context of the GCMR achieves the principles of sustainability in terms of equity, employment, public transportation, participation and environment.

This scenario requires major changes in terms of political rights, laws and regulations. It attempts to explore a bottom up approach where achieving sustainability emerges from the lower tier of planning. It could be effective in the long term by achieving sustainability in the GCMR in a gradual way and by being realistic, rather than achieving sustainability in fast leaps with radical changes.

## **7.5 From scenarios to strategy**

### **7.5.1 Scenarios evaluation**

The initial step discusses the three scenarios in a parallel order to evaluate the expected trends of sustainability aspects and whether improvement or deterioration occurs in each scenario. In order to conduct this evaluation, this step involves the preparation of evaluation criteria. For the purpose of consistency in the scenario-building process, the criteria used to evaluate the three scenarios are the same factors that determine the future achievement of sustainable urban development in the GCMR. These factors were listed in the previous section (Box 7.1).

Table 7.1 shows the expected direction of each factor: whether it improves, deteriorates, or maintains the current state. Each criterion column is divided into two sub-columns, the first column describing the expected change of each factor and the second column indicating the direction of improvement. Additional criteria are added to the table to show the influence of each scenario at local, regional and national levels, and the expected urban growth pattern in the GCMR according to each scenario's events and assumptions. The table shows a qualitative evaluation of the three scenarios, and the evaluation process looks thoroughly at every aspect within each scenario rather than quantifying the level of improvement for each aspect because this stage of the research is concerned with identifying a number of priorities to inform the GCMR sustainable urban development strategies.





## Evaluation aspects

Scenarios	<i>Employment:</i>		<i>Accessibility</i>		<i>Environment</i>	
<b>Scenario 1</b> <i>Sustainable urban development under the political status quo</i>	Avoid spatial distribution which influences urban growth and new development areas	—	Separation of transportation plans and urban policy decreases accessibility and increases traffic congestion and daily commuting	—	lack of environmental practice continues, coupled with weak regulations	==
<b>Scenario 2</b> <i>Sustainable urban development: Winds of change, Changes from the inside out.</i>	New employment policy takes into account spatial distribution to decrease daily commuting to the core city	+	New transportation strategy at the national, regional and local level associated with smart growth urban policy	+	Integrating environment with urban policy in various spatial scales, new environmental requirements in preparing urban development plans	+
<b>Scenario 3</b> <i>Sustainable urban development: An international outlook.</i>	Increase of local job availability through employment management programmes	+	Public transportation local initiatives to increase public transportation awareness gradually influence city and regional planning policies	=	Strengthen environmental practice at the local level through various initiatives	+

## Evaluation aspects

Scenarios	Evaluation aspects				
	<i>Urban form</i>	<i>Urban policy</i>	<i>Global influences</i>		
	<b>Scenario 1</b> <i>Sustainable urban development under political status quo</i>	Improvement in the new housing development	Ineffective urban policy in terms of urban growth, employment, spatial distribution, and industrial activities	Global influences increased in some aspects such as oil prices, environmental friendly fuel	+
		+	-	=	
<b>Scenario 2</b> <i>Sustainable urban development: Winds of change, changes from the inside out</i>	Urban management for both existing and new housing development based on local participation	New urban policy based on three tier spatial planning system, national, regional and local level	Increase in financial and technical aid, research collaboration, and urban project management	+	
<b>Scenario 3</b> <i>Sustainable urban development: An international outlook</i>	Inner core urban regeneration initiatives, increase of pedestrian areas, improving urban design quality	Long-term urban policy, increase in collaboration between the new government and NGOs and academics in policy making and technical assistance	Global influences increased in oil prices, and national economy. Increase of financial and technical aid	+	

**Scenarios** **Evaluation aspects**

	<i>Planning regulation</i>	<i>Policies integration</i>	<i>Human resources</i>
<b>Scenario 1</b> <i>Sustainable urban development under the political status quo</i>	Lack of sustainable aspects in planning regulation such as green open areas, activities distribution, informal housing =	Lack of multi-sectoral integration cases conflicts in the various policies such as transport, urban, socio-economic policies =	Concentration on the IT building capacity and lack of decision making building capacity =
<b>Scenario 2</b> <i>Sustainable urban development: Winds of change, changes from the inside out</i>	New planning regulation , consideration of sustainability aspects in urban regulations +	New urban policy integrated with transport, employment and environmental aspects +	Resources and capacity building expands to cover urban strategies, decision making +
<b>Scenario 3</b> <i>Sustainable urban development: An international outlook</i>	Evaluation of existing planning regulation , new consideration for sustainability aspects in urban regulations +	Enhancement of existing urban policy to include transport, employment and environmental aspects +	Human resources and capacity building expands to cover urban strategies, decision making and sustainability +

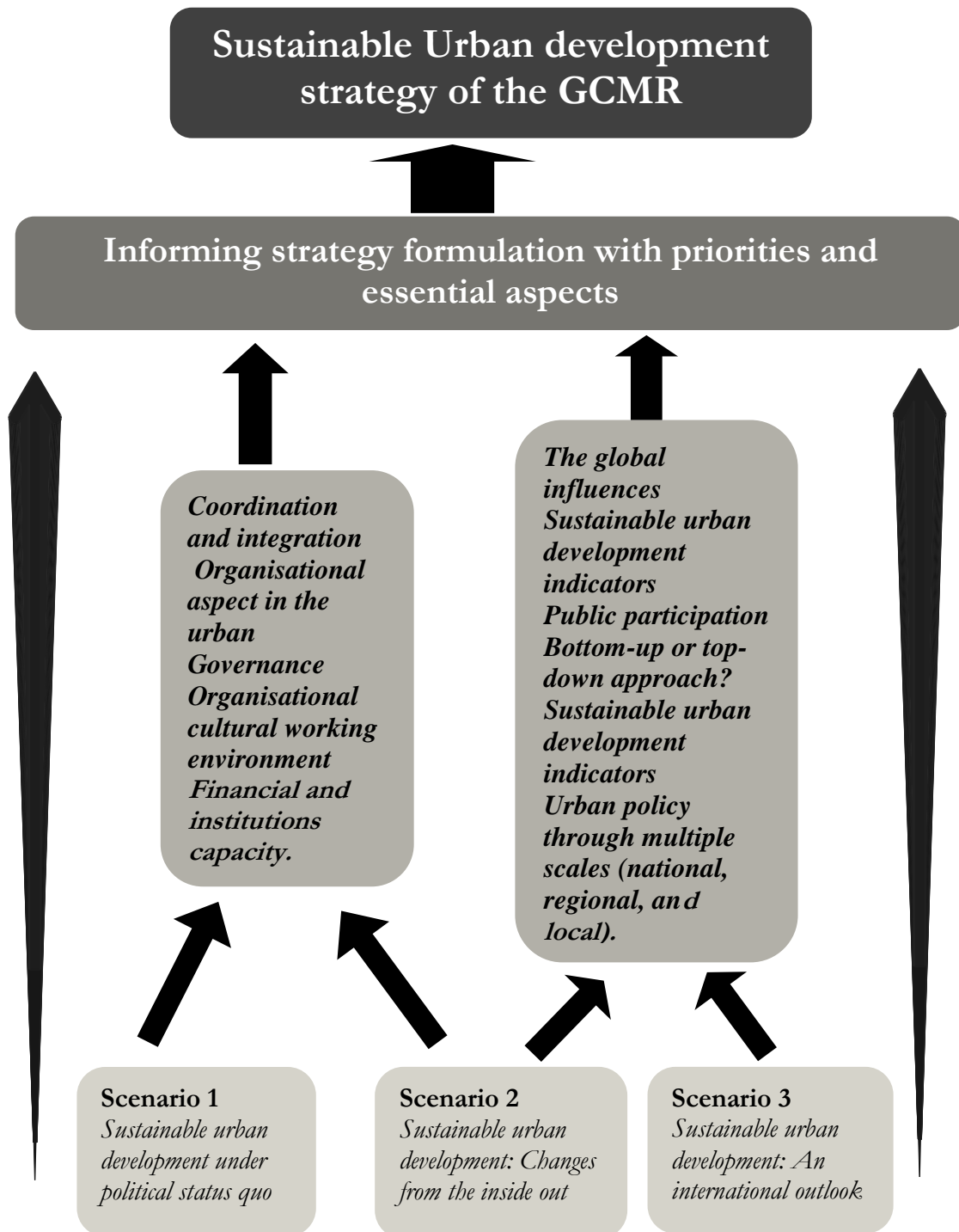
Scenarios	Evaluation aspects	
	<i>National urban observatory</i>	<i>Political government</i>
<b>Scenario 1</b> <i>Sustainable urban development under political status quo</i>	Housing indicators focus, neglecting other sustainability aspects, such as environment, social, and economic indicators	Priority given to national security issues, development in other economic and social aspects
<b>Scenario 2</b> <i>Sustainable urban development: Winds of change, changes from the inside out</i>	National urban observatory expands its activities to other indicators, including socio-economic, environmental and institutional aspects	New political leadership concentrates development on social, economic and urban environmental aspects
<b>Scenario 3</b> <i>Sustainable urban development: An international outlook</i>	National urban observatory expands its activities to other indicators, including socio-economic, environmental, and institutional aspects	Political leadership influenced by the efforts excelled by international donors and organisations

**Table 7.1: Scenarios Evaluation Matrix** (- indicates negative effect, + indicate positive effect and = indicate no change effect)

### **7.5.2 From evaluation to priorities**

The process of scenario building is not meant to end at the scenarios' storyline stage, but it gives the opportunity to derive priorities and initial aspects from the different scenarios in order to inform a future strategy with the important aspects to develop. Figure 7.7 describes the transformation stage between scenarios and the developing of the strategy process through identifying priorities. It shows that the priorities generated by each scenario are grouped into a series of priorities and issues for discussion in the strategy. The process of scenario evaluation for the GCMR reveals various aspects that are involved in sustainable urban development in the GCMR such as:

- **Global influences** on the future of the GCMR can play an important role, and the impact of international politics on the government structure could be negative or positive. In scenario 1, for example, the international political situation could help the current government to continue. Egypt is one of the important allies in the Middle East for the United States and in order to assure implementation of United States' foreign political agenda toward the Middle East, this situation could encourage political leaders to sustain the current Egyptian political leadership. In scenario 2, on the other hand, global influence could strengthen democratic practice in civic society that leads to crucial changes in Egyptian social structure. In scenario 3, the role of international donors strengthens the local government and introduces a bottom-up approach in order to enhance political leadership in the long term. In all three scenarios, global factors are considered a key element in sustainable urban development in the GCMR and should be considered carefully in the process because of their sensitive impact on the Egyptian political context.



**Figure 7.7: Scenarios outputs priorities to inform the formulation of a proposed sustainable urban development strategy in Greater Cairo.**

- **Coordination and integration** is the second key to the process. Coordination means the ability of different departments to share information and inform other departments by consultancy and advisory panels to formulate, implement and monitor urban policy. Integration means that urban policy should take account of other policies such as transportation, environment and socio-economic policies to achieve integrity and efficiency when formulating and implementing national and local urban policies. Scenario 1 demonstrates that lack of cooperation and integration between different government policies is liable to lead to degradation of both the environment and the built environment. In addition, there is waste of resources caused by the missing links between national and local policies' implementation. Scenario 2 demonstrates the possibilities of increasing the level of cooperation and integration in a way that enhances sustainability in the urban development process. The scenario links national and local urban development by introducing the regional level. It also minimises centralisation issues that are currently considered an obstacle for urban development in Egypt because the current level of dependency on national decisions delays the implementation of urban policy. In addition, centralisation does not empower each region for decision making. Scenario 3 activates and enhances the urban development process at the local level, and allows the urban planning process to include a wide spectrum of stakeholders represented in the government, including academics and NGOs. It gives the opportunity to utilise NGOs resources and academic expertise to enhance the sustainable urban development process in the GCMR.
- **Organisational aspect in the urban governance** is a third key to the success of sustainable urban development in the GCMR. The way urban government performs including its organisational structure can delay or accelerate the sustainable urban development process in the GCMR. Scenario 1 demonstrates that GOPP dependency on the MHUNC department decreases the level of evaluation and monitoring



of the urban development process in general in Egypt. This scenario suggests the altering of urban policy occasionally by the MHUNC Minister, and only a limited contribution by the GOPP in the implementation and evaluation of urban policy. Consequently, an impact is seen in patterns of current and expected urban growth in the GCMR such as spatial joining of satellite settlements, as in the case of New Cairo. Scenario 2 separates the GOPP from MHUNC in a way that monitors the urban policies efficiently and transparently. Scenario 3 assumes that increasing partnerships between the different stakeholders will automatically influence urban policies and enhance evaluation and monitoring of urban policies.

- ***Sustainable urban development indicators*** are a fourth factor in the process. Urban policy implementation should always be evaluated and monitored by sets of specific indicators. Indicators inform both policy makers and the public of the degree of success of the policy. Consideration of formulating an integrated set of indicators (socio-economic and environment) had been indicated in chapter 2 in order to maintain tracking of sustainable urban development progress. The importance of indicators has been considered in the GCMR scenarios. For instance, scenario 1 assumes that the current urban observatory in the GOPP continues to play a role, which is more political than practical, by focusing on the indicators that are meant to enhance the vision of the government at international and national levels. Scenario 2 assumes an independent role for the urban observatory, which is to collect, process and monitor urban policy. Scenario 3 assumes that the NGO partnership will enhance and extend the indicators to cover all sustainable urban development areas in the GCMR.
- ***Urban policy at a range of geographical levels (national, regional and local)***. The scenarios stress the importance of linkage between the different tiers of urban policies on national, regional and local levels. This linkage is the key to assuring the implementation,

monitoring and evaluation of policies according to the policies' objectives at the various spatial scales. Scenario 1 demonstrates what could happen if this linkage is missing and how it affects the efficiency of urban policy implementation. Scenario 2 introduces this missing link, which enhances the process of delivering urban policy at various spatial scales. Scenario 3 approaches this problem by supporting this link through partnerships between the government and other stakeholders in terms of technical and financial support at the regional level.

- **Public participation.** The scenarios demonstrate how the role of public participation could play a positive role in sustainable urban development in the GCMR. The role of civic participation is one of the important elements of sustainability because it allows the public to share in the formulation and implementation of urban policy. In addition, it increases the level of awareness of the consequences of the urban policy on both the natural and the built environment. Scenario 1 represents the case in which public participation is absent in the urban development process and shows how it affects not only the urban context but also extends to the social and political context. Scenario 2 demonstrates how public participation is a valuable asset in the sustainable urban development process. Scenario 3 continues to enhance this role at the local level, which can later influence the social and political participation at various levels.
- **Organisational culture in the working environment.** Transparency in terms of data sharing and integration is another important element in the way to enhance the urban development decision-making process. Vagueness and unreliable data cause delays and ineffectiveness in taking any policy decision. Behaviour in the organisational culture in Egypt needs to include data sharing awareness within each single organisation and within the current institutions that govern the decision-making process. Scenario 1

demonstrates the absence of communication and data sharing in urban government between GOPP regional branches and international donors' independent urban development projects. The Sustainable Ismailia Project (SIP) is an example of this miscommunication. Scenario 2 encourages communication within and between the government, NGOs and academics. Scenario 3 approaches this problem by educating local officials through human resources and capacity building conducted by NGOs.

- **Financial and institutions capacity.** The scenarios discuss possible changes in government structure and policy evaluation, which requires a level of economic growth and stability. One of the factors influencing economic growth is the management of natural resources in terms of efficiency and effectiveness. Scenario 1 demonstrates the example of rigid institutions, which cripple the GOPP's capacity to make independent decisions while under the MHUNC umbrella. Scenario 2 provides a fresh start that depends on re-building the country with new institutions. This requires time and financial resources. Scenario 3 suggests that institutions could be changed gradually using the "bottom-up approach".
- **Human resources and capacity building.** The human factor is essential in the sustainable urban development process. Essential knowledge and practical experience should be required of government officials at all levels. Capacity building can assure knowledge and experience through workshops conducted by experts that cover all topics involved in the urban development process, from Information Technology (IT) to decision making and urban management. It is important to update government officials with new tools and techniques that keep policies on track, and provide officials with the awareness of the consequences of their actions. Scenario 1 explains the degradation that will occur in the future if the current pattern of urban planning practice is continued. The lack of knowledge and of

capable decision makers at the local and national levels cause delays, and result in inconsistent decisions taken in the absence of a clear urban policy. Scenarios 2 and 3 assume that a great effort will be spent on human resources and capacity building in order to improve the performance of decision making on a daily basis.

- ***Bottom-up or top-down approach?*** The question of the appropriate approach to achieve sustainable urban development in the GCMR is discussed in Scenarios 2 and 3. Scenario 2 suggests that the changes in the whole structure of the government will start from the higher level in a top-down approach, which achieves effectiveness and consistency in the long term but will take some time to become established. Scenario 3 suggests that changes will take place in a bottom-up approach that results in urban achievements in a short time. In addition, it can encourage higher levels to adopt it, which may promote the sustainable urban development process in urban government.

## **7.6 Conclusion**

This chapter is an initial step towards building a framework proposal for the GCMR. The chapter discussed the process of scenario building for the GCMR, including identifying the initial procedures through each step of the technique. In addition, the process identified the main actors, factors and sectors in the GCMR through an analytical approach. In addition, techniques such as cause and effect, and tree analysis were utilised in this part to identify the main factors that influence the future of sustainable urban development in the GCMR. The analysis revealed that political influences on the urban planning process in Egypt are present and destructive to the process. Initially, this part identified the uncertain factors that are the basis for determining the number of scenarios for the GCMR. The three main uncertain factors were global factors, political factors, and social and cultural change. Finally, a storyline was written for each scenario in order to explain the events and consequences expected for each scenario.

In addition, this chapter discussed the utilisation of scenario building in developing a strategy. The first evaluation of the three scenarios attempted to identify trends of each certain factor in each scenario. The evaluation indicated a number of expected trends; the research stage 2 formulates a set of priorities and crucial issues for building a sustainable urban development strategy for the GCMR. Scenarios 2 and 3 suggest that global influences, sustainable urban development indicators and public participation are key factors in the sustainable urban development process. In addition, it is important to decide on the approach to achieve sustainability in the GCMR; either a bottom-up or a top-down approach may be adopted. Sustainable urban development indicators and urban policy at different geographical levels (national, regional, and local) are essential in order to achieve efficiency and effectiveness in the process.

Scenarios 1 and 2 raise a number of questions that need to be addressed in order to achieve sustainability in the GCMR, such as, coordination and integration, and organisation in urban government. These aspects influence the overall performance of urban development in both Egypt and the GCMR. In addition, the organisational working environment and financial and institutional capacity are challenges to the achievement of sustainability in the GCMR. These aspects require flexibility in terms of regulations and institutions to make the urban planning process more dynamic.

## CHAPTER 8:

# A SUSTAINABLE URBAN DEVELOPMENT PROPOSAL FOR THE GREATER CAIRO METROPOLITAN REGION

### 8.1 Introduction

According to the methodology framework, which is mentioned in chapter 3 (see figure 3.1), the case study analysis outcomes are utilised in the scenario-building methodology to identify alternative futures for sustainable urban development in the GCMR. Through evaluation of these scenarios, a number of issues arose concerning sustainability in the region; these issues will form the backbone of the proposal (see chapter 7). This chapter discusses a sustainable urban development proposal for the GCMR formulated by creating a hybrid alternative from the scenarios outcomes. The proposal discusses critical issues, which have been generated from the scenarios evaluation process; in particular, democratic practice, organisational restructuring, urban policy evaluation, and NGO and academic participation in the urban development process. In addition, the scenarios raised the question of what is the most appropriate approach to achieve sustainability, whether it should be top-down or bottom-up. However, the right approach depends upon the Egyptian government's willingness to think seriously about sustainability at the national and local levels. This chapter identifies the requirements and tools to solve problematic issues in the GCMR proposal. This proposal considers the guidelines and requirements for each sector involved in the urban development process, and discusses the urban development stakeholders' role in the GCMR.

This chapter answers the following questions:

What should be the main elements of the GCMR sustainable urban development proposal?

Why are crucial changes important to achieve the GCMR proposal?

Which stakeholders should be involved in a sustainable urban development proposal for the GCMR?

What are the various stages of implementing the GCMR proposal?

What organisational changes are required in the Ministry of Housing, Utilities and New Communities in order to achieve the goals of the GCMR proposal?

