



Ain Shams University
Faculty of Engineering
Department of Urban Planning

An Approach to the Methodology of Land Use Reutilization management

Case Study of Greater Cairo Region

**A thesis submitted in partial fulfilment of the requirements
for the degree of Doctor of Philosophy in Urban Planning**

By
Eng./ Walied Mohamed Mohamed Sadek

Supervisors

Prof. Dr. Youhansen Yehya Eid
Former Vice Dean of Graduate
Studies and Research Affairs,
Professor of Urban Planning
Faculty of Engineering
Ain Shams University

**Prof. Dr. Mohamed Tamer
El-Khorazaty**
Professor of Urban Planning
Faculty of Engineering
Ain Shams University

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ABOUT THE RESEARCHER

- Name** : Walled Mohamed Mohamed Sadek
- Place of Birth** : Cairo.
- Date of Birth** : April 1974
- Academic Qualifications** :
- Bachelor's degree of Urban Planning and design - Faculty of Engineering - Ain Shams University, 1997
 - Master of Science degree in Urban Planning - Faculty of Engineering - Ain Shams University, April 2005
 - Project management Professional (PMP), PMI (American project management institute), November 2006
- Current position** : Senior Project Manager at Zuhair Fayez Partnership.
- Previous Positions** :
- Project manager at Zuhair Fayez Partnership.
 - Project coordinator at Zuhair Fayez Partnership.
 - Urban Planner at Zuhair Fayez Partnership.
- Apply for degree** : Doctorate of Philosophy (PhD).
- Department** : Urban planning department.
- College** : Faculty of Engineering.
- University** : Ain Shams University.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{ رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ وَالِدَيَّ وَأَنْ

أَعْمَلَ صَالِحًا تَرْضَاهُ وَأُدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ }

صَدَقَ اللَّهُ الْعَظِيمِ

سورة النمل - الآية (19)

In the Name of Allâh, the Most Gracious, the Most Merciful

" My Lord! Grant me the power and ability that I may be grateful for Your Favours which You have bestowed on me and on my parents, and that I may do righteous good deeds that will please You, and admit me by Your Mercy among Your righteous slaves. "

Holy Quran /27- AN-NAML, Verse "19"

(Holy Qur'an translations of King Fahd complex for the printing of Holy Qur'an)

DEDICATION

To **my parents**... who taught me a lot.

To **my wife**... who still has patience and usually encourages me.

To my sons **Omar** and **Yousef** and my daughter **Nada**... who I hope they can find something useful in this modest effort.

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ABSTRACT

TITLE OF DISSERTATION:

AN APPROACH TO THE METHODOLOGY OF LAND USE REUTILIZATION MANAGEMENT - CASE STUDY OF GREATER CAIRO REGION

Land use reutilization projects are considered the most important urban development projects which could be managed within integrated management processes during the execution of the strategic urban development master plan. They offer the major urban treatments for most of the problems of the city which are caused by unguided land use transformation process. Based on this importance, the integrated management of land use reutilization projects is the key success factor to achieve the objectives of these projects.

Taking into account some global experiments of using the modern management approaches for land reutilization projects, the thesis attempts to explore the interrelationships among the strategic planning, its strategic objectives and the organizational project management (OPM) methodology. It will consider GCR as a case study to manage its proposed land use reutilization projects within the strategic urban development master plan for sustainable development of GCR (Cairo 2050).

Relying on OPM methodology, the thesis attempts to produce an approach to comprehensive and examined management methodology which aims to set a precise management framework and interrelated management processes on different 3PM levels for the land use reutilization projects. This management methodology could be implemented during execution of the strategic urban development master plan of GCR in particular, and any other strategic urban development master plan which may be related to other regions in general.

Finally, the thesis formulates a standard and flexible integrated 3PM model which could be applied for different management levels (portfolio, program, and project management) during execution of the strategic urban development master plan of GCR in particular, and any other strategic urban development master plan which may be related to other regions in general.