The starting point for this chapter is to define the aim and objectives of the GCMR proposal, which are based on the scenarios evaluation outcomes. The next step is to formulate the short- and long-term objectives of the proposal. This chapter discusses suggestions for each sector involved in the urban development process in order to clarify the prerequisites needed to move towards sustainability. After setting up the general guidelines for the proposal, the following section discusses the details of organisational restructuring necessary within the Ministry of Housing, Utilities and New Communities in order to implement the suggested proposal.

The transformation of current urban development practice into a new practice with a new approach to sustainable development requires changes, not only for urban governance, but also for other sectors such as political, organisational and cultural concerns. Starting a new sustainable approach from scratch requires long-term and short-term objectives in order to achieve sustainability. Therefore, the proposal concerned with sustainable urban development of the GCMR is divided into three main phases:

In the first phase, the chapter defines the overall statement and objectives of the proposal, and the prerequisites in the different sectors of the government to assure the delivery of the proposal. This phase includes a discussion of several aspects of the proposal's general requirements. The chapter discusses the components of the proposal in the second phase, and identifies crucial issues for achieving sustainable urban development in the GCMR, including recommendations for existing urban policy, urban growth, environment, transportation built environment and employment. In the third phase, detailed organisational requirements for urban governance is provided, including restructuring of existing planning bodies, and defining of major roles and regulations that govern the GCMR proposal. In addition,

detailed suggestions of the housing market study and organisational restructuring requirements of the GOPP are discussed.

## **8.2 Proposal statement and objectives**

The different scenarios in the last chapter provided alternative futures that the GCMR urban context may experience in the next thirty years. The evaluation of the scenarios derived a number of crucial issues concerning sustainable urban development in the GCMR. Initially, this allowed us to formulate the proposal's statement, and to take into account these issues to formulate the main aim of the GCMR sustainable urban development proposal. Consequently, the GCMR proposal's main statement is:

Sustainable urban development in the GCMR requires the involvement of the government, academics, NGOs and public participation. In addition, accountability of government policies, coupled with the integration of multi-sectoral policies in the urban policy, is a cornerstone of the proposal. Efforts to curb urban growth, new town management, activities and employment distribution, and protecting the natural and built environment must be accompanied by the necessary institutions, regulations, and effective local government performance through working in partnership with different urban development stakeholders.

### **8.2.1 Proposal objectives**

The foundations of the new strategy's objectives lie in avoiding the drawbacks of current urban development practice in order to provide new approaches that achieve sustainability in the GCMR. Analysis of the current urban development practice identified a number of issues that prevent sustainable urban development practice within the Egyptian urban government. Issues such as an inconsistent GCMR urban policy, the absence of an effective role for NGOs, and political and organisational concerns that influence the accountability of urban policy delivery should influence the formulation of the objectives of the proposal. Bearing this in mind, the objectives of the proposal are:

- To draw attention to political concerns that indicates accountability and efficiency in delivering urban policy at the national, regional and local levels. This requires improving urban authorities' performance in terms



of decentralisation, dependency, cooperation with urban development stakeholders and adopting consistent evaluation and monitoring systems.

- To initiate a positive role for public participation in the process of formulating, designing, implementing and monitoring urban policies by securing the institutional rights for public involvement in urban policy.
- To ensure the integration of various sectors, such as employment, environment and transportation, in urban policy formulation in order to deliver effective policies.
- To increase the level of involvement of NGOs and academic centres in the urban development process by extending partnership contracts to include regional and local urban governments in major national projects.
- To draw attention to the role of building capacity in improving local government performance by widening the scope of current capacity building topics to include urban decision making, management, regeneration and organisational issues.

### **8.2.2 Proposal prerequisites**

It is not expected that this proposal will be implemented without profound changes at higher levels. Therefore, a number of prerequisites must be discussed in order to ensure that sustainability is taken seriously by urban development stakeholders. Western experience, discussed in chapter 2, indicated that certain requirements needed to be met in order to achieve sustainable urban development. Consequently, the lessons from international sustainable examples aid in the formulation of the critical assumptions in this section.

#### ***Political accountability***

When discussing sustainable urban development policies, it is important to bear in mind the difficulty of dealing with higher political and governmental matters in a regime oscillating between dictatorship and democracy. The Egyptian regime tangoes with international political players over democracy, and at the same time controls public participation, as in the choice of representatives to the People's Assembly, in order to prevent interference in

national policy priorities. The example of the December 2005 elections is sufficient evidence to prove the violation of political rights. Initial prerequisites are recommended in order to ensure that proposal delivery is based on a solid foundation. Otherwise, the researcher will be considered a dreamer or looking for a place that does not exist! The conflict between government and academic research interests is endless, especially in a country where democracy has never been practiced since the pharaohs' era. However, in such a situation, academic research is meant to absorb different points of view in order to enlighten the government.

In addition, the long history of dictatorship in the country has an impact on citizens, causing fear of the government, and resulting in the suppression of free speech. This is the most pressing issue and requires change because it will affect the daily life of Egyptian citizens. Building trust between the government and the public is the main challenge for achieving sustainability, because the starting point of sustainability is the feeling of equity in government policies.

### ***Managing financial resources***

Careful management of financial resources and wise expenditure on social and economic activities in order to improve the quality of life should be the focus of any government. A quick look at the annual budget of an average western country indicates that social and economic sectors receive a large portion of the annual budget, in particular for health, education, employment and transportation. The focus is usually on delivering basic needs efficiently regardless of the government's political orientation, which differs from one government to another, but these are the main priorities of any Western government. However, in Egypt, inspection of the country's annual budget reveals a number of problems. First, certain sectors have vague budgets, such as the military, national security and presidential administration. For instance, the presidential campaign budget at the end of 2005<sup>7</sup> has never been published. It would be useful to determine the budget for specific

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<sup>7</sup> This campaign was financed by the government because the current president is the head of the national party that runs the country. Consequently, the budget was extracted from the annual government budget (*researcher's observation from Egyptian government newspapers and annual government policies conference report 2005*).

sectors, such as the military<sup>8</sup> and to focus on development issues instead of having a powerful army to protect Egyptian borders from nonexistent threats. Second, certain large-scale projects have proved unfeasible and consume a large portion of the annual budget, such as the development of the Toshka Region in Southern Egypt. Ten out of 16 of the interviewees from research fieldwork in February 2006 agreed that the Toshka Development Project is aimed at enhancing the reputation of the political party among the public, and to show that economic development is the main concern of the government, despite the fact that feasibility studies have indicated that the project is a waste of financial resources. One of the interviewees explained;

*“President Nasser is always remembered as the most powerful leader since the republic revolution in 1952. President Sadat is remembered for the Six Days War in 1973. President Mubarak wants to be remembered by the Toshka Project!”* (For reasons of confidentiality, the interviewee asked for his name to be withheld).

Whether correct or exaggerated, this quote reflects public opinion, found in non-governmental newspapers and academic circles as well. Abandonment of this approach by the government and the president is an essential prerequisite in order to focus on social and economic problems.

### ***A reliable information system***

Reliable information means that sources, handling, processing and releasing of information should be associated with a level of accuracy and accountability. An indication of the unreliable data system in Egypt can be seen from the fact that NGO development projects usually conduct their own data collection, ranging from field surveys, sampling, interviews and restructuring of existing data from various government sectors. Two reasons are given for this by various sources in the NGOs. First is the recurring problem of inconsistent data sources from different government sectors (Salem, 2006). Second, there is a severe shortage of data at the local level and even if it exists it is never enough (Sylvia, 2006). However, the British

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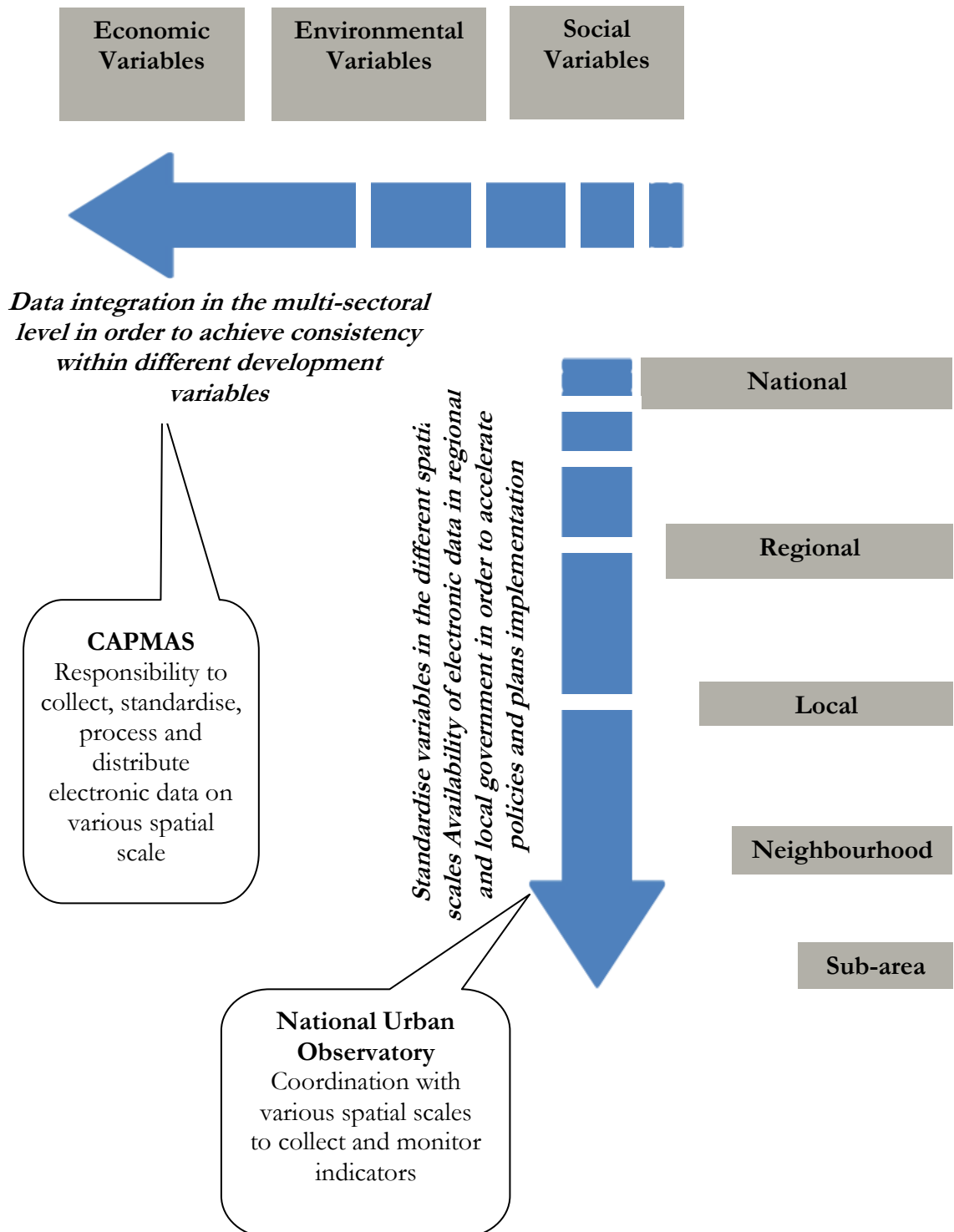
<sup>8</sup> Especially given the existence of the peace treaty between Egypt and Israel since 1976.

census system provides variables at the smallest geographical scale (Output Areas). The number of variables available at this smallest level is an advantage for local policy implementation because it focuses on the critical planning issues at the time of the project rather than consuming large amounts of time spent on data collection.

My personal experience serves as an example. I was the researcher in charge of green-belt planning in rural areas as part of a project to plan 4000 rural areas of green belt. The researcher spent two-thirds of the project time in carrying out surveys, processing and preparing maps for planning decision making. In conclusion, my personal experience indicates that data availability and reliability is a major obstacle for small-scale projects such as regeneration, services and activities, spatial planning etc. The government recently started the e-government approach, which is significant in terms of the reduction of administration paperwork and daily travel for services; however, most of these e-services are for services that require billing for utilities, such as electricity, gas and water services. The area that is most important in the development process, and still neglected, is systematic data collection on various spatial levels, which cover social, economic and environmental data.

One of the requirements in the sustainable urban development process is the availability of reliable data, which is integrated into government sectors and across various spatial scales. Fig. 8.1 suggests an approach to handle data integration in Egyptian sectors and spatial scales. The suggested figure indicates the relationship between the various sectors and data integration. The standardisation of variables within the different sectors and spatial scales should be the responsibility of the Central Agency of Population and Mobilisation Census (CAPMAS). This Agency has to provide the various government levels with electronic data to implement policies. The National Urban Observatory provides CAPMAS with feedback on the progress of sustainability indicators by collecting and monitoring indicators at various spatial scales. In addition, data sharing in the organisation is a pressing concern. Previous complaints by NGO development projects concerning data

sharing with government as in the case of the Sustainable Ismailia Project (see chapter 6) suggests a low level of trust between government bodies and other urban development stakeholders.



**Figure 8.1: Suggested role of CAPMAS and National Urban Observatory to inform sustainable urban development in Egypt**

To solve this problem, special attention should be given to government officials in current capacity-building programmes to aid them in data sharing. Government officials should be made aware that a piece of information in itself is not important, however, the analysis process that handles that piece of information makes it important. Programmes demonstrating data analysis and data interpretation assist in demonstrating the benefits of data sharing for both the government and other urban development stakeholders. The impact of data sharing between the government, NGOs and academics will enhance the decision-making process, and consequently deliver policies more efficiently.

### ***Independent committees for evaluation and monitoring***

More important than policies themselves is the need to ensure that they are delivered at the various spatial scales with efficiency and transparency. The current role of the Egyptian government is to deliver policies, and to evaluate and monitor them without involvement of other urban development stakeholders. Bearing in mind the political orientation and widespread corruption of the government, achievement in policy delivery must be questioned, and whether progress is being made. For instance, in the new towns' growth policy, the government relied on the number of housing units completed and ignored the number of units actually occupied.

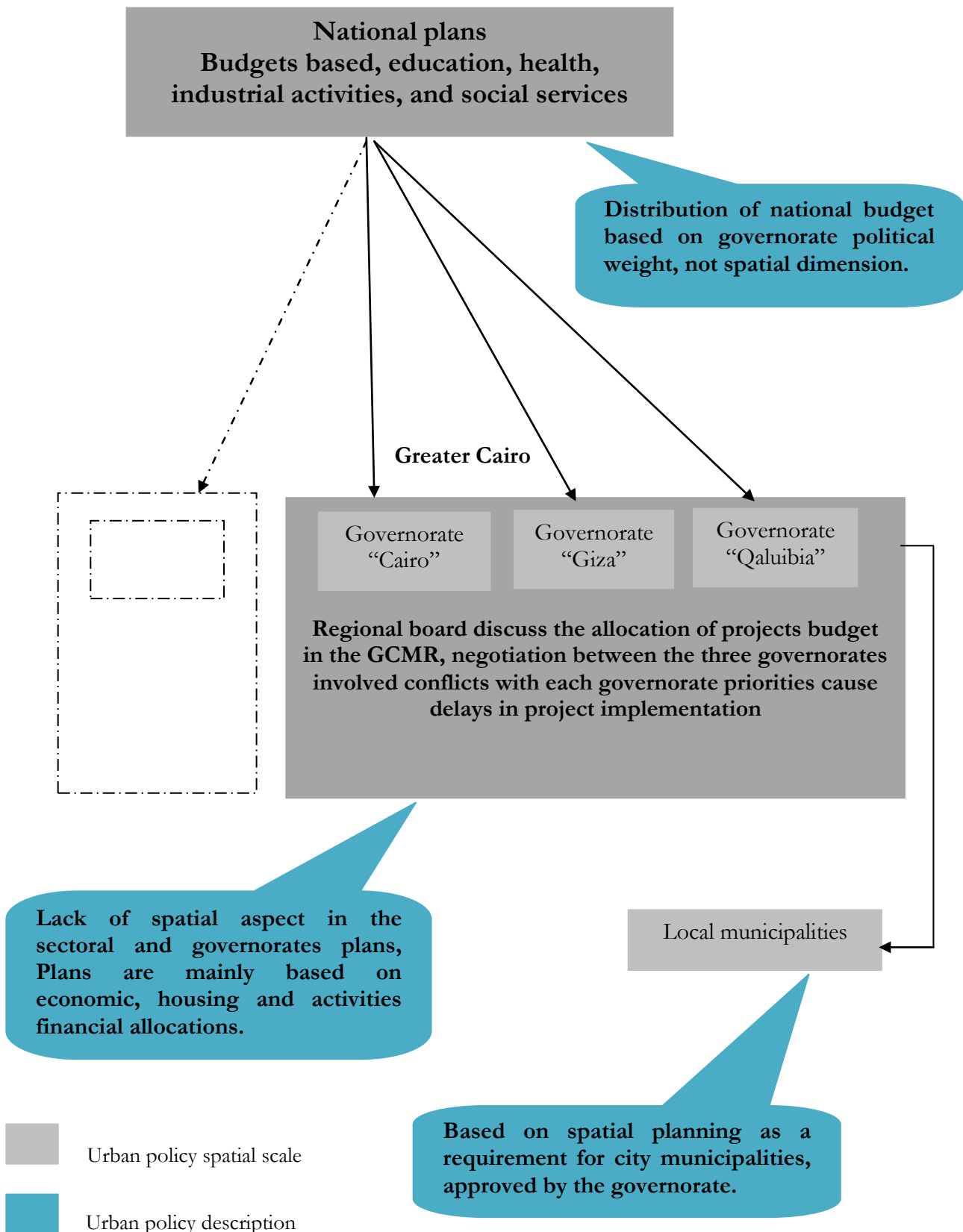
In general, the government tends to provide the public with false information to show development progress, while real progress would be measured by increased housing occupancy in new towns. This is one example among many of indicators used by the government to manipulate the public, helped by government newspapers and media controlled by government officials. In order to create transparency for the evaluation and monitoring process of policies, urban development stakeholders should have an active role in the process through the formation of evaluation and monitoring committees. The involvement of NGOs and academics in independent committees is essential, as well as the enabling of these groups to make binding recommendations so that policies can be modified. In addition, formation of these committees should include academics and practitioners from a range of different

backgrounds in order to enrich the evaluation process with theoretical and practical bases.

***Initiation of a spatial planning approach at the regional scale***

Currently national and regional plans are finance-based plans and lack a spatial dimension: the allocation of a budget is the main target of these plans. However, spatial aspects are made explicit at the local levels. Fig. 8.2 shows the current planning system, which indicates the conflicts in decision making between the regional and governorate levels. The budgets are allocated first to each governorate, while the regional board has to negotiate and achieve consensus between different governorates in order to implement projects at the regional level that involve more than one governorate. The conflict mentioned here arises from a governorate's tight budget, which prioritises its interests at the local level over those at regional level. In addition, while the sectoral board's main purpose is to facilitate the implementation of regional projects, it has no decision-making power over the different governorates. This indicates the lack of empowerment at the regional level in the planning system.

Sustainable urban development is directly involved with spatial planning. It takes into account the spatial characteristics of an area, thus a spatial planning system is essential to solve conflicts between various spatial planning scales. The new system should work in two directions. The first direction ensures that spatial planning is carried out at all planning levels in order to take full account of the potential of each sector. The second direction strengthens the regional level decision-making functions by creating new regulations and institutions to ensure the delivery of policies and is based on spatial aspects that take into account spatial considerations for each project and spatial relations with other urban contexts at governorate and local levels. The current spatial planning tier must be re-evaluated in order to correct weaknesses of the system, coupled with a restructuring of the budget allocation system at the regional and local level.



**Figure 8.2: The lack of a spatial dimension in the current planning system in Egypt**



### ***Urban development stakeholders' involvement***

The urban development process involves different stakeholders in order to deliver urban policy effectively. The government working closely with NGOs, academics and civil society should be the main ingredient for achieving urban policy. Current urban policy delivery depends on the government, which takes responsibility for providing services including utilities and housing. Consequently, the role of NGOs, academics and civil society is marginalised and therefore neglected in the urban planning process. However, in order to initiate these roles, the government needs institutions and regulations to ensure two requirements; the first requirement is the active involvement of civil society and NGOs to undertake positive roles in planning policy making, implementing, evaluation and monitoring.

One of the important aspects to consider in the new proposal is the consideration of sustainable urban development indicators system. The contextualisation of SUD in chapter 2 indicates that evaluation and monitoring policies progress require a set of indicators. The constitutions currently allow civil society to evaluate urban plans before implementations, but the final approval of the plans remains in the hands of the Minister of Housing and he or she has the right to reject modifications made by civil society in earlier stages of the planning process. Initiating SUD indicators system is one of the top requirements to ensure all sustainable urban development aspects are considered (social, environment and economic). Institutional rights should ensure civil society's approval of specific plans and their suggestions should be taken seriously. Figure 8.3 shows the current system for urban planning approval. It shows that, even after the approval of civil society, the Minister of Housing has the right to reject a plan and ask for modifications for an entirely new plan according to his/her perspective. The involvement of civil society should not be taken cynically merely to contribute to the democratic façade of the government (a form of box-ticking exercise).



It should be initiated from the institutions and regulations that give civil society the right to alter the urban plan in accordance with their interests. In addition, NGOs' involvement in the approval of plans is required to deliver effective plans and projects. The second requirement is to define the roles of NGOs, academics and civil society to evaluate and monitor urban plans during the implementation phase by initiating independent scrutiny committees, public votes and research centres funded to carry out these activities.

***The urban planning process requires new instruments to achieve sustainable urban development***

Urban planning procedures to prepare spatial plans for Egyptian urban areas have not been updated since the urban planning Law of 1982. The requirements for data analysis in the preparation of spatial plans are still limited to basic data collection in different aspects, focusing mainly on population and the distribution of land uses over space. Specific detail about environmental, economic and social impact analysis is missing, as is the use of techniques such as sustainability appraisals, strategic environmental assessment (SEA) to measure the different impacts of the plans, and multi-criteria analysis in alternatives evaluation. The utilisation of these instruments and techniques would enhance the overall urban planning process. Economic, transportation and environmental indicators used in the preparation of spatial plans are weak in terms of availability. Data, such as daily traffic flow, number of vehicles per capita, air, water and noise pollution rates for city/district/neighbourhood, require field surveys to collect for every spatial plan project. These issues require further enhancement in terms of the variety and details of indicators.

***8.2.3 Stakeholders' responsibilities towards prerequisites***

The most important questions remain: how must stockholders participate in order to achieve the prerequisites – concerned with political resources management, new spatial planning system, information system, and urban planning procedures – and what time-span is required? These prerequisites must be considered in terms of short- and long-term perspectives. Who are

the main stakeholders responsible for implementing these changes? A large number of these actions depend on the government and its ability to adapt to a new urban development approach and to accept that these changes are necessary in order to achieve sustainable urban development. There were signs that things may be changing at a national level during the September 2006 national party conference: certain messages have been announced by political leaders concerning the enhancement of political practice, civil participation, private sector involvement and local government enablement. These messages are still theoretical, and could be classified as aspirations. To turn them into practical actions and initiatives depends on the current government and how far political leaders are willing to go to change accountability practices, management of financial resources and civil participation. However, academics, independent political parties and NGOs are currently vocal in calling for more involvement in government policies. For this to happen, these non-governmental stakeholders need to persistently pursue these requirements to speed up the time required for changes and persuade the government to think seriously about overall development policies in the country.

The fast-growing information technology market and the amount of IT capacity building currently underway in government departments could help to solve issues such as spatial planning requirements and organisational behaviour towards information sharing problems in the short-term. Catching up with new tools and instruments to enhance the spatial planning process is necessary. A focus on research will improve the urban planning process. The lack of research projects points to the need for improvement in funds and time. The GCMR fieldwork demonstrates a gap in academic research in sustainability and sustainable urban development research in Egypt. A greater focus on the research of sustainability topics is required over the next 10 years to support and improve the urban development process in the country.

### **8.3 Proposal components**

The suggested sustainable urban development proposal for the GCMR depends on two pillars, which, if treated seriously, could achieve sustainability in the urban context of the region. The two pillars are: 1) urban growth management, and 2) the updating and preparation of integrated spatial local and regional development plans emphasising local initiatives to deal with problems. The proposal suggests the following key elements as requirements to improve sustainable urban development in the GCMR.

#### ***8.3.1 Urban growth in the region***

The proposed urban growth strategy is based on two pillars: the first pillar is the introduction of a regional planning department within the government in order to prepare an urban development strategy based on the integration of different sustainability aspects such as environment, transport, employment and land use. The second pillar is the preparation of a regional strategy on a spatial basis. However, to justify the need for a regional planning department, the environment policy to reduce Co<sub>2</sub> emissions should distinguish between different spatial locations such as the city centre, urban corridors and new settlements<sup>9</sup>, and the way the master plan allocates different land use in the urban context. To manage the Co<sub>2</sub> example, in which a spatial approach is adopted, there is also the need for integration of environment, transport and land-use policies rather than letting each policy work in isolation with the risk of conflicts between policies.

#### ***Revising the new towns urban development strategy***

The first issue is the comprehensive revision of the new towns development scheme. Recent new towns projects in Egypt seem to be well conceived as they were designed to solve two problems simultaneously, namely, the dispersion of population away from the Cairo region and the creation of new settlements in desert areas, thus expanding habitable space outward. However, the impact of the new towns project has not been thoroughly assessed, therefore, it is not clear how successful they have been in achieving the two objectives. If a new town functions as a counter-magnet to

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<sup>9</sup> Which require integration of transport and land-use policies for housing and industrial areas spatial distribution.

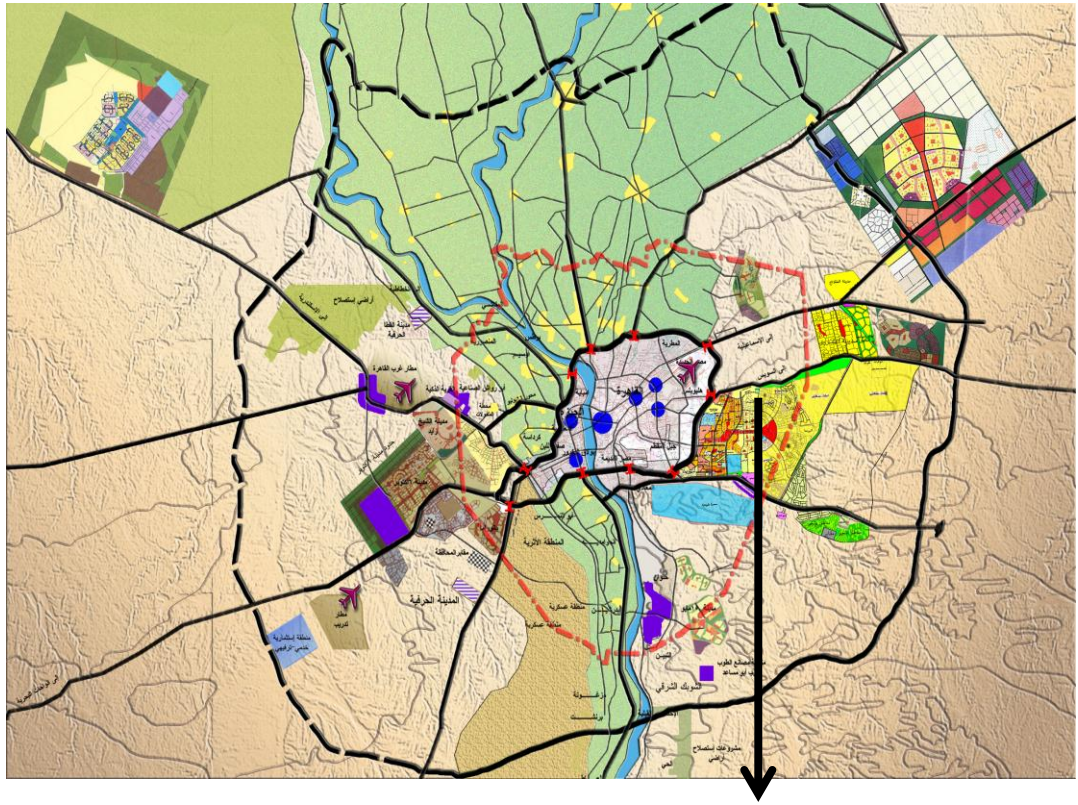
the existing city, it must be sufficiently large to serve as an accelerated growth centre. The population in the Cairo region has grown at a rate of over 2% a year and is expected to reach over 17 million within the next few years if unchecked. As has been emphasised repeatedly, the city suffers from serious urban problems of large magnitude, including congestion, pollution, and daily commuting. In order to relieve further concentration of the population and industries in the Cairo region, new towns should have been conceived as an accelerated growth pole. A new town must be large enough to be both self-contained and sustainable in the long term. A few new towns could serve this purpose, but there are too many near and around the city. Figs 8.4 and 8.5 show the locations of new towns and recent urban growth. Metropolisation<sup>10</sup> of new settlements, “settlements 1, 3 and 5” in the eastern fringe, is creating a new large growth pole attached physically to Cairo’s built-up area (Figure 8.4).

In terms of housing, it is considered successful as it attracts numerous buyers, but in terms of a sustainable community, it lacks the bases for sustainable urban development such as employment opportunities, transportation and affordable housing. The main reason for changing the new towns urban policy into metropolisation, explained several interviewees, was so as to increase the MHUNC’s revenues by selling more land to individuals and private developers (Osman, Elhakim and Salem, 2006) despite the impact on the overall urban growth of the GCMR. Fig 8.5 shows the current urban growth policy which relies on creating urban corridors in all directions, without the preparation of a comprehensive spatial plan to allocate employment and propose a transportation solution. A few large new towns might have sufficed, located far away from the city of Cairo, but fully equipped with modern infrastructure facilities and utility services. Had they been provided with good infrastructure services, they might have attracted industrial firms more easily, being followed by a large number of people seeking employment opportunities.

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<sup>10</sup> Metropolisation is the term used by the Ministry of Housing, Utilities and New Communities, referring to the process of spatial joining of satellite settlements in Cairo’s periphery which were previously separated entities; such as in the case of settlements 1,3 and 5 which labelled later as “New Cairo”.





Example of metropolisation of new settlements (1, 3 and 5) expanding the urban context of the region

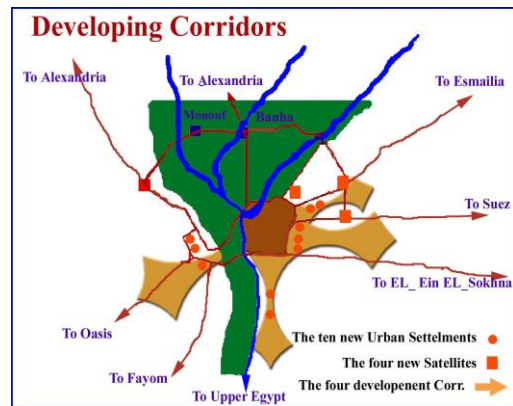
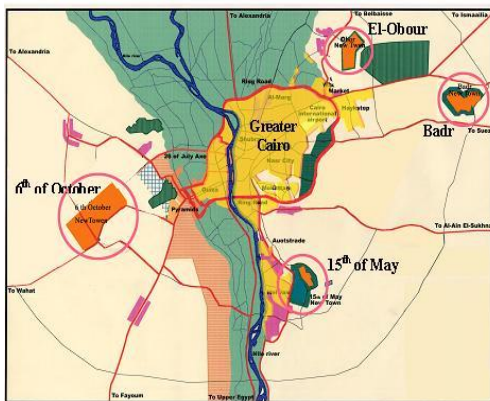


Figure 8.4: Location of major new towns according to the GCMR urban development plan of 1970 (right). The urban growth concept of developing corridors to enlarge the urban context of the GCMR (left)

There are many ways to alleviate urban concentration and concomitant problems of housing shortage. New towns have contributed to the provision of a significant number of new accommodations, providing residents with a clean and healthy living environment. Nevertheless, there seem to be an insufficient number of employment opportunities in and around the new towns. Consequently, people commute to Cairo or other cities nearby for work, generating an enormous amount of traffic. If new towns are to be designed for low- and moderate-income people, residential location must be close to employment sites. New town development strategy needs revision.

The strategy must be focused on expansion of a small number of new towns, making them attractive enough to induce both industrial firms and people. New firms must be actively solicited to relocate to new towns, and they must be subsidised to help them settle there permanently, including free land, tax shelter, and some financial aids, if possible, for them to build factories and offices in the new towns. The strategy must attract many high-tech firms together with the young and ambitious, and higher educational institutions can be induced to support and reinforce the in-coming industries as they provide new technologies and an educated workforce. In addition, new towns are also pioneering in terms of technological innovation. New urban development techniques can be tested. Some new towns are highly successful in innovative design, the socio-economic mix of their residents, revival of a sense of community, and new governance structure. Some industrial towns may invite major anchor business firms that in turn draw other high interdependency firms, allowing new towns to prosper.

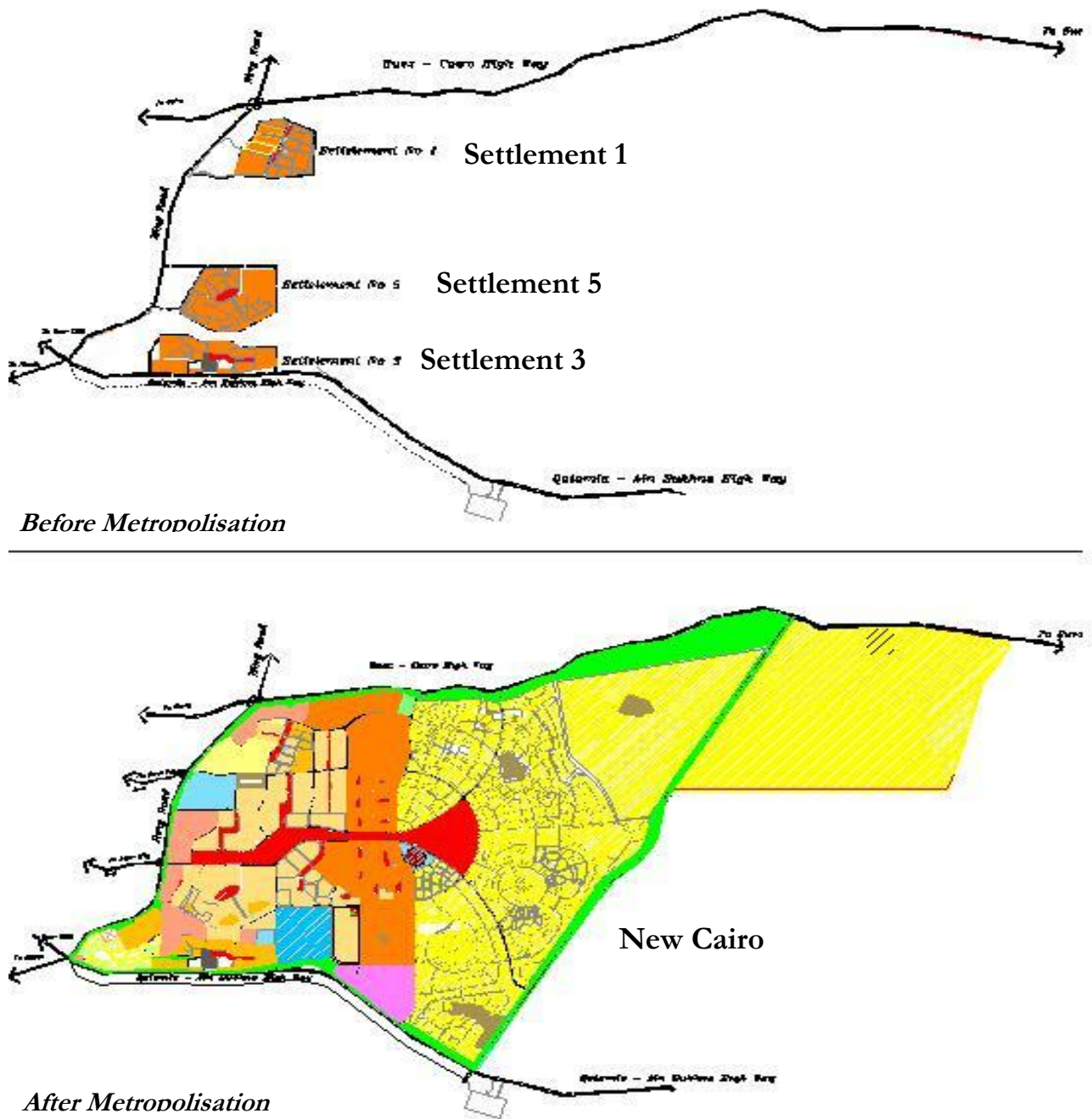
The new towns strategy in Egypt requires a more sophisticated and comprehensive approach within the framework of a nationwide medium- and long-term physical development strategy. Mechanisms such as low rates of taxation on housing provision, business incentives for employing local workers, and planning regulations for new housing development to require a minimum percentage of employment within the local area will make the new towns an attractive place to live and work. In addition, the cultural and social characteristics of an extended family have changed in the last 10–15 years.



Twenty years ago, young family members found it difficult to move to new towns and leave their parents. However, with the pressures of lack of employment and housing, social mobility characteristics have changed in Egyptian society and obstacles to moving have disappeared, which has had an impact on urban growth in new towns.

Another aspect of the new strategy is dealing with the “Metropolisation” of new settlements such as New Cairo. Figure 8.6 shows the situation before and after implementing the Metropolisation process and how the urban areas expanded and became physically attached to the old Cairo built up area and yet New Cairo lacks basic employment opportunities and services. Urban policy should have emphasised providing transportation and job opportunities in order to attract residents to existing settlements. Provision of low and middle-income housing through new town development is just as important; however, this objective may occur automatically if industrial firms and their employees relocate to new settlements because they need additional workers of various skills and trades.

***Delivering sustainable urban development in the existing built-up areas*** Egyptian urban authorities have experience in upgrading and regeneration projects. In addition, the experience of international donors extends back to 1975 and the Hai Elsalam (Ismailia) Upgrading Project. The regeneration approach, if applied in existing urban areas, could contribute to sustainable urban development in the old areas of Greater Cairo by taking into consideration environmental, social, and economic aspects of sustainable development. Current practice of regeneration focuses on providing an upgraded area with basic utilities services. Other aspects should also be taken into consideration such as a refuse collection system, the generation of local jobs for residents, encouraging public participation and the involvement of local residents in the planning process of the project.



**Figure 8.5: The Metropolisation process of settlements 1, 3 and 5 into one urban community "New Cairo" (MHUNC, 2004)**

In addition, the involvement of private and NGOs sectors will encourage the introduction of new approaches and tools, such as environmental impact assessment, to control environmental and social impacts of the project on the

area. Formerly, the government encouraged urban renewal projects, but it had to relocate the poor away from the site once the project was completed. To achieve implementation of a regeneration policy, the policy must ensure either that original residents are able to stay in the site once regeneration is completed, or that the policy of financial compensation of existing residents according to the real land value is improved. The current government practice of transferring private housing ownership into public use is obsolete, allowing the government to estimate land prices according to old regulations without negotiation or surveyors' reports.

### ***8.3.2 Updating and preparing integrated spatial urban and regional development strategies***

Egypt's seven regions have unique populations, resources, cultural heritage and development potential. Consequently, a standardised solution to cure urban and regional problems is inadequate. A bottom-up approach is necessary to complement (the) national efforts in improving these regions economically and socially.

Transportation is a major pollutant within the city. Fuel subsidisation by the government is one of the elements that have increased the rate of private car dependency in the region, which means that the transportation policy in the GCMR is in conflict with environmental policy. In order to ensure effective sustainable transport policies, current practice ignores the benefits of reducing fuel consumption on the overall environment. In addition, integrating transport and environment policies with land use will reduce car dependency by providing convenient public transport, and create accessible new housing development. Currently, integration at any level of planning in Egypt does not meet expectations because land use and transport policies operate in isolation of each other. The integration of these policies at the regional and local levels is a key step towards achieving sustainable urban development in the GCMR.

For urban planners to produce a more realistic development plan for the GCMR, some foundation studies must be conducted at the outset, examining

in detail population, land uses, local economies, transportation, environment and employment. The following detailed studies are required:

#### Population study

- Population characteristics
- Change in population; rates of birth, death, in- and out-migration, fertility, etc.
- Projections of other population parameters
- Population qualities: education level and health

#### Local and regional economic study

- Local industries and competitiveness
- Employment profile and level of wages and salaries
- Labour force: skills, quality and productivity
- Investment and its multiplier effects on income and employment
- Local economic forecasting

#### Land use study

- Evaluation of (the) current use patterns and the relation between jobs and residents
- Appropriate mixes of various land uses; residential, manufacturing, transportation / circulation, utilities, recreation and parks, open spaces, etc.
- Lands reserved/preserved for archaeological and historical sites
- Land use forecasting based on the population and economic projections

#### Transportation and circulation study

- Inventory of transportation facilities: streets, highways, mass transit, etc.
- Users' behaviour: trip purposes, trip length, mode and distribution of travels
- Quality of circulation system and its consistency with land uses
- Spatial studies in order to measure the relation between public and spatial activities to enhance and inform land use and transportation policies.
- Daily commuting studies to suggest managing employment policies with land use spatial distribution.
- Terminals and parking spaces
- Integration with intercity transportation network

- Initiation of transport planning integration in the urban planning process in order to match transportation policies with physical planning policies

#### Environmental studies

- Environmental studies to reduce emission of pollutants such as industry, power station and transport.
- Detailed measures to improve the quality of air and water.
- Studies to introduce the recycling concept and the mechanisms required for implantations.
- Environmental consideration in the urban planning process to control transportation and land-use planning policies at the regional and local levels, which require new strategies for environmental improvement: laws, decrees, regulations, etc.

Information on these five elements will allow planners to identify current problems and to make better projections for a region's future. If appropriate data are collected on a regular basis, they can help not only in developing more realistic and concrete development strategies, but also can serve as early warning indicators when some of the elements change abnormally.

There are other equally important objectives in conducting such base studies; 1) to identify a region's potential and drawbacks for development; 2) to provide the central government with reliable information to appropriate necessary funds for regional development; and 3) to communicate with citizens and community leaders in understanding regional problems and potential, and thus, to encourage consensus. In particular, a region's natural resource base and its ability to harness the potential of that base will indicate future growth or stagnation. Equally important is the attitude of the central government towards a region. Its role is to help those regions help themselves.

Several methods can be adopted to achieve transportation, environment and land-use integration. Regulation is the first method to achieve an environmental transport strategy, an example being the tightening of regulations to reduce car emissions. Financial mechanisms are a second

way, such as increasing operational travel charges.<sup>11</sup> Planning integration is a third mechanism: transport and movement needs must be well planned and based on a holistic spatial planning approach (Gossop and Webb, 1993).

### ***8.3.3 Introduction of coherent sustainable urban development indicators in urban policy by development stakeholders***

The proposal's environmental emphasis is a third pillar requiring environmental enhancement of the built environment and the adoption of a Local Agenda 21 adapted to Egyptian circumstances. The definition of the objectives and targets of Local Agenda 21 is a first step, followed by the creation of institutional enforcement tools to apply to these targets. The next step is the integration of these objectives into the various levels of urban planning (national, regional and local), which can be done by re-evaluation of the urban planning process. In addition, the Ministry of Environment must be provided with mechanisms to cooperate with urban development agencies to ensure implementation of Local Agenda 21. Attention must be given to the structure and administration of the Ministry of Environment to enable it to play an effective role in urban policy delivery. Mechanisms include approval of urban plans from the environmental department, introduction of environmental assessment approaches (such as Environmental Impact Assessment within the small-scale urban project), and a Strategic Environmental Assessment Directive applied to cities' and regions' spatial master plans.

Development stakeholders must play an active role in the formulation of Local Agenda 21. Academics and NGOs must participate in the development/creation of a suitable agenda for Egypt, followed by a public evaluation of the proposed agenda to reach agreement on priorities based on accountability. In addition, the implementation of Local Agenda 21 must be followed by regulating cooperation between the urban planning authority (GOPP). Cooperation must be established between the transportation and environmental departments to improve communications between them.

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<sup>11</sup> Such as the case of Greater London inner core traffic regulations.

Above all, policy guidance in each department should clarify the rules that govern cooperation in order to deliver sustainable development.

Currently, the government collaborates with NGOs, such as the USAID, to solve the air pollution problem in the GCMR. These efforts should be strengthened and extended to other aspects of environmental quality of the region, for example, refuse collection projects, studies of reducing fuel consumption and environmental fuel alternatives, health considerations in dense and slum areas, awareness programmes creating incentives to rely on public transportation, and increase of operational road taxation in the city centre to reduce traffic and pollution problems. This proposal relies on cooperation between different government departments and the politicians' belief in changes that will result in better urban development in the GCMR.

## **8.4 Proposal mechanisms**

### ***8.4.1 Emphasising local initiatives in dealing with urban problems***

One of the complaints that central government planners often express is that local administrations and planners are not reliable and do not understand the complexity of urban problems, let alone solve them. This is a misconception. Localities may not have a pool of well-trained experts and professionals, but they know their problems better than central government officials. Outside experts can be brought in as consultants when necessary. In the meantime, local officials need some professional training on a regular basis.

Urban economic studies indicate that emphasis on economic growth and centralised investment strategy in many less developed countries has resulted in an unhealthy concentration of development and wealth and a growing disparity in standard of living between regions and classes (Sutton and Fahmi, 2001). Initiatives and accountability at the local government level have proven to be the key to successful solutions to urban problems. For this to occur, however, a number of elements are requisite for a local government to solve urban problems, such as political leadership, involvement of urban planners in the local government and adequate funding.

Moreover, one of the primary responsibilities of the central government is to help localities secure and maintain these elements on a competitive basis. In other words, the role of the central government should be that of “facilitator”. Central government must manage development funds effectively, and local governments must work out realistic programmes and projects, and develop and submit detailed proposals for funding through the central government. The central government must set forth a set of criteria to evaluate them. For this, the government needs “a clearing house” and an institution that can handle local affairs as well as regularly monitor and assess the performance of development projects.

Normally the central government announces the amount of money allowed for specific purposes on an annual basis, along with criteria by which local proposals can be evaluated. A good strategy is to allow localities to compete with each other for funding. This is an effective way to educate and train local officials. Funding from the central government can take many forms: grants, low cost loans, grant-in aid, loan guarantees, or in-kind. Technical assistance support can also be provided to help execute projects.

This practice will strengthen local leadership as well as expertise among local officials in approaching and solving local problems. They have to be continuously trained – either formally or informally – and should be aware of various changes in the rules and regulations pertaining to the government policies on funding and technical assistance. Local leaders must be accountable for executing projects with integrity, and any mismanagement or wrongdoing in the handling of public funds must be subject to severe penalty. In addition, collaboration between the government and international donor agencies in urban development should be enhanced in two ways; first, advantage should be taken of earlier projects conducted by NGOs, especially the Hai Elsalam upgrading project and the Sustainable Ismailia Project. The means and mechanisms must be found to generalise and integrate these experiences in mainstream urban policies in other parts of the country. Chapter 6 revealed government resistance to non-governmental projects. With the help of the proposed data integration framework mentioned in the



prerequisite section in this chapter, the data-sharing part can be resolved. Second, new regulations and mechanisms to increase the level of cooperation between government officials and NGOs would help. Mechanisms such as capacity building, consensus building and partnerships will increase the level of cooperation, while application of the framework of urban policy making that involves academics and NGOs will or would work as an effective mechanism to accelerate the process.

#### **8.4.2 Relaxing government regulations and restrictions**

A critical factor that raises housing and community development costs is government regulations and restrictions. A good example is the excessive building code requirements for maintaining minimum health and safety. Other government regulations frequently cited concern land use and control of funds. Excessive control of land use restricts housing production, and accordingly, pushes up housing costs. Another example concerns height and bulk control, which may be necessary for health and aesthetic reasons, but when it is rigidly enforced, prices of new housing rise.

Prior to setting such standards, the government must conduct surveys to determine a reasonable level of control in different communities. In wealthy neighbourhoods, such controls may have to be strongly enforced, but they should be substantially relaxed in low-income communities.

Some laws and regulations in Egypt discourage private investment in middle-income housing projects. One of them is rent control; the law mandates the rent control committee to regulate rent rates, which are often far below market rates. Other laws restrict relations between homeowners and tenants. Property owners would not invest in rental units unless they make a reasonable level of profit.

Building regulations demand high fees and complex requirements are necessary to obtain licenses for building construction. Building permits are costly and take an unnecessarily long time to obtain. These practices, combined with the high costs of investment capital, may discourage

developers from new housing construction. All these costs would be added on to prices of the new units. Eventually they push home prices up and consumers must bear them. The amount of housing supply for middle-income households has significantly declined. Regulations may be partly responsible for the decline (MHUNC, 2001).

The concerned ministries must comprehensively review questionable regulations and determine their adverse affect on the housing market. Such a review may suggest that some of them have to be relaxed or even abolished. However, it should be done prudently because some regulations must be tightened up to protect the neighbourhood environment from pollution.

#### ***8.4.3 Promoting private sector participation in housing and infrastructure development***

Private sector participation in housing construction and infrastructure development must be encouraged for many reasons, and the most important is to make the market more competitive, thus providing better quality housing and infrastructure facilities at reasonable prices in the long term. However, if a few firms monopolise the market, the losses in consumers' surplus would be substantial. Thus, one of the government roles is to prevent firms from monopolising the market.

The second reason for private sector participation is that the government alone cannot supply the necessary number of housing units. The private sector can mobilise investment capital if housing investment yields a reasonable rate of return. It can participate in the high- or upper middle-income housing market if such a market is less risky and more predictable. Investment must be carefully considered based on market forecasting. However, low- and moderate-income housing cannot be provided privately unless lucrative subsidies are offered. This kind of market is risky and fluctuates unexpectedly with the business cycle.

One of the uncertainties that private developers encounter is that they have to compete with favoured state-run enterprises. The latter have strong political backup and tend to overpower private developers. In this case,

privatisation of the state enterprises must be carefully considered. A solution to this problem is the division of roles and functions between the two. A good example is the land development public corporation. It only prepares serviced land and sells it at cost to private developers who then build residential and commercial structures.

The private sector can also participate in infrastructure development, which was formerly the domain of the public sector. Today, private firms participate in infrastructure development when assured that such facilities are profitable in the long term. Infrastructure means a wide variety of public goods and services, including public utilities (power, gas, telecommunication, sanitary and sewer facilities, solid waste collection), public works (roads, major dams, irrigation, drainage), and other transportation facilities (urban and inter-urban railways, sea/air ports, terminals, urban mass transit, and even distribution and logistics facilities).

Private funds are a rich funding source that is flexible and efficient. Therefore, the government must look not only for monetary inflow from the private sector, but must also seek creative and efficient solutions for infrastructure services. Theoretically, good candidates for privately funded infrastructure projects are “non-pure” public projects and such local public goods as power, telecommunication, transit services and utilities.

## **8.5 Detailed aspects of the GCMR proposal**

### ***8.5.1 Conducting a comprehensive housing study***

#### ***Housing market study:***

The local housing market is complex because housing is heterogeneous and possesses the characteristics of both consumption and an investment good. Therefore, market analysis must be addressed to the following issues: 1) delineation of the market area; 2) economic trends of the area; and 3) determination of demand factors, including employment, disposable income, household characteristics, economic and social make-up of the neighbourhood, vacancy rate and tenure structure. In addition, a detailed study of the reasons behind the flow of immigrants from other regions to the

GCMR must be evaluated. One of the reasons behind that annual flow to the GCMR is the centralisation of jobs from the capital city, while less attention is given to the social and economic perspectives in the rest of the country's regions. Other aspects are equally important to achieve an economic balance in the different regions – aspects such as cultural characteristics. For instance, Egyptian families do not change residents often because of the housing shortage and parents may allow their married sons and daughters to live with them until they find affordable housing. A housing market study must take account of these parameters and seek affordably priced solutions by providing incentives to live outside the core city with mechanisms such as long-term mortgages and a reduction of taxes when living in new towns.

In addition, improving educational and health facilities in new development communities accelerates moving from Cairo's centre by creating residential areas that are more attractive and affordable. Introduction of a surveyors' housing evaluation system will contribute to affordability, as most of the stocks in the city are overrated and uncontrolled by regulations.

However, the social phenomenon of the extended family has changed in the last 15 years and new generations consider moving outside the core city as it has reached a saturation level that makes sustainability impossible. However, the availability of jobs in new communities is the key to success because currently, a large percentage of jobs are concentrated in the core city.<sup>12</sup>

The integration of policies in order to avoid conflict and achieve cooperation is a major theme of this study. The government must integrate transportation policy, land use and employment policy to solve serious problems in the urban environment. For example, concentration of employment opportunities in the core city coupled with mass transportation (the underground, which covers the main axes of the region) encourages daily commuting from other regions in the GCMR. If integration existed, government policies would

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<sup>12</sup> For solutions to the employment problem, see section 8.4 of this chapter.

redistribute employment opportunities and land use activities, which would contribute to a balanced distribution of population over the different regions.

Apart from demand factors, this study examines supply factors as well; they include current residential construction activities, an inventory of different categories of existing stock, current sales volume and other market conditions, such as, unsold units, marketability, sales, rents, mortgage defaults and foreclosures. Also included in this study are prices – floor price vs. ceiling price. The gap between the two indicates whether the market is demand driven or supply oriented. The current trends show that new towns are not fully occupied because demand does not meet supply, the housing market focuses on high-income development while a large amount of the current demand is low and medium class. A comparison between the number of sold units and the actual occupations in the new towns indicates that speculation is frequent. Housing policy must focus on providing affordable housing in new towns. A housing market study will reformulate the types of housing required and guide the master plans to meet the actual demand of housing rather than turning it into a profit-making sector. In addition, the private sector's contributions to new community development must be identified. For instance, a new housing development should include social, health, and medical services implemented by private investors, and then operated by official authorities later. This approach reduces the burden on the government to provide new communities with basic facilities. Private investors' contribution to the community must be explicit and not always in terms of costs and benefits.

### **8.5.2 Organisational structure of the GOPP administration**

A major concern of this study is the organisational structure of the Ministry of Housing, Utilities and New Communities because of its affect on all new strategies. The current structure of the MHUNC organises urban development policies into four divisions: the new towns authorities, the utilities planning division, the General Organisation for Physical Planning, and the Greater Cairo Planning Authority. Figure 8.7 shows the main divisions of the Ministry and the responsibilities of each division in the urban

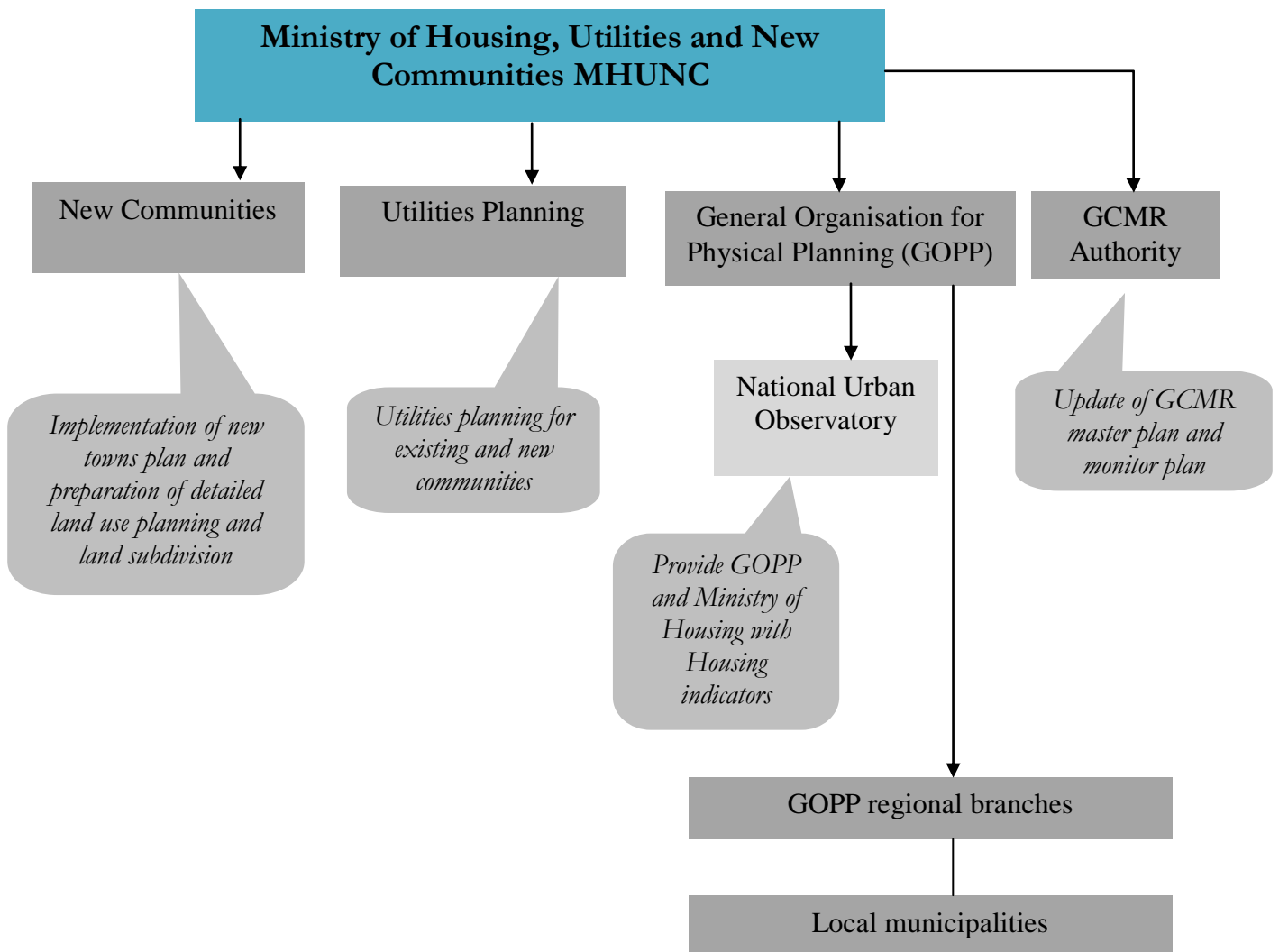
development process. It shows the dependency of decision making of the GOPP and the Greater Cairo Authority upon the Minister of Housing. As mentioned before in chapter 6 and earlier in this chapter, centralisation of decision making alters development plans according to the economic and political agendas, such as the case of New Cairo Metropolisation, Cairo's Master Plan Modifications, and green-belt plans for 4000 rural settlements (Salem, 2006). In addition, the separation of new towns management from the GOPP is due to manipulated land prices in new towns, which are considered a profitable sector in the Ministry of Housing. The presence of corruption and power groups cannot be denied, and this led to the forced resignation of the minister in the year 2005.

In order to decrease the level of corruption, changes in the national law, constitution, and the minister's authority must take place. Theoretically, a minister or secretary is in an administrative position that facilitates administration issues and coordination between different departments in order to implement policy. The minister should not exercise unlimited authority and his position must not hinder policy delivery or alter it for political reasons. However, in Egypt, conflict between political and administration boundaries is aggravated by the power and unlimited authority of the minister.

A new definition of ministers' and department secretaries' responsibilities and authority would focus on policy implementation that is based on long-term policy objectives set by the central government, and which ministers could not alter. For this, the central government must be consistent and set policies for the long term. Modification of these policies should be based on coherent evaluation performed by different development stakeholders (the government, academics, NGOs and the public).

Figure 8.7 describes the proposed organisational hierarchical structure of the Ministry of Housing, Utilities and New Communities. These suggestions make the urban planning process in Egypt coherent and efficient. This research insists that the National Urban Observatory must be liberated from

the Ministry and moved to a significantly higher position in the hierarchy that provides financial independence so that it is free to evaluate and monitor urban policy implementation. Secondly, involvement of NGOs and academics in the evaluation and monitoring of urban indicators ensures involvement of the different stakeholders and provides accountability. Financing of the national urban observatory would be through such sources as the Cabinet Minister and concerned bodies interested in evaluating urban policy implementation such as NGOs.<sup>13</sup> The most relevant independent entity in Egypt for this role is the Architect and Town Planners Syndicate.



**Figure 8.6: Current organisational structure of the Ministry of Housing, Utilities and New Communities**

<sup>13</sup> The experience of the Royal Town Planning Institute (RTPI) in England shows how an independent entity can influence urban policy delivery. The British government has asked for their advice and consultancy on several occasions and they have lobbied with the government on several occasions on the planning of sustainable communities and other regional issues.

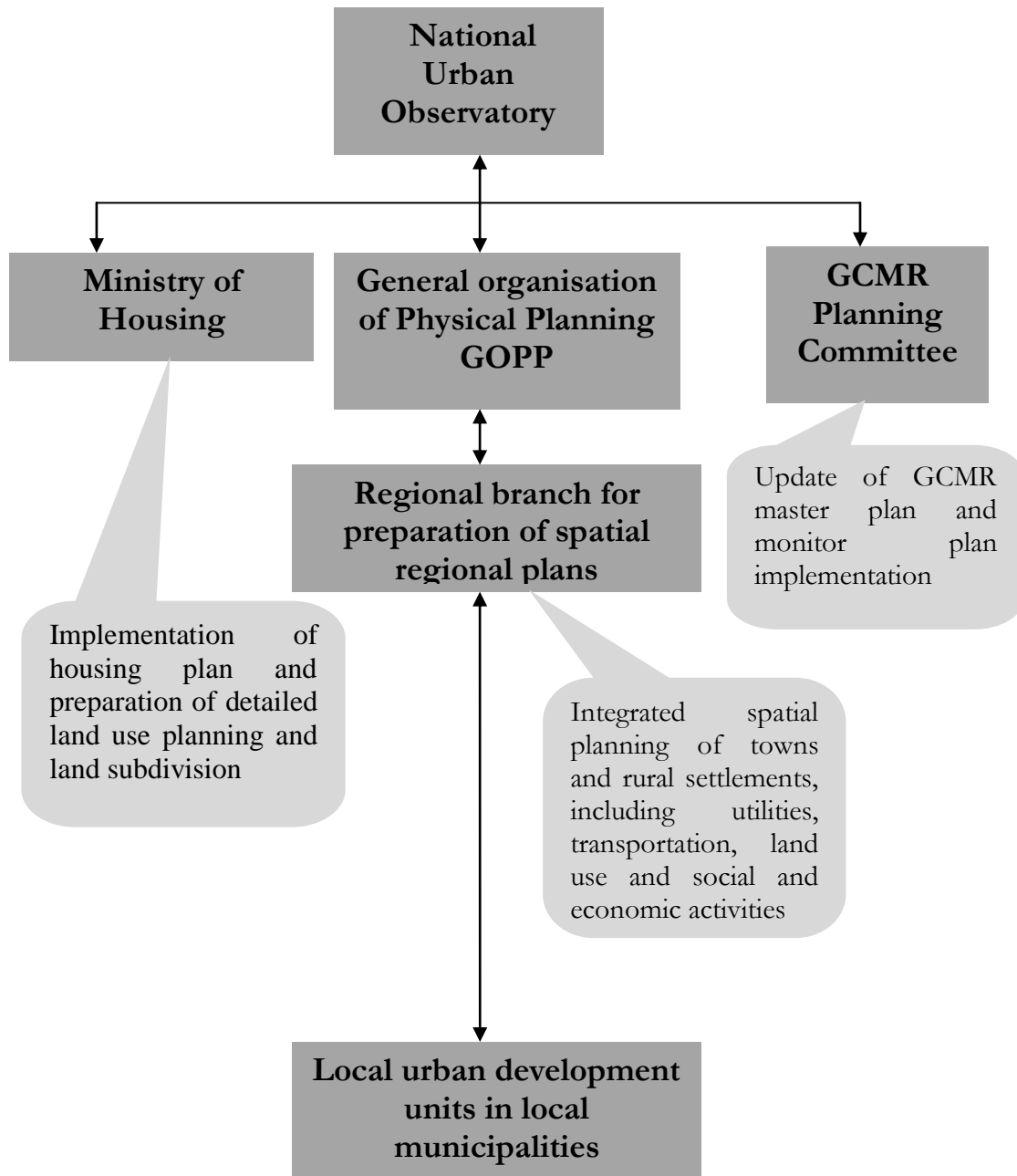
The official authority releases licences for architects and town planners after graduation, and the syndicate currently does not perform any technical role in urban planning policy. A starting point would be to form an institute to suggest, evaluate, and monitor urban policy delivery. Collaboration with NGOs and academics is a must. This will provide the institute with the financial and technical capacity to conduct evaluation studies. In the second step, the government must acknowledge this institute as part of the accountability process elaborated at the September 2006 National Party Conference (Ahram weekly, 2006). The next step is setting the priorities for conducting studies to improve the urban planning context in the GCMR and the rest of the country. A major aim is the standardisation of objectives in different regional and local urban contexts, by creating a set of sustainable urban development objectives as the main drivers for this institute.

The institute works as an independent advisory committee to monitor and evaluate urban policy implementation throughout the country, to present the results in conferences, and to publish them in a special paper that formulates the institute's mission and agenda, and updates members. The second suggestion (Figure 8.7) is the separation of the General Organisation for Physical Planning (GOPP) from the Ministry of Housing, because of the current conflict in GOPP decision making. Currently, the GOPP is in charge of urban planning regulations, while the Ministry of Housing is in charge of housing policy in the new towns, which includes Metropolisation, land selling policies and land developing modification. This leaves no option for the GOPP but to implement the Ministry of Housing decisions for new towns.

However, the GOPP must work to rationalise urban planning decisions. To do this, it must have the roles and authority to reject or accept a decision from the Ministry of Housing based on the established guidelines of urban planning policy. This change ensures the evaluation of all decisions affecting urban growth in the GCMR and other cities. This research insists that the GOPP must be liberated from the Ministry of Housing in order to render the GOPP responsible for establishing regional and local urban plans, which include the spatial distribution of housing, services, and activities. In short,



the GOPP must set the guidelines for urban development. While housing is one aspect of the spatial plans. In addition, the GOPP must monitor and evaluate housing policy.



**Figure 8.7: Proposed organisational structure of the Ministry of Housing, Utilities and New Communities (MHUNC)**

The Ministry of Housing's main responsibility, on the other hand, is to set housing policy and to implement the policy with respect to the urban planning guidelines created by the GOPP.

The implementation of new town urban development must be treated in the same way as management of existing cities: a special department is not necessary because new town development should follow the general urban planning guidelines of the GOPP. Though its major responsibility is to create the master plan for new and existing towns, local governments must be responsible for the detailed elaboration of the plan. The current process of developing new detailed plans for new developments oscillates between the Ministry of Housing headquarters and local government, which shows that there is no clear definition of each authority's responsibilities, leaving the door open for exceptions, favouritism, and corruption in both local government and the Ministry of Housing.

The research also insists that the formation of a specific committee for development and management of the Greater Cairo urban context must be run by the GOPP (Fig.8.7). A committee currently exists; however, it is related to the Ministry of Housing in the administration hierarchy. This research provides two important suggestions:

First, the committee requires the involvement of urban development stakeholders to include the different interests within various groups (the government, NGOs, academics and civil society). The rules and regulations that govern this committee, and the different mechanisms that enable this committee to reflect the visions of stakeholders, must be reframed, which will enhance urban management in the GCMR.

Secondly, the committee requires a level of accountability and independence; accountability in terms of informing the public of proposed policies, and in turn, receiving and acting upon public feedback to ensure rights guaranteed in the national constitution.

## 8.6 Conclusion

The chapter discusses the general guidelines of a sustainable urban development proposal for the Greater Cairo Metropolitan Region. The proposal is built on government accountability and the involvement of urban development stakeholders in the urban planning process. In addition, public participation requires constitutional guarantees for the right of the public to participate in urban planning policy making, evaluation and monitoring. This proposal focuses on the achievement of prerequisites needed to operate in a broader framework that allows for the accomplishment of the proposal's objectives. The proposal's main pillars are the management of urban growth in the Greater Cairo Metropolitan Region by evaluating current new towns policy and recreating a holistic policy, and integration of the social, economic and environmental aspects of urban policy. Mechanisms for incentives include low taxation to encourage moving to new towns and generating jobs for the local residents. Providing infrastructure facilities and services such as educational, health and social services must be part of the private developers' contract in order to create a liveable residential community that attracts residents from the core city.

The proposal also suggests taking advantage of the government's long experience in upgrading and regeneration projects with the collaboration of NGOs, the public and academics. Taking into consideration acclaimed upgrading projects implemented by international donors (such as the Ismailia Sustainable Project, and the Hai Elsalam Upgrading project) provides a starting point from which to generalise the lessons of these experiences in the rest of the country. In addition, new regulations must encourage and require collaboration between the government and NGOs. Technical assistance for managerial and administration involvement allows for the exchange of knowledge between government officials and independent experts. Cooperation also allows urban development stakeholders to be involved in the urban policy-making process. The proposal requires a re-evaluation of the current urban planning process based on preliminary studies to accomplish integrated plans.

Introducing a coherent Local Agenda 21 by the development stakeholders is a priority. Evidences provided in earlier chapters show that the environmental department has no executive authority in urban management because it is not a service department such as health and education. The environmental department executive regulations clash with the interests of other departments, weakening the environmental department. Defining a detailed Local Agenda 21 for the Egyptian government, formulated by the development stakeholders, is a first step. The second step is to integrate the agenda in government policy formulation and the third step is to provide the agenda with the instruments and mechanisms to govern policy formulations in terms of requirements, and input and output of the different policies.

## **CHAPTER 9:**

# **CONCLUSIONS AND RECOMMENDATIONS**

### **9.1 The research main objective and structure**

The main objective of this research is to develop a sustainable urban development proposal for the Greater Cairo Metropolitan Region by analysing opportunities and constraints. In this thesis, this research maintains that urban planners in Egypt have ignored relevant sustainable urban development theory and research, and that urban planning authorities need to be revamped and radical changes initiated to address a catastrophic rapid urban growth situation in the GCMR. This research argues that new strategies are required to address these problems. Consequently, the research identifies a new sustainable urban development proposal for the GCMR based on current theory found in research literature, constructive examples taken from around the world, and the input of those concerned with Egyptian urban planning, as expressed in a series of interviews.

In moving towards the achievement of this objective, a number of sources of knowledge and experience have been examined, such as sustainable development literature. In search of methods to achieve this purpose, the first step was to explore sustainable development literature, which was followed by discussions of sustainable urban development central aspects. These aspects are discussed through evidential international examples of sustainable communities at various spatial scales, from the regional to the neighbourhood level (chapter 2). The literature review concluded by formulating a conceptual framework for central aspects of sustainable urban development, these aspects to be investigated in the Greater Cairo case study. In chapter 3, the methodology to conduct the analysis for the Greater Cairo case study is discussed. It concluded with the case study methodology adopted in this research to investigate the sustainable urban development framework in the GCMR. The case study methodology suggested that two main aspects need to be discussed. One is the policy documents which is

done through data collection and documentation of previous urban policies implemented in the GCMR. The second aspect is investigating the urban policy stakeholders which is done by conducting 16 semi-structured interviews with three groups; government officials, NGOs and academics.

In addition, the research methodology suggests approaching the Greater Cairo sustainable urban development proposal through scenario-building technique which has been found useful due its characteristics for dealing with alternative futures. It was concluded that the GCMR case study was in need of such a technique in order to provide a wide spectrum of solutions to promote sustainable urban development.

The second part explored the GCMR context to identify existing constraints of urban policy. This part is achieved through analysing the data collected and interviews conducted during the fieldwork in Cairo. It identified critical issues to be covered in the fieldwork, which examined existing and future constraints and the potential for achieving sustainable urban development for the GCMR (chapters 4, 5 and 6). The second part ended with the identification of the major concerns and challenges that face the achievement of sustainable urban development in the GCMR.

The third part of the research was aimed at finding solutions to achieve sustainable urban development in the GCMR. The GCMR sustainable urban development proposal is based on the previous analysis of the GCMR urban context constraints and potential, learning lessons from international examples and theoretical suggestions from the literature review. This research found the scenario-building approach useful in moving from the current situation into an exploration of future sustainable urban development in the GCMR. Utilising scenario building in this research enabled us to prepare three future scenarios for achieving sustainable urban development in the GCMR. The next step was the evaluation of the three scenarios, which suggested a number of central issues in determining a future sustainable urban development proposal for the GCMR.

Chapter 8 discussed these central issues by formulating a sustainable urban development proposal for the GCMR. The chapter discussed the essence of the proposal, its aims and objectives, and prerequisites, and proposed a number of changes in the higher level of government administration. In addition, the proposal's components and requirements were discussed and detailed suggestions were made for the housing sector and in relation to the organisational structure of the Ministry of Housing, Utilities and New Communities in order to put sustainable urban development at the forefront of Egyptian urban planning.

## **9.2 Revisiting the research objectives**

In the sections that follow, the research discusses the overall synthesis and conclusions of the research main objectives and the degree to which each objective has been achieved. Discussion also includes the major contribution of this research through utilising scenario-building technique in the sustainable urban development aspects that are concerned with rapid metropolitan urban growth in the GCMR. In addition, the chapter suggests a number of recommendations for future research concerning sustainable urban development in the GCMR.

### ***9.2.1 Sustainable urban development and the sustainable communities debate***

The first objective of this research is to examine the theoretical framework for sustainable development, and its role in sustainable urban development. Sustainable urban development policies and strategies have emerged from concern about urban expansion patterns in a globalising world. Consequently, cities become a testing ground for real sustainable development. The past decade has witnessed a mushrooming of sustainable urban development literature, which has translated into practices such as smart growth and liveable communities in North America, and been interpreted as sustainable communities in Europe and the UK. Despite the different terms, the basic concept refers to the development of communities that provide suitable places to live, work and commute without exploitation and degradation of the natural environment.

The lessons learnt from the literature review may be summarised as follows: To achieve sustainable urban development, integrated policies that consider social, economic and environmental aspects are required. The literature focuses on the achievement of sustainable urban development by dealing with rapid urban growth through the creation of urban growth policies that minimise daily commuting by integrating land use, transportation and employment. Evaluation and monitoring of sustainable urban development policies by updated indicators, which reflect the various aspects of development, maximises the benefits from urban policies. In addition, the literature review enables us to formulate a working definition of sustainable urban development in the Egyptian urban context. Sustainable development must meet the needs of the present without compromising the ability of future generations to meet their own needs, by providing urban strategies and policies dealing with the various aspects of urban development (social, environmental and economic). The GCMR proposal accounts for the institutional aspects, involves urban development stakeholders, and accounts for political aspects that drive the progress of sustainable development by using indicators in order to evaluate and monitor sustainable development targets in the short and long term.

Urban form policies affect sustainable urban development directly by dictating land-use and transportation policies. Research has revealed that transportation and land-use policies must be integrated to control rapid urban growth and urban form. In addition, the urban form and spatial configurations of the city impact sustainability by creating compact communities with mixed land uses to reduce private automobile dependence and to save energy.

However, sustainable urban development requires a healthy political system that makes provision for public participation. Practicing democracy affects the formulation of government sustainable urban development policies positively. The guarantee of constitutional rights is essential for the sustainability process. In addition, sustainable urban development requires the explicit involvement of representative stakeholders.



The topic of sustainable development covers a wide spectrum of literature; the research limits sustainable development topics in the literature review to those that are relevant to urban development, urban growth and sustainable urban development strategies and policies. However, other aspects of sustainable urban development are referred to briefly, such as international environmental institutions, the United Nations Agenda 21, and the international politics of sustainable development and global warming. This research focus on the major problems of urban growth in Greater Cairo Metropolitan Region has a research-oriented context.

The goal of sustainable development is not to form a homogenous recipe for solutions, but to create diversity within the concept of sustainable development, depending upon the topic. At the same time, this research maintains an orientation of serving peoples' basic needs. The goal of this research on sustainable urban development is to pave the road for urban planners to create urban strategies and policies that sustain the human and natural resources in the urban development process.

### ***9.2.2 Sustainable urban development revisited***

The second objective of this research is the identification of sustainable urban development examples from both the developed and developing world in order to inform the research about the requirements of SUD strategies and policies. The case studies were chosen to represent city scale examples of metropolitan areas such as Curitiba, greater Vancouver and Portland Oregon. Complementary detailed (neighbourhood) examples of new communities within these city-wide examples included a series of urban development neighbourhoods such as Civano, Arizona and inner-core city development such as Millennium Village, London. A number of lessons have been deduced from these examples, which have informed the research about the core of sustainable urban development elements that are investigated in the main research case study of Greater Cairo.

Creating a vision for community political leaders is a first step. The sustainable community committee first develops a vision for their community

which includes reaching out to a wide range and large number of community stakeholders to develop the community vision. This step frequently includes many discussions, public forums, and consensus building to create a common community vision. In this vision-making process, communities create their own unique definitions of sustainability. In the case of Cairo, the absence of development stakeholders and community participation are major obstacles to the achievement of such a concept at the present time.

Developing goals, objectives, and specific indicators to measure progress is required and must include stakeholders to build community consensus. For instance, an indicators development project in Seattle worked due to community participation. For Cairo, setting goals and objectives is not the main problem, but rather sustaining these objectives in the long term, because urban policy alteration is frequent due to a volatile political agenda.

Sustainability efforts in the international examples were usually started by enthusiastic individuals or organisations who wanted to help their community and environment. Such individuals or groups helped motivate other members of the community to participate in the process. Often this process, coupled with government policy to promote sustainability in the urban context, begins with a core group of volunteers and organisations meeting in a committee. The group organises a structure for the ongoing sustainable community effort, such as a steering committee that meets regularly and is open to the public. As the effort progresses, special subcommittees or task forces are created to develop and implement specific projects. In the case of Cairo, such groups or individuals who are interested in helping their community do not exist because criticism of government policy may be dangerous, and has consequently become a taboo. Despite the existence of over 2000 community groups in Egypt, these groups are still bounded by political barriers and do not have an active role in urban planning concerns.

The development of sustainable development guiding principles to help individuals and organisations within their communities can make a difference. For instance, Portland, Oregon has developed sustainable city principles as

guidelines for city elected officials and staff. In the case of Cairo, the government is the only authority to set goals, objectives, and guidelines for urban development, and evaluate and monitor the performance. Typical of a dictatorial government, dialogue between government and interest groups is absent. In addition, the constitution does not guarantee rights that allow individuals or groups to become involved in the development process.

Once the vision, principles, goals, and objectives have been defined, specific projects and actions are developed to work towards the vision. Often the committee or subcommittee and/or task forces meet to generate ideas and analyse and discuss them. Key issues include political and economic feasibility and resources available for implementation. Then, the ideas are prioritised for implementation after which the community chooses proposals to implement and how to implement them. Some of the larger longer-term activities may require outside support and interest. Short-term and low-cost projects may be started immediately, such as holding an educational meeting about home sustainability practices for local residents. This process was adopted in the Sustainable Ismailia Project which (conducted by HABILAT and the UN) created sustainable urban development with the help of interest groups and public participation. The project failed because the government mainstream was not engaged for bureaucratic and organisational reasons.

Communities must evaluate their progress and revise their activities. It is important to include a programme evaluation process within such activities to measure the effectiveness of the programme and to make necessary changes to improve it. In addition, evaluation of sustainability progress is best conducted by independent bodies. In the case of Cairo, as mentioned in chapter 6, the government evaluates itself without involving other development stakeholders.

Organising for sustainability issues is important for community development. Communities tend to organise their functional structures and activities around sustainability issues. Specifically, they organise in order to address the economic, social and environmental issues that are most pressing or most highly valued in their community. In addition, governance and management

issues are an important ingredient of the sustainability process. Integrating these issues is a key aspect, since communities attempt to address their problems in a holistic and integrated fashion. For Cairo, one of the problems of urban development is organisational performance, which suffers from corruption and favouritism in housing development, especially in local government.

The examination of international examples in the previous section reveals several basic requirements needed to achieve sustainable urban development. A study of Greater Cairo reveals a lack of these requirements in the political, organisational and technical domains. Informing the research with the basic requirements of sustainable urban development is the main contribution of objective 2, which permits the identification of crucial issues for discussion in the Greater Cairo urban context.

### ***9.2.3 The Egyptian urban context and urban management in Greater Cairo***

The third objective is to examine Egyptian urban context policies in general, and those of Greater Cairo in particular. Greater Cairo, as the centrepiece of the Egyptian economy, accounts for over 45% of GDP and nearly 40% of manufacturing output. As in other mega-cities, the main problem of managing Greater Cairo growth is not the lack of attention, expertise or resources, but an inability to transform widespread public frustration with existing conditions into the political pressure necessary to compel the state to manage the metropolis effectively. It can be concluded that the government must decentralise activities, services, industries, political power, and institutional bodies to ease the current urban growth crisis. Financial errors due to unwise management of resources coupled with rigid, corrupt government sabotage the short-term prospects for improvement of Greater Cairo's social and environmental conditions. Unfortunately, current government efforts for managing growth of the GCMR are derisory, making a long-term environmental and urban growth catastrophe a foreseeable possibility.

The lack of coordination in the GCMR at the administrative level is due to Cairo's administrative boundaries, which intersect with three governorates.

This slows the process of decision making. In addition, local governments are not well enough trained for monitoring master plan implementations and need technical support from the state level. The delivery of the existing urban policy for the GCMR is distorted at the local government due to “favouritism”.

The Egyptian environment department receives a small budget for the enhancement of the GCMR. The Ministry of Environment does not have as much political power as services ministries, and drawbacks in the Law, such as the absence of an executive manifesto, weakens the practice of Environmental Law. In addition, the Ministry of Environment must deal with local environmental practice alongside national crises.

It can be concluded that political influence on urban planning in Egypt is preponderant. Authoritarian government and the process of decision making depends more on the whims of particular individuals than on clear, continuous and coordinated policies. In addition, the authority given to ministers entitles them to change the general guidelines of policies to tailor them to the political agenda of the National Party. The government prioritises some urban sectors while neglecting others according to the magnitude of each sector and its ability to serve political imperatives, as in the case of Black Cloud and rural settlements re-planning. Unclear urban policy impacts of the GCMR are seen, for example, in the unregulated expansion of built-up areas located between new towns and the merging of satellite settlements in order to gain maximum profits, contributing to uncontrolled urban growth of the GCMR.

#### ***9.2.4 Central issues concerning the future of sustainable urban development in the GCMR***

The fourth objective examines the constraints and potential in the current urban context of the GCMR in order to identify central issues of future sustainable urban development. Case study fieldwork conducted in Cairo, examines the sustainable urban development conceptual framework derived from the literature review and international examples. The interviews examine these issues within the Egyptian urban context. Analysis of the fieldwork exercise reveals a number of central issues concerning the future of

sustainable urban development in the GCMR. A discussion of these issues follows:

Urban policy integration. Urban planning integration depends upon clear urban policy that is capable of integrating different sectors such as transportation, environmental, social and physical aspects into one consistent policy. Egyptian urban policy lacks integration. To date, the urban government has not considered the possibility of cooperation with different government sectors to achieve integration and consistency. In addition, urban policy at different levels (national, sectoral, regional and local) is not revised on a systematic basis.

Indicators. Indicators are crucial in the sustainable urban development process. The GOPP currently focuses on housing indicators, while neglecting other aspects resulting in weak procedures for urban policy evaluation and monitoring. The National Urban Observatory's role will remain weak unless it is revised, restructured and updated in order to inform urban policy about all aspects of development (social, economic and environmental).

Decentralisation. The creation of GOPP regional branches to ensure urban policy delivery has contributed to decentralisation. However, organisational and data culture obstacles have been inherited by government officials for decades. For example, the Ismailia Sustainable Project mentioned in chapter 6 lacks flexibility and is plagued by cooperation issues, especially in the urban government, slowing down progress. This explains why previous international urban projects have failed to be assimilated in the urban government mainstream: they are impeded by a lack of communication with government officials. In addition, the rigidity of master plan regulations prevents the SIP urban project from integrating its initiatives into the Ismailia official master plan, rendering the GOPP Ismailia branch an obstacle rather than an advantage to ISP project progress. Data sharing and secrecy of data are common problems in different government policies. The demand for data sharing is particularly relevant at this stage in order to enhance the formulation, evaluation and monitoring of urban policy.

Integration. Land-use planning and growth management are not integrated with transportation, environmental and social policies. The new urban development projects demonstrate this lack of integration. Although urban form and environmental planning issues are achieved in these projects, other aspects, such as connectivity and local jobs availability are nonexistent. In terms of urban form, the compact urban design is one of the famous characteristics in Islamic architecture. A number of sustainable urban design criteria already exist in housing and city centre projects, but require an update of transportation alternatives and public transit, and studies of job opportunities within the community to enhance the social and economic characteristics of the neighbourhood design.

To maintain a firm urban growth policy. An independent committee was suggested by most of the interviewees, made up of academics, NGOs and government officials to achieve continuity of urban policy. One of the important results emerging from the interviews is the urgent need for an independent committee for GCMR urban policy, as Cairo is the biggest entity in the country (17 million, 25% of the total population), and the administration borders overlap with three different governorates (Cairo, Giza and Qalubia). A special unit for urban management would be responsible for delivering and monitoring urban policy for the GCMR and addressing the urgent issues of urban growth, land use and transportation policies.

Capacity building. These programmes conducted for GOPP officials are concentrated in IT technology, whereas they should extend to environmental planning, sustainable urban development, urban decision making and civic participation and participatory planning issues. The Ismailia Sustainable Project has demonstrated how local authorities can provide strategic decisions in the urban planning process. There is consensus between the groups (government officials, academics and NGOs) about the importance of three subjects: civic participation and participatory planning, the importance of indicators in the urban planning process, and urban growth management. Although government officials do not practice in these domains, some are aware of their importance in the urban planning process. They argue that the

existing institutional and organisational system of the GOPP does not assist in applying this professional knowledge.

International examples. The adoption of lessons learned from international examples presents problems because it depends on a number of prerequisites, including independent monitoring and evaluation of urban policy, an integrated urban policy, institutional and organisational changes within the GOPP to assure sustainable urban policy delivery, and civic participation and participatory planning.

Public awareness. The creation of educational awareness campaigns for all sectors of society about the importance of civic participation in the urban planning process and promoting awareness about the impact of building urban environment promotes democratic practice in the urban process. Current media publicity about “the government reform and heading towards democracy in all aspects of Egyptian life” (Alahram Weekly, 2006) provides a propitious moment to examine how seriously the government regards transparency in decision making and the introduction of a democratic process.

Information. Part of the originality of this research lies in the interviews with urban planning decision makers. The interviewees revealed a number of issues about urban planning policy in Egypt and the GCMR demonstrating the pros and cons of current policies, and raised questions about the current status of sustainable urban development in Egypt. In addition, the fieldwork revealed a lack of appropriate research concerning this matter. The Egyptian urban policies documentation procedures during the fieldwork revealed a lack of digital database in the Egyptian libraries. This problem not only affected this research, but will affect the quality of future research in Egyptian academic centres as well. While basic information availability is taken for granted in the developed world, it is a “rarity” in Egyptian academic research.

The Big Picture. A second factor emerged, concerning the interviewees’ background. Interviewees knew part of the picture but were not aware of the



bigger picture. Their position as top key decision makers and their job descriptions might have misled the researcher to believe that the interviewees were aware of the different sectors in the urban planning mechanism. This was not the case. For instance, the interview with GOPP officials revealed that they were aware only of urban policies and urban planning implementation, but had no knowledge about environmental and transportation planning. This was true for decision makers in the transportation and environmental areas as well. Clearly, integration of the urban planning process does not occur. The only exception was in the cases of the town planning academics and private organisations, which showed extensive knowledge of the integrated urban planning process.

### ***9.2.5 Towards sustainable urban development in the Greater Cairo Metropolitan Region***

The aim of this research is to propose a suitable sustainable urban development proposal for the GCMR. This was done by analysing urban opportunities and constraints in the GCMR with a scenario-building technique. The technique enabled us to identify several future scenarios for sustainable urban development as an initial step towards building a suitable framework proposal for the GCMR.

In chapter 7, theory and applications of scenario building of the GCMR case is applied. The technique enabled the identification of the main actors, factors and sectors in the GCMR through an analytical approach. The first and second parts of the research developed the essential aspects to be discussed in the GCMR case. Three possible scenarios for future sustainable urban development in the GCMR are generated. One scenario discussed future expectations under a political status quo, the second discussed international support and global aspects, and the third discussed sustainable urban development in the GCMR from a civic, bottom-up standpoint.

The scenarios produced a number of suggestions:

- Sustainable urban development indicators and public participation are key factors in the sustainable urban development process. In addition, it is important to decide on the approach to achieve sustainability in

the GCMR, either a bottom-up or a top-down approach. Sustainable urban development indicators and urban policy through multiple scales (national, regional, and local) are essential in order to achieve efficiency and effectiveness in the process.

- Coordination, integration, and organisational aspects in urban governance influence the overall performance of urban development in both Egypt and the GCMR. In addition, the organisational working environment and financial institutions capacity are both challenges to the achievement of sustainability in the GCMR: these aspects should have flexibility in terms of regulations and institutions to make the urban planning process more dynamic.

The previous suggestions enabled us to formulate a new proposal for sustainable urban development in the GCMR. Chapter 8 discussed the general guidelines of the GCMR proposal. This new proposal is built on government accountability and the willingness to involve urban development stakeholders in the urban planning process. In addition, public participation should be accompanied by political rights that allow the public to participate in urban planning policy making, evaluation and monitoring.

In addition, the proposal suggested a number of prerequisites that are essential to provide a broader framework for the achievement of a specific proposal's objectives. The main pillars of the proposal are the management of urban growth in Greater Cairo by evaluating current new towns policies. Formulation of a holistic policy is based on integrating social, economic and environmental considerations in the urban planning process. Mechanisms such as incentives for choosing a house in the new towns are one of the instruments, as are urban regulations for new housing development such as setting aside a percentage of housing for local residents. Providing infrastructure facilities and services such as educational, health and social services should be part of the private developer's contract in order to create a liveable residential community that attracts residents from the core city to move to the new towns.

Taking advantage of the government's early experience with upgrading and regeneration of existing areas, plus increasing the collaboration with NGOs, the public and academics enhances the urban regeneration process and takes into account the various aspects of urban development. In addition, acclaimed upgrading projects implemented by international donors, provide a benchmark, which can be used to generalise the lessons of this experience throughout the country.

In order to achieve an effective regeneration process, the government must allow partnerships and collaboration with NGOs in terms of the urban aspect of the regeneration project, which has proved in the past to be the least effective area of cooperation. In addition, the regulations should extend to the collaboration between the government and NGOs for technical assistance to include managerial and administration involvement, which permits knowledge exchange between government officials and independent experts. It also allows the different urban development stakeholders to become involved in the urban policy-making process.

Initiatives and accountability at local government level are less motivated in Egypt due to a lack of knowledge and training. Local government is the key to successful solutions to urban problems. Creation of the necessary political will for policy formulation and implementation, and the monitoring of city officials, top-level decision makers and local councils are necessary for introducing a long-term urban transportation policy. In addition, there is a need for consideration at the planning stages. Linking transport planning to land-use planning and environment is necessary for achieving sustainability in the GCMR. Such integrated planning is especially important for new towns and urban expansion schemes.

The updating and preparation of integrated spatial urban and regional development strategies requires the integration of transportation, housing, environment, economic and social aspects. If these integrated plans are to succeed, the current urban planning process must be re-evaluated with the aid of preliminary studies. In addition, new tools and instruments must be

introduced to increase efficiency in implementing sustainable urban development plans, such as a detailed environmental data collection inventory, environmental impact assessment and strategic environmental assessment for large-scale urban development plans.

A third pillar of the proposal is to promote environmental practice and the introduction of a coherent Local Agenda 21 for development stakeholders. Chapters 5 and 6 showed that the environmental department has no executive authority in urban management because it is not a service department such as health and education. The environmental department executive regulations present a challenge to the interests of other departments, causing a weak environmental department. Defining a detailed Local Agenda 21 for the Egyptian government formulated by all development stakeholders is a first step. The second step is to integrate the agenda in government policy formulations and a third step is to provide the agenda with mechanisms to govern requirements, inputs and outputs of the different policies.

This thesis is the first contribution to sustainable urban development in Greater Cairo that deals with urban growth policy. Hassan (2001) discusses the links between environmental policy and urban development strategies of low-income urban areas. The author argues that the lack of an adequate management system in Egypt results in a lack of capacity to develop effective environmental policies and address deteriorating urban environmental conditions. The author's findings agree with the general findings of this research concerning urban development in Egypt with one point of departure – Hassan's main concern is environmental management for low-income urban areas in Egypt, which is a different emphasis from this research. The author's main findings are:

- In a centralised system, such as in Egypt, politics plays a significant role in achieving a coordinated policy framework.
- Environmental issues are considered only as long as they do not negatively affect economic growth and development objectives.

- Local sustainability is less achievable in the absence of a well coordinated national vision of sustainability and an effective local environmental management framework.
- Community participation, decentralisation and devolution of power, in the long term, are necessary to achieve sustainability.
- Perception of environmental protection as a major constraint on economic development hampers the coordination functions necessary to implement environmental policies and increase the realisation of environmental policy.
- Consequently, the environmental policy framework is less able to influence urban development strategies towards sustainability.

Despite the fact that developing countries share common characteristics of administration and government bureaucracy, this research reveals that among developing countries there are differences of political performance. For instance, in Brazil, considered a developing country, it seems that the government has succeeded in promoting public participation and decentralisation. The political situation in Egypt is empowered by the principles of the 1952 military revolution: to oppose democracy and public participation in every aspect of development including urban development. In Brazil and Mexico, improvements in democratic political life are tangible, while even basic democratic rights must be achieved in Egypt. This research argues that a healthy political environment is required for achieving sustainable urban development in the Egyptian urban context.

#### **9.2.6 Research contribution**

Attempts to introduce sustainable urban development principles in metropolitan areas have proved to be a challenge during the last 20 years. Developed countries search for new urban policies to regulate transportation systems and housing affordability, and to ensure healthy environments in which to live and work. This research contribution lies in the analysis of and solutions for Greater Cairo; urban planning in Egypt is seen as aiming to provide as many housing units, roads and services as can possibly be accommodated. However, urban development requires a holistic approach,

encompassing all aspects of development, which is largely ignored. Integration of transportation, environmental and employment policies into the urban planning process is essential to produce effective urban policies. The February 2006 fieldwork trip revealed that even academic researchers lack any interest in proposing general guidelines for new approaches and strategies to achieve sustainable urban development in Greater Cairo.

In addition, academic attempts to discuss the influence of political issues, such as democracy, transparency and policy evaluation by the public, are now a taboo subject for the Egyptian government. Previous academic research focuses on dealing with political influences on the urban planning process as a given fact and fails to evaluate or suggest changes for local urban government performance. This research argues the need for looking at the bigger picture to discuss these sensitive issues and to suggest how to counter these problems in order to achieve sustainable urban development in the Egyptian urban context in general, and in Greater Cairo in particular. The major contributions of this research are: first, to discuss the sustainable urban development future in the GCMR which has been neglected by the Egyptian urban planners and government urban policy. Second, the utilisation of a scenario-building analytical technique that has been used before in quantitative-oriented scenarios: the method has been applied in this research as a qualitative approach. The scenario-building technique has never been explored in the field of sustainable urban development and rapid urban growth in metropolitan areas; however, it has proved its ability to bridge the gap between current urban chaos in the GCMR and alternative futures that can be adopted to promote sustainable urban development in the Egyptian urban context. The scenario-building approach identifies essential aspects for the GCMR sustainable urban development proposal, such as:

- The research explores sustainable urban development in one of the most politically controversial spots of the world (Egypt) where political aspects influence daily life. In addition, this research demonstrates that urban planning is more political than technical, and shows how

the political aspects impact urban planning in terms of uncontrolled urban growth and dysfunctional urban management.

- This research provides insights for both academics and urban planning practitioners about the problems they face when applying sustainable urban development to Egypt and, more importantly, provides solutions for a near-catastrophic situation.

### **9.3 Recommendations for further research**

This research discusses the potentials and constraints of the Greater Cairo Metropolitan Region that affect sustainable urban development, specifically in relation to urban growth aspects. The research covers closely related issues to urban growth in Greater Cairo. Through the analysis phase and the building of the GCMR sustainable urban development proposal, issues have been raised that require further research and discussion in order to inform the urban development process in the GCMR with the essential issues for future sustainable urban development. It can be concluded that the Egyptian government must encourage research in the following issues in order to avoid an environmental catastrophe:

- The formulation of new integrated urban policies for the region that must work for long-term achievement and take account of existing urban growth problems.
- The definition of goals and time-schedules to meet urban environmental quality standards for regional plans, urban master plans and urban action plans, and the supplementary initiatives to implement these goals. In addition, environmental standards for air, water and soil, gaseous emissions, and quality control of products must be established. Encouraging the adoption of effective environmental management measures and providing necessary training, guidance and supervision, including assistance in the preparation of environmental feasibility studies, is an urgent requirement for achieving sustainable urban development. Monitoring compliance with environmental laws and regulations

needs to be activated through executive tools such as the requirement of an SEA or EIA study for new urban development projects, in addition to the dissemination of environmental information to the public.

- An independent committee for the GCMR that is not related to the GOPP. The Prime Minister could assure its independence to create targets, plans, implementation, and monitoring, without GOPP interference.
- The increase of coordination and collaboration among ministerial and governmental sectors, agencies, authorities, and the governorates in order to solve the problem of data secrecy on the one hand, and on the other hand, to apply the concept of multi-sectoral integrated planning.
- Monitoring and evaluation. It is not acceptable that the government should monitor and evaluate itself. This job must be done through a fully independent body such as the Urban Observatory, which is now closely related to the GOPP and complies politically with all the urban government decisions.
- Urban form and design. The principles of environmental design in housing projects exist, but further study is needed in how to integrate the design with the Transit-Oriented Development concept.
- The scenario-building approach. This research utilises the scenario-building approach in chapter 7 in order to construct possible future scenarios for urban development in Greater Cairo. Because of its limited scope, this research does not involve urban development stakeholders, which would enhance the results of scenarios. It is recommended that such an exercise be conducted by inviting



government officials, NGOs, academic centres and the public to participate in the process. The results will enhance the decision-making process in the urban development management of Greater Cairo. In addition, this research recommends a series of scenario-building exercises of various topics in urban policy formulation, both at national and local levels.

- Possible initiatives by the GOPP to alter the Urban Planning Law in order to introduce the concept of urban sustainability. Also required is research on a clear vision and a multi-level framework of how to achieve it, and identification of critical changes required for urban planning bodies in the state and local governments.
- Government organisational structure, investigation of how the policies are delivered using an objectives-based approach rather than a minister approach. Currently, every state's minister focuses on his/her department to secure his/her political position, rather than on overall policy objectives. Investigations of policies may include those from national to local levels. Lastly, research is required on the role of political factors and their influence on the urban planning process, and long-term strategies and methods to empower these strategies with regulations to prevent altering these strategies frequently.
- Formulation of broad sustainable urban development indicators that include social, economic and environmental aspects rather than focusing on indicators which serve political purposes.
- Methods to strengthen the role of the Environmental Department by integrating environmental aspects in urban policy formulation. Research is required on environmental evaluation methods to affect urban policy approval, methods such as Strategic Environmental Assessment, Environmental Reporting, Ecological Footprint analyses and utilisation of GIS technology.

- NGO urban project examples and how to integrate their roles in the urban planning mainstream. Research is needed on international experiences while taking into consideration local characteristics and circumstances in order to tailor these experiences to fit the Egyptian urban context.

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## APPENDICES

### Appendix 1: Fieldwork activities

#### A2.1 The fieldwork preliminary preparations

Within the previous discussion, the main purpose of the fieldwork was seen as to investigate the present and future urban context of the Greater Cairo Metropolitan Region towards achieving urban sustainability. The main issues to be addressed are: First, the fieldwork should explore the literature relating to the urban sustainability of Cairo. This activity will cover any previous or current articles, PhD dissertations or reports that discuss this matter; this objective will also be involved in investigating the kinds of problems that are challenging the achievement of Cairo's urban sustainable development, whether political, administrative, economic or cultural. Second, the fieldwork should identify the key players or stakeholders who are responsible for carrying out the urban development process of Greater Cairo Metropolitan Region in order to understand the present and future initiatives, the potential and constraints for achieving urban sustainability. In order to achieve these issues, the fieldwork activities should start with 7 days of preliminary preparation to include, first, a review of the literature, which is specifically:

1. Reports of attempts to conceptualise, evaluate or apply the urban sustainability to the case of the GCMR.
2. Academic articles and papers that have a central theme of urban sustainability for the GCMR.
3. PhD dissertations that discuss the issues of urban sustainability for the GCMR.

Second, the preliminary preparation includes contacting the interview respondents in order to sort out the time, place and date for each interview. The preliminary preparation of the fieldwork is important because it gives an indication of the degree of urban sustainability awareness among the professionals and academics. Also it helps to pinpoint the different organisations involved in the process which will help later on in analysing the relationship between these organisations within the current urban planning process, the nature of coordination between them and whether it is weak or strong.

The type of data listed above will be found within the universities' and research centres' libraries. The major libraries that are the default choice of any academic researcher in Egypt, are as follows:

(Note: The order of the list is based on their importance, reliability and the borrowing option.)

1. The library of the Urban and Regional Planning Department of Cairo University.
2. The central library of Cairo University in Giza.
3. The central library of Ain Shams University in Abassia.
4. The United States Aid Agency USAID library in Maadi.

5. The American University library in Cairo.

Other sources for data are mentioned below, but extracting information and data from these resources will be dependant mainly upon any personal contacts the researcher may have.

**1. The Central Agency for Public Mobilisation and Statistics (CAPMAS)**

This authority is the one responsible for preparing statistics at national, regional and city levels. It is a central place for any kind of quantitative data collection and holds important information about social, economic and physical data concerning the GCMR. The agency is also a good place for depicting trends as it holds data for different time periods, at intervals of 10 years since 1966.

**2. General Organisation for Physical Planning (GOPP)**

This is considered to be the main resource for most of the activities during the fieldwork. It consists of several organisations all in one place. A huge amount of data and information can be extracted from the GOPP, including;

- All documents related to the urban planning of GCMR drawings and planning documents
- Greater Cairo Metropolitan Region's planning reports and evaluation reports
- Planning and monitoring reports about new towns in Cairo's urban fringes
- Reports of urban projects that take place in the GCMR
- GCMR master plan evaluation study reports, past and present situation.

**3. GCMR Unit in the Ministry of Housing**

This is responsible for the urban planning and management of Greater Cairo Metropolitan Region. This unit can be expected to have details about the urban policy of the GCMR and the individual urban regeneration projects that are being implemented, or are currently running.

**4. Urban Observatory**

This unit is a joint project between the General Organisation for Physical Planning and the United Nations as part of the United Nations Development Programme (UNDP). The unit is responsible for the collection and management of urban indicators for Egyptian cities; social, economic and environmental indicators should be collected from this unit; also, discussion of the coordination between this unit and other urban planning organisations is expected as part of the interviews.

**5. Ministry of Housing**

This department is the one that is responsible for planning, designing, implementing and management of the existing and future housing

stock. Most of the housing data that needs to be collected is expected to be obtained from this department.

#### **6. Ministry of Planning**

This department is responsible for the strategic planning policy for the country, and urban planning policy is one of their tasks. Information on existing and future urban policies for the country and the GCMR can be learned from this department. If there are problems of communication with this department “which may be anticipated, due to its political and strategic orientations”, an alternative place to find the same documents is the GOPP.

#### **7. Housing and Building Material Research Institute (HBMRI)**

The important place in this institute is the library, where reports and theses about the evaluation of housing conditions, supply and demand, housing in new towns and urban housing design evaluation, can be found.

#### **8. Ministry of Transportation (Transportation Planning Institute)**

The institute is responsible for transportation planning in the country; it is expected to find all transportation-related studies in this place.

#### **9. Ministry of Environment**

This department is expected to provide all the environmental documents, environmental evaluation studies, and a list of environmental entities that are involved in environmental planning, and to provide, through discussion, information regarding the nature of the existing coordination between the environmental department and urban planning process.

The preliminary fieldwork preparations will take 7 days during this period. The top priority will be to contact and arrange a detailed schedule for the interviews. The second priority will be to concentrate on visiting a limited number of the libraries mentioned above in order to update the literature about the GCMR.

### **A2.2 Interviews**

A major advantage of the interview is its adaptability, whereby the interviewer can follow up ideas, probe responses and investigate motives and feelings that the questionnaire could never do because it lacks the interaction between the interviewer and interviewed person. The drawback of interviews that they are a time-consuming and highly subjective technique and therefore there is always a danger of bias. The technique of these interviews will consist of semi-structured interviews where there will be thematic guidelines for a number of topics to be covered and, at the same time, an opportunity to elaborate or extend points of view on any one of these topics.

To counter the danger of bias produced from interviews, “the eagerness of the respondent to please the interviewer, a vague antagonism that sometimes arises between interviewer and respondent or the tendency of the

interviewer to seek out the answers that support his preconceived notions” (Borg, 1981), Gavron, 1966 argues that despite the difficulty of avoiding the bias problem, the fact of being aware of it, and the interviewer’s consistent self-control, can help reduce such bias during interviews.

### **A2.2.1 Preliminary preparation for interviews**

Each interview will start with 5 minutes introduction to the general aims and objectives of the research, the purpose of the interview and what its value is within the research context. This will vary depending upon whether the respondent is a key policy maker, sector manager, municipality manager, town planner or academic, because each of these persons will have a different approach and different way of thinking. However, as a general introduction it can be as follows:

Sir/Madam

I am Mohamed M. Youssef, assistant lecturer in the Town Planning Department, Faculty of Regional and Town Planning, Cairo University, and currently a PhD research student at the Civic Design Dept, University of Liverpool, United Kingdom. First, I would like to express my appreciation for your kindness and patience in letting me carry out this interview, and I am grateful that you are willing to spend this time with me. It is an important input to my research.

First, and before we start the interview, it is important to give you a summary of my research. The research is conducted mainly to explore what are sustainable communities, both in theory and by means of practical examples, in order to inform the applicability of the concept to the Greater Cairo Metropolitan Region.

By 1972, with the release of *The Limits to Growth*, modelling the catastrophic collapse of global systems through the twentieth century, the lead to sustainable development formed in the following years, witnessed by the United Nations conference on the Human Environment held in Stockholm 1972 and the 1973 energy crisis. In the late 1880s and early 1990s the sustainable development concept entered the international mainstream following the release of the Brundtland Commission in 1987 and United Nations Earth Summit in 1992. The definition of sustainable development, as The World Commission on Environment and Development (WCED) stated in 1987, is “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition of sustainable development given by the Brundtland Commission has served as the core element for almost all of the establishments definitions since then.

Until the early 1990s few sustainability advocates focused on cities or patterns of urban development, but the release of Agenda 21 helped governments and local Authorities to adopt their sustainable measures and it became the basis for local Agenda 21 planning in Europe. The 1996 UN Habitat II City Summit in Istanbul attempted to establish global consensus on how the sustainability agenda might be applied to urban planning. The Habitat agenda emphasised the interrelation of urban issues and the need for

attention to the social and environmental aspects of sustainable urban development.

Since then the concept has become more integrated and an essential part of the planning process from the national level up to the local level, progressing from theory to practice 'with different levels of applications'. That shift allows the term sustainable development to be developed in the urban context by introducing the concept of sustainable communities.

The definition of a sustainable community is one that acknowledges that economic, environmental and social issues are interrelated and that these issues should be addressed "holistically", and also recognises the sensitive relationship between the natural and built environments in order to understand and begin to shift away from polluting and wasteful practices.

In addition, the sustainable community understands the protection of its natural, cultural, historical and human assets by encouraging citizens' participation, promoting the conservation of resources, pollution prevention and a focus on improving community health and quality of life.

In broader terms, the fundamentals of sustainable development rely on the three pillars of urban planning, the "social, environmental and economic aspects", that are shaping the context of sustainable development.

The objective of this research is to study the practice of sustainable communities from international examples in order to extract lessons. Then a sustainable community framework may be proposed for the case of the GCMR to pave the way for decision makers to understand the holistic approach of sustainable communities for better urban planning and management of the GCMR. The research is now at the stage of checking the urban context of the GCMR; this includes a review of the present urban, economic, social and environmental context of the GCMR, the potentials and constraints of applying sustainable community principles to the GCMR and a check on whether the lessons from international examples reviewed in the research are applicable to the case of Cairo.

This will be discussed in the following questions.

### **A2.2.2 Stakeholders**

It is important to recognise the stakeholders or the key players of GCMR urban planning in order to identify who are the essential persons to be interviewed regarding the GCMR urban planning process.

The research identified these stakeholders as the key players in the urban development of the GCMR:

1. **The Ministry of Housing, Utilities and New towns.** This department is responsible for planning, designing, implementing and management of existing and future housing. In addition, it is responsible for management and implementation of the new towns and settlements in Cairo's urban fringe. It is necessary to check the co-ordination between the GOPP as a planning authority and the New Towns Authority in different sectors such as housing affordability, commercial activities, industrial activities, transportation management.
2. **General Organization for Physical Planning.** The importance of this organisation is massive because it is the only responsible authority for preparing and implementing urban plans in the GCMR.

3. **The Greater Cairo Planning Authority (GCPA).** This is responsible for preparing and implementing plans and monitoring urban development for the GCMR. The unit is responsible for monitoring urban regeneration projects conducted in the GCMR as well.
4. **Ministry of Transportation.** This ministry is responsible for the implementation and management of transportation plans, monitoring traffic flows, and solving congestion problems.
5. **The Ministry of Environment.** This ministry plays a vague role in terms of initiatives and commitments towards the urban context of the GCMR. The interviews investigate its current role to find out how its initiatives and programmes within the urban planning process are ineffective.
6. **NGOs and Academic Research centres.** Independent international organisations and academic research consider the evaluation and monitoring of the urban planning development of the GCMR as a high priority. Agencies such as The United States Aid Agency (USAID), the United Nations Development Programme (UNDP), and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) run several programmes to monitor and evaluate the urban development projects in the GCMR and other sites in the country.

The above authorities are considered to be the main government tools to manage urban planning issues in Cairo at the moment, but there is no clear framework for monitoring the performance of these authorities. On the other hand, evaluation and monitoring of the urban planning development of Cairo is also considered to be a high priority for international non-governmental organisations such as USAID, UNDP and UNESCO.

From the above discussion, there is a good chance of looking at both sides of Cairo's urban development and the existence of urban sustainability in terms of initiatives, and conceptual or implementation phases. Based on exploring these issues, a judgment can be made concerning Cairo's current urban situation towards sustainability and the potentials and constraints towards achieving it.

### **A2.2.3 List of interview respondents**

The interviewees list:

Dr. Mustafa Madbouly, Vice-President of GOPP

Dr. Fahima Elshahed, Head of The Urban Observatory, GOPP and UNDP contact in Egypt for sustainable development activities.

Sylvia Attalla, USAID Office of Environment

Dr. Osama Salem, Head of Capacity Building International CBI, urban policy specialist and environmental policy advisor.

Dr. Mustafa Fouda, Head of the Nature Conservation Institute

Dr. Abdelwahab Helmy, Head of the Research Team for Updating the GCMR Strategic Plan.

Hoda Edward, town planner and Head of GCMA unit, GOPP.

Dr. Rashad Elmiteeny, transportation planning specialist and lecturer at Cairo University

Dr. Ola Soliman Elhakim, Regional Planning Division, the National Planning Institute

Dr. Ashraf Bakr, monitoring and evaluation specialist

Nagwa Salem GCMR authorities

Dr. Tariq Wafiq, environmental planning consultant and lecturer in the town planning department faculty of Regional and Town Planning

Nagwa Elmarsafy, town planner in New Communities Authority

Dr. Maha Fahim, town planner in GOPP Research Department.

Dr. Noha Fahim, environmental researcher in Environment Institute, Ain Shams University

Dr. Ahmed Osman, author of Urban Growth Policy Dissertation, Architecture Department, Ain Shams University.

#### **A2.2.4 General structure of interview topics**

The interviews will be based on the following topics which are the major issues that need to be raised during the interviews.

- **Urban policy and sustainability.** This item is concerned with discussing current urban policy for Greater Cairo and establishing whether the debate on urban sustainable development has been tackled or neglected.
  1. Are sustainable development initiatives present on the government urban agenda? Are there any attempts to include the principles of sustainable development in the urban policy or is it absent at the moment?
  2. If there are some attempts, what are these attempts and in which sectors?
  3. If these attempts exist, are they translated into government initiatives to introduce sustainable development and in which urban sectors?
  4. Have there been attempts to introduce sustainable cities policies that have then been abandoned later on, and if so why? and
  5. What are the policies and initiatives to achieve sustainability for the GCMR?
  
- **Transportation Planning.** This emerged as a main component of the sustainability debate in all the international examples in the research, in terms of reducing private automobile usage and encouraging mass transit transportation and cycling. Questions need to be addressed such as:
  1. What are the government initiatives to control Cairo's urban growth and are transportation projects helping to achieve this or are they encouraging more urban growth?
  2. What are the commitments to the environmental aspects in terms of reducing pollution, fuel types and consumption, public mass transit plans in the inner city and new towns?
  3. How to tackle the connectivity and commuting problems which are generated by new towns and the inner city activities in terms of traffic flows and congestion.



- **Environmental Aspect.** Five years ago, environmental action towards creating sustainable communities was neglected in the GCMR urban planning process. There was an absence of environmental regulations and studies of master plans such as Environmental Impact Assessment (EIA) or Strategic Environmental Assessment (SEA). Tourism projects were the exception because they deal with sensitive environmental locations, and there was a common conception that environment protection was synonymous with city beautification. The major environmental issues will be discussed, such as:
  1. What are current laws and regulations regarding the environment and present practice?
  2. What is the nature of the relationship between the Environment Department and other urban planning organisations? What is the shape of the current coordination between these organisations in terms of potentials and constraints in order to understand how far the environment law is applied and what is its role in the GCMR urban planning process?
  3. Is there any role for NGOs in introducing environmental awareness to the people and how are these organisations working within the framework of the urban planning process?
  4. What does the GCMR current urban planning process contribute towards achieving environmental sustainability?
  5. Are the current efforts (if there are any) enough to consider the GCMR sustainable and if not how in your view can this be achieved?
  6. What are the environmental problems generated from the daily urban activities in the GCMR in terms of different types of pollution – for example air and water pollution. In addition, what are the government initiatives to cope with this?
  
- **Housing affordability.** A discussion of housing problems, affordability and solutions, such as;
  1. What is the current status of housing supply and demand?
  2. Have the new town policies succeeded in absorbing the population problem? If not:
  3. What are the main reasons for the failure of the new towns to be populated as they planned in the original master plan?
  4. Are there any kinds of government initiatives for sustainable housing policy?

The main topics of the interviews are:

- **Urban Policy and Sustainability.** This section concerns discussion of the current urban policy for Greater Cairo and the existence of a sustainable urban development debate in the GCMR.
- **Transportation Planning.** This has emerged as a main component of the sustainability debate in all the international examples in my research, especially as pertains to reducing private automobile usage and encouraging mass transit transportation.

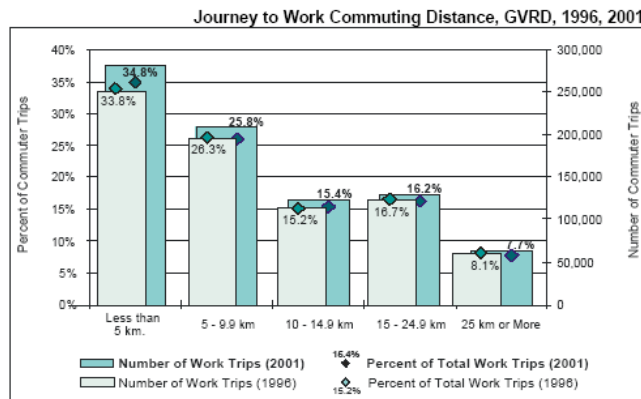
- **Environmental Aspect.** In the last 5 years, the GCMR urban planning process has neglected environmental action towards creating sustainable communities. There is an absence of environmental regulations and studies of master plans such as the Environmental Impact Assessment (EIA) or the Strategic Environmental Assessment (SEA) studies, with the exception of tourism projects because they deal with sensitive environmental locations. The common conception of environment protection was city beautification.
- **Housing affordability.** This section is concerned with housing policies and spatial distribution.

In addition to the previous themes under discussion, each of these topics will tackle a major concern regarding the findings of chapter 3 which discussed the international examples of sustainable communities, in order to get an impression of the readiness for accepting changes to current urban planning thinking for the GCMR, such as:

- The point of view about adapting concepts and practical solutions, mentioned briefly in the introduction to this report, such as mass transportation, creative solutions for generating jobs, transit-oriented development and others from other countries and applying these experiences in the GCMR urban context.
- The point of view about whether these experiences are suitable or applicable for the case of Cairo.
- What are the major pros and cons of applying these experiences?

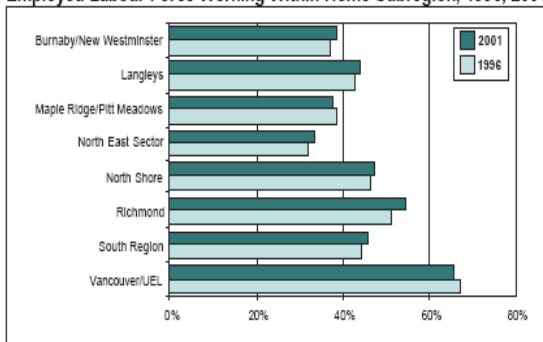
This approach will give the interviewer (the researcher) the opportunity to find out how the concept of sustainability is conceived by different decision makers, what are the current efforts to achieve it, and how from their point of view can sustainability be achieved for the GCMR. Adding to the previous, the data collection will ensure an updated evaluation of the current urban strategies and policies for the GCMR and where these policies are taking the metropolitan areas.

## Appendix 2: International examples indicators samples Greater Vancouver

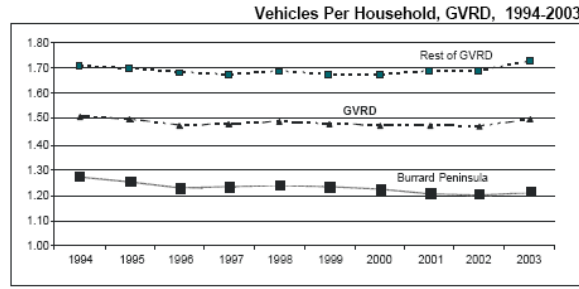


Data Source: Statistics Canada, 1996, 2001 Census  
Indicator Update Frequency: 5-Year

**Proportion of Employed Labour Force Working Within Home Subregion, 1996, 2001**

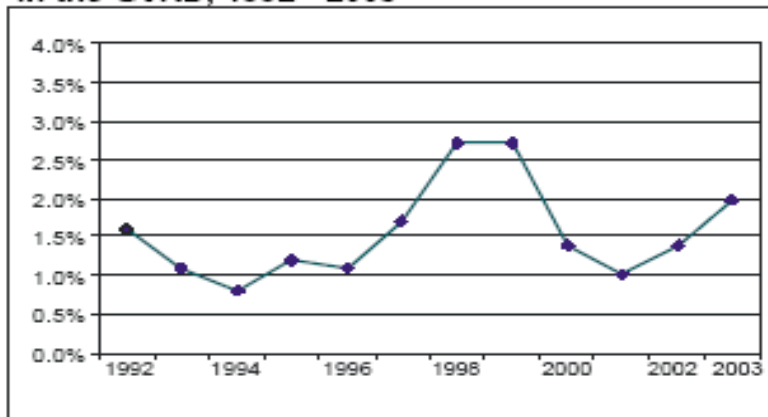


Data Source: Statistics Canada, 1996, 2001 Census  
Indicator Update Frequency: 5-Year

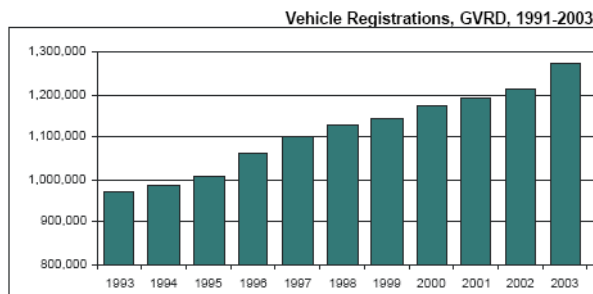


Data Source: BC Stats PEOPLE 26; Insurance Corporation of British Columbia (Pitt Meadows and Maple Ridge vehicle numbers 1992-95 derived from 1991 and 1996 statistics)  
Indicator Update Frequency: Annual

### Annual Apartment Vacancy Rates in the GVRD, 1992 - 2003

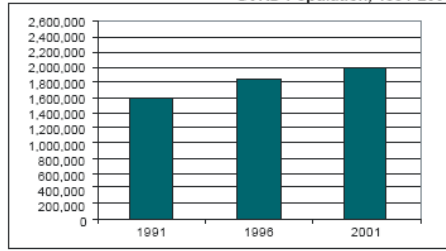


Data Source: Canada Mortgage and Housing Corporation  
Indicator Update Frequency: Annual



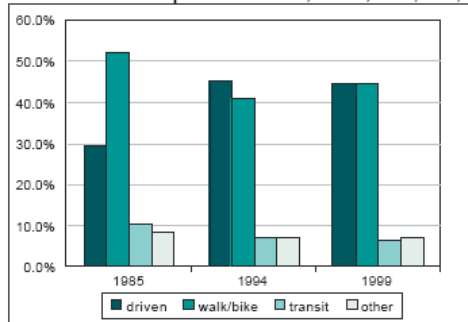
Data Source: Insurance Corporation of British Columbia.  
Indicator Update Frequency: Annual

GVRD Population, 1991-2001



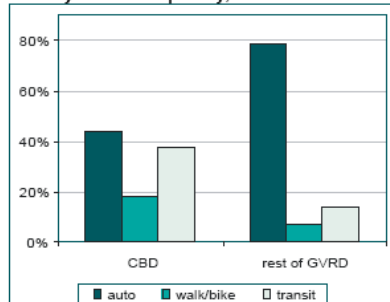
Data Source: Statistics Canada, 1991, 1996, 2001 Census  
Indicator Update Frequency: 5-Year

Proportion of Children Driven to School vs. Other Transportation Modes, GVRD, 1985, 1994, 1999



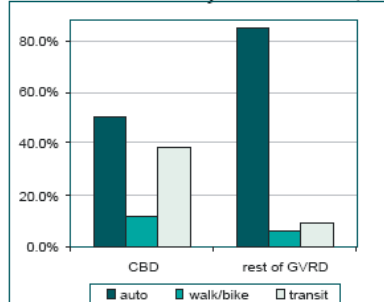
Data Source: GVTA  
Indicator Update Frequency: 5-Year

Journey to Work Trip Diary, 1999



Source: GVTA, 1999 Trip diary  
Indicator Update Frequency: 5-Year

Journey to Work: Census, 1996



Data Source: Statistics Canada, 1996 Census  
Indicator Update Frequency: 5-Year

Note: 2001 Census Data is not used because of the transit strike impact on data accuracy.

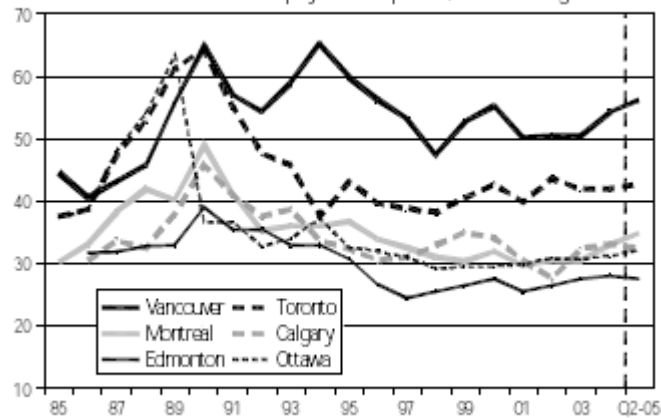
Housing affordability summary table

Region	Average Price		Average monthly payment			Qualifying Income (\$) Q4 2004	Affordability Index (%)	
	Q4 2004 (\$)	Y/Y % ch.	Q4 2003 (\$)	Q4 2004 (\$)	Y/Y % ch.		Q3 2004 (rev)	Q4 2004
Canada*	217,534	7.0	1,352	1,413	4.5	52,981	33.6	33.3
British Columbia	288,059	8.4	1,645	1,738	5.6	65,168	43.9	43.7
Alberta	186,577	3.1	1,214	1,233	1.6	46,250	26.2	25.4
Saskatchewan	138,575	3.3	1,030	1,049	1.8	39,328	27.7	27.6
Manitoba	160,222	10.4	1,117	1,191	6.6	44,674	30.4	30.5
Ontario	261,063	6.5	1,589	1,649	3.8	61,855	34.5	34.2
Quebec	163,111	9.0	1,071	1,139	6.4	42,727	31.4	31.2
Atlantic	140,076	4.3	932	967	3.8	36,259	26.8	27.1
Toronto	361,560	4.2	2,125	2,166	2.0	81,241	43.0	42.5
Montreal	175,944	9.4	1,124	1,198	6.6	44,943	31.7	31.4
Vancouver	351,858	8.1	1,969	2,075	5.4	77,821	48.0	47.7
Ottawa	230,786	5.2	1,490	1,535	3.0	57,549	30.8	30.6
Calgary	233,222	3.3	1,438	1,461	1.6	54,801	28.1	27.2

\*population weighted average  
Sources: Royal LePage, Statistics Canada, RBC Financial Group

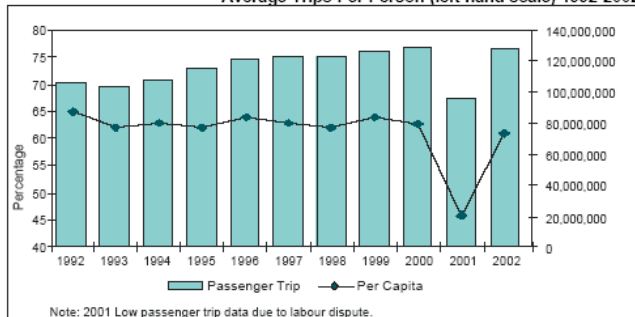
**Metro markets housing affordability**

% of household income taken up by ownership costs, detached bungalow



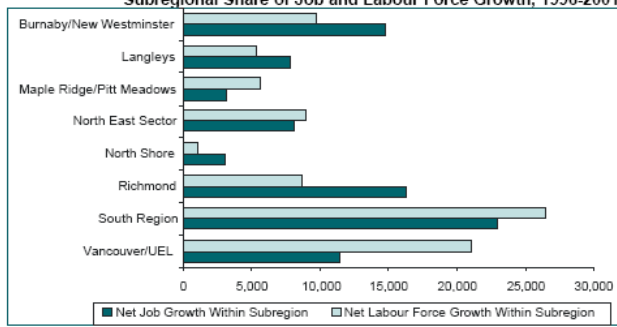
Source: Statistics Canada, Royal LePage, RBC Financial Group

Total Transit Ridership (right hand scale) and Average Trips Per Person (left hand scale) 1992-2002



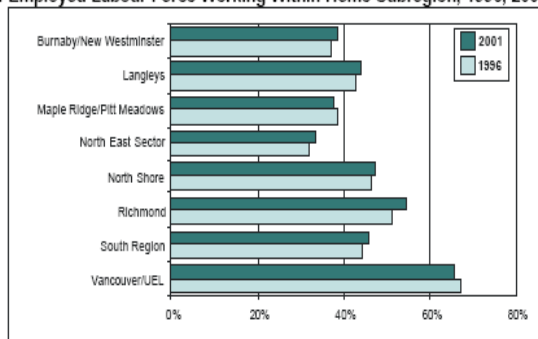
Data Source: BC Stats PEOPLE 26; GVTA  
Indicator Update Frequency: Annual

Subregional Share of Job and Labour Force Growth, 1996-2001



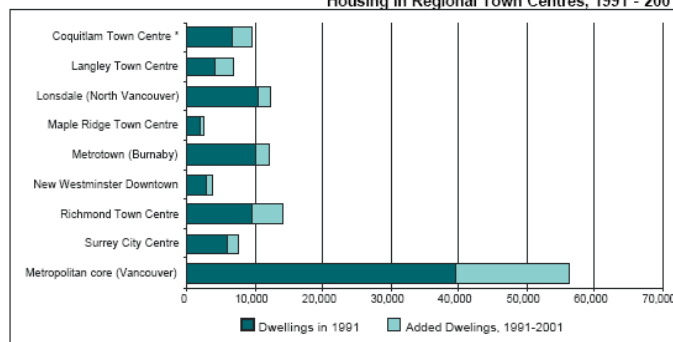
Data Source: Statistics Canada, 1996, 2001 Census  
 Indicator Update Frequency: 5 - year

Proportion of Employed Labour Force Working Within Home Subregion, 1996, 2001



Data Source: Statistics Canada, 1996, 2001 Census  
 Indicator Update Frequency: 5-Year

Housing in Regional Town Centres, 1991 - 2001

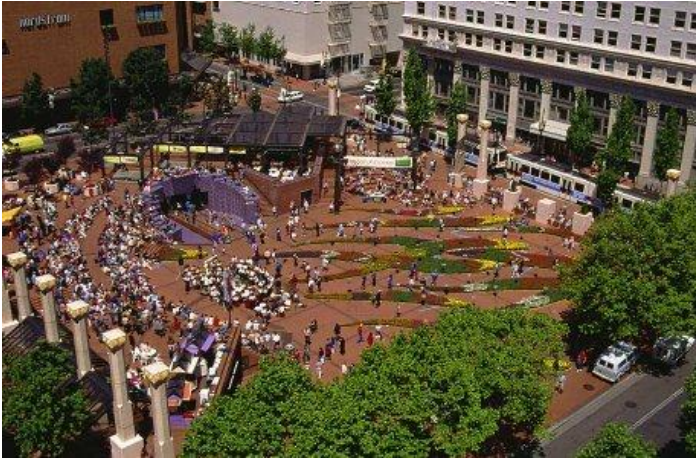


Data Source: Statistics Canada, 1991 and 2001 Census

Indicator Update Frequency: 5-Year

## Portland Oregon

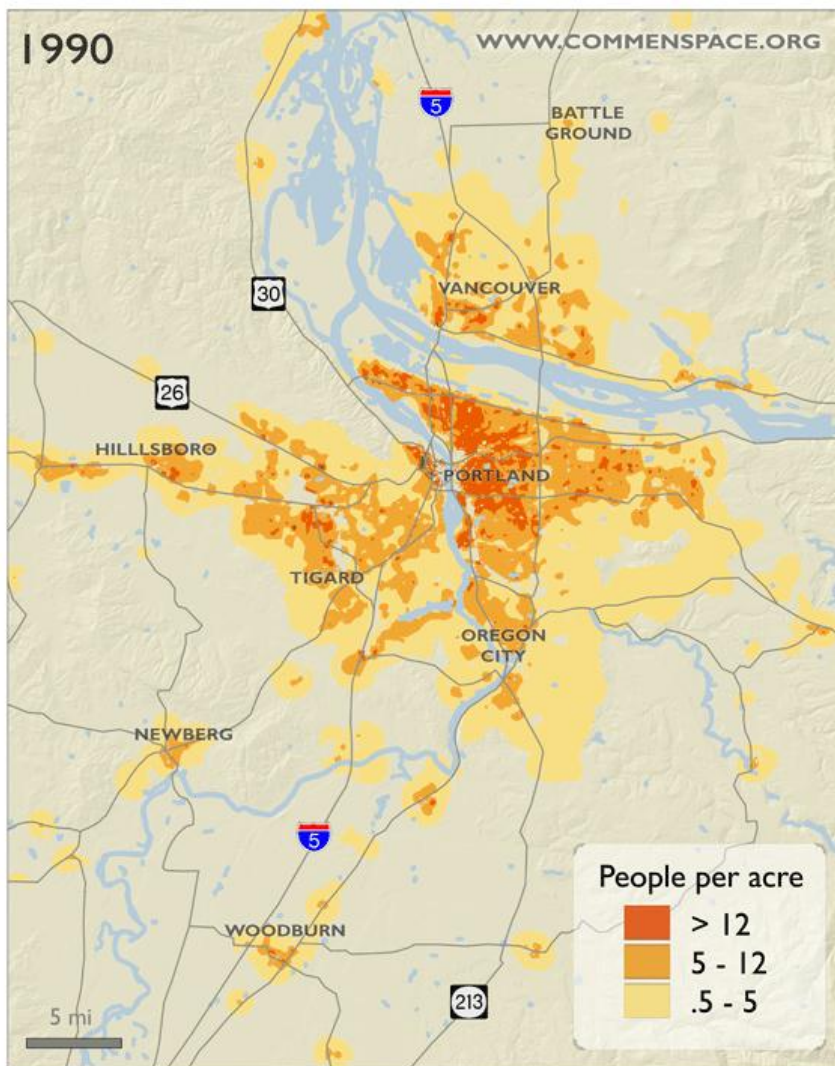
***Examples of the attempts of Portland urban strategy to create more environmental, social and urban spaces to promote sustainable development in the city***





**Portland Growth Statistics:**

	<b>1990</b>	<b>2000</b>	<b>Change</b>
Population	1,793,461	2,265,214	471,753
Density - average people per acre, urban and suburban zones	4.9	5.6	+0.7
Share of residents in "compact neighbourhoods"	19%	25%	+6%
Share of residents in "low density sprawl"	28%	20%	-6%
Percent of total metropolitan growth in "compact neighbourhoods"			45%



**Sprawl Statistics for Portland**

## 1. Metropolitan Population Growth

Metropolitan Area	Population 1990	Population 2000	Population growth rate 1990–2000 (percent)
<u>Boise (Ada County)</u>	206,000	301,000	46
<u>Victoria (CRD)*</u>	281,000	314,000	12
<u>Spokane (Spokane County)</u>	361,000	418,000	16
<u>Eugene (Lane County)</u>	283,000	323,000	14
<b>Portland (4 counties)</b>	1,413,000	1,790,000	27
<b>Portland (3 Oregon counties)</b>	1,175,000	1,445,000	23
Seattle (3 counties)	2,562,000	3,045,000	19
<u>Vancouver, BC (GVRD)*</u>	1,600,000	2,013,000	26

\*Population figures for Vancouver and Victoria are for 1991 and 2001.

## 2. Share of Residents in Compact Communities

Metropolitan Area	Share of residents in compact communities 1990 (percent)	Share of residents in compact communities 2000 (percent)
<u>Boise (Ada County)</u>	3	7
<u>Victoria (CRD)*</u>	33	34
<u>Spokane (Spokane County)</u>	8	10
<u>Eugene (Lane County)</u>	10	12
<b>Portland (4 counties)</b>	20	25
<b>Portland (3 Oregon counties)</b>	23	28
Seattle (3 counties)	21	24
<u>Vancouver, BC (GVRD)*</u>	51	62

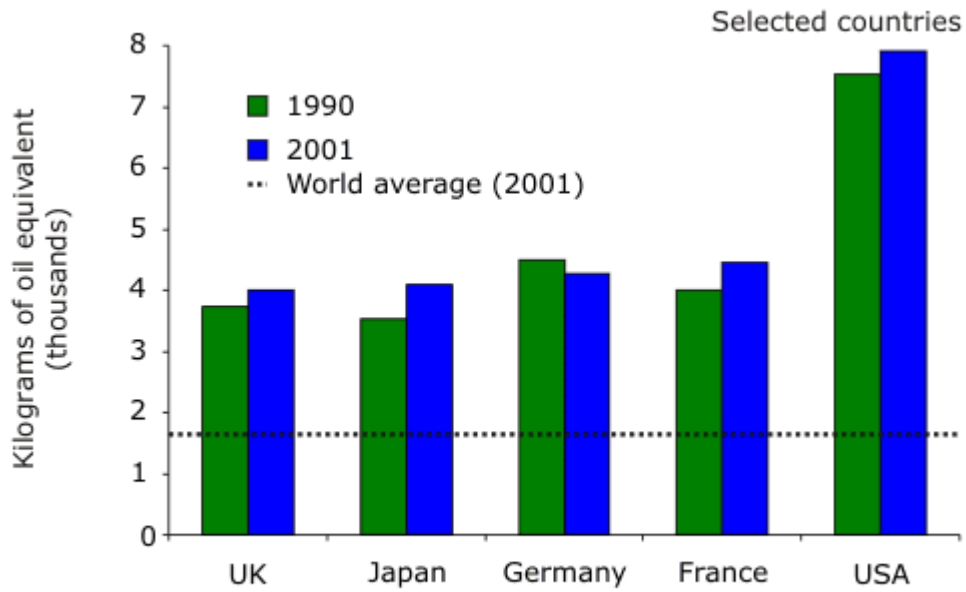
\*Population figures for Vancouver and Victoria are for 1991 and 2001.

## 3. New Residential Housing Permits

City/County	Share of new residential housing permits inside UGB 1995 (percent)	Share of new residential housing permits inside UGB 2000 & 2001* (percent)	Share of new residential housing permits in compact neighbourhoods 2000–2001 (percent)
<b>Portland (3 OR counties)</b>	94	95	9
<b>Seattle (3 counties)</b>	78	88	18
Pierce County	62	73	3

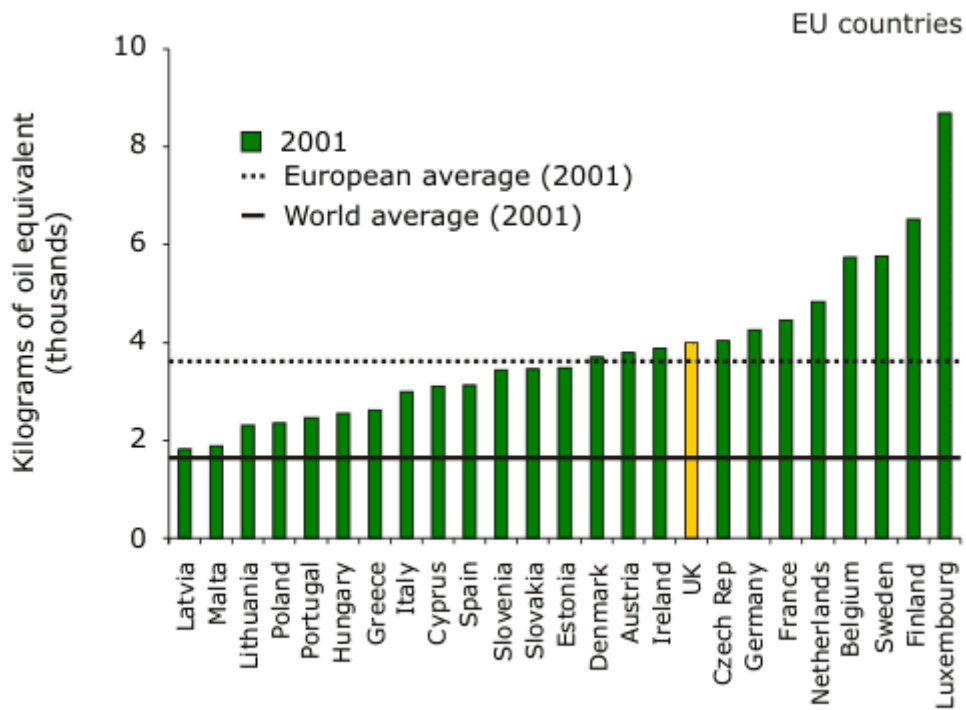
\*Average of 2000 and 2001.

**Energy use per person in selected industrialised countries, 1990 and 2001**



Source: International energy agency

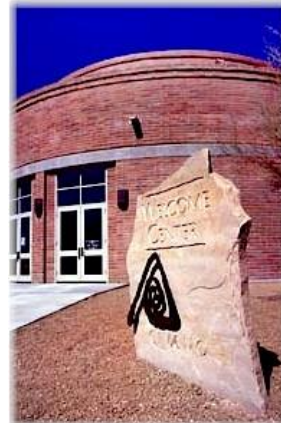
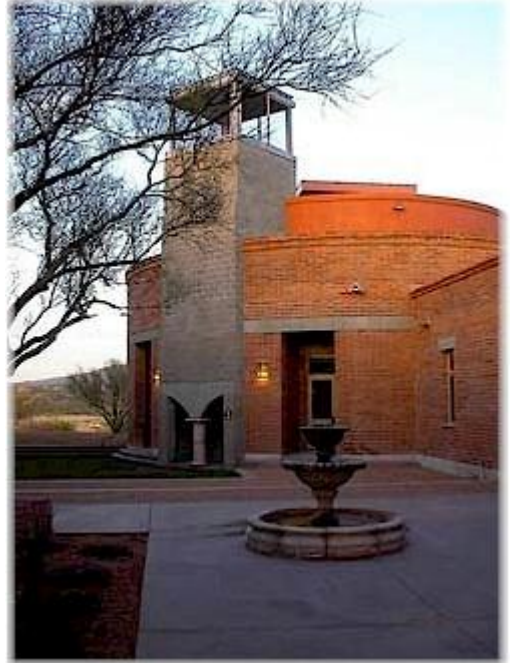
**Energy use in EU countries in 2001**



Source: International energy agency

## Civano, Tucson, Arizona

Civano's Neighbourhood Centre is constructed of new technology resource-efficient materials





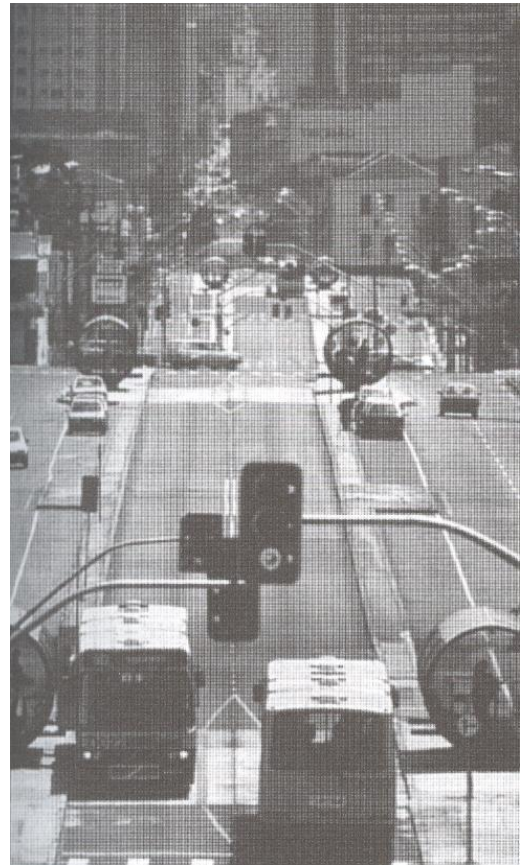


Civano Nursery's salvage program to preserve plants and trees that will be replanted as a street tree.



Civano's Neighbourhood Centre and Pathways and native landscaping

## Curitiba, Brazil



***Curitiba's eco-efficient, bus-only transportation system is a model for cities around the world. The "speedy bus" runs along a direct line and stops only at tubular stations specially designed to move passengers quickly***