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LIST OF ABBREVIATIONS

3PM	Project Management, Program Management, and Portfolio Management.
BNOB	Bring New Orleans Back (New Orleans strategic plan to recover from hurricane Katrina).
CAPMAS	Central Agency for Public Mobilization and Statistics (Egypt).
CBD	Central Business District.
CDBG	The Community Development Block Grant of USA
CPI	Cost Performance Index.
CPM	Critical Path Method.
DAI	Development Association Inc. of USA.
EVM	Earned Value Management.
Ex-LDC	redevelopment projects of Hong Kong.
FF	Finish-to-Finish.
FS	Finish-to-Start.
GCMA	Greater Cairo Metropolitan Area
GCR	Greater Cairo Region.
GCR - PSMP	Cairo Greater Region - Proposed Strategic Master Plan.
GOPP	General Organization for Physical Planning (Egypt).
LDC	Land Development Corporation (Singapore).
MLRP3	Management of Land use Reutilization Portfolios, Programs, and Projects.
NGOs	Non-Governmental Organizations.
NUCs	New Urban Communities.
NUS	National University of Singapore.
OPM	Organizational Project Management.

PDM	Precedence Diagramming Method.
PERT	Program Evaluation and Review Technique.
PM	Project Management / Project Manager.
PMBOK	Project Management Body Of Knowledge Guide.
PMI	Project Management Institute.
RAM	Responsibility Assignment Matrix.
R&D	Research and Development.
SDDP	Singapore Downtown Development Program.
SF	Start-to-Finish.
SPI	Schedule Performance Index.
SS	Start-to-Start.
SWOT	SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats).
URA	Urban Redevelopment Authority (Singapore).
URA	Urban Renewal Authority (Hong Kong).
WBS	Work Breakdown Structure.



INTRODUCTION

"A city is a living and growing organism, but not without its delicate side, it frequently needs more room in which to exercise its economic muscles. It is subject to fatigue, shortness of breath, hardening and blockage of the arteries, and occasionally to apoplexy. Aspirins and tranquilizers usually do not alleviate its ailments. It may require careful surgery of the heart, veins and arteries and a steady diet of capital investment. "

Saalman, Howard (1971). Haussmann: Paris transformed, p. 117

Cities in different cultures have distinct forms; those forms progressively change through passing stages of urban development and land use transformation process, depending on numerous shifts which is profoundly resulted from several conditions relating to the place and time. In many cases, especially in developing countries, those shifts direct the city away from both the sustainability and ecological principals and in the direction of more environmental, economical and social problems.

Every so often, an urban planning treatment is extremely needed to solve those problems and refine the city transformation trend in accordance with the main role of the city in serving its inhabitants. That treatment should be a continual process using selected urban planning ideologies to produce the required perpetual therapy.

From the perspective of both, population and economics, the Greater Cairo Region (GCR) includes the biggest three Egyptian governorates: Cairo, Giza, and Kalyobiya. GCR is considered as one of the fastest growing Egyptian Regions moving towards involving in more urban problems, hence miss the perpetual therapy. Successive Egyptian governments over the last thirty years have implemented different trials to develop strategic master plans for GCR. Regardless of the efficiency and appropriateness of those trials, none has been conducted in an entirely proper way, with the best plans only having been partially effective. The last trial was initiated in the second half of the last decade (2007) to prepare the strategic urban development master plan for

sustainable development for GCR up to year 2050. The proposed strategic urban development master plan for GCR aims to produce a societal conception for the region and to determine the prime character of Cairo as a capital in respect of being either the cultural, historical and financial centre in the Middle East or the most famous eco-city in that area.

Land use reutilization projects are widely considered to be the most important urban development projects could be managed within the integrated management process during the execution of the proposed strategic urban development master plan of GCR. However, there are currently many urban land uses which do not match with any new development approaches of GCR Cities. Many planned urban areas have been located outside the city urban space such as industrial zones, handicraft zones, airports, military barracks and cemeteries. Many of those urban land uses have become inconvenient due to the effect of urban transformation processes, not only inside the urban space but also at the core of the city in many cases. Other old urban areas were planned based on the dominant planning criteria of their time, but as a result of continual urban transformation processes, produced by several social, economical, and political variables, those areas had become dilapidated, needing extra services and adequate infrastructure. As such they call for urgent rehabilitation projects. Many slum areas which had been originally attached to the planned areas for different purposes have grown away from the governmental monitoring, leading to serious problems.

In all of these cases, the projects of land use reutilization can be dealt with as one of the most important types of urban planning and development projects within the execution of the strategic urban development master plan of GCR. The way in which those multi projects could be managed concurrently is the most important key factor for either success or failure. Throughout the past years, some trials have taken place to individually deal with some of those cases. Whereas, some projects have been executed, of which some have succeeded, and some have failed.

PROBLEM DEFINITION

Land use reutilization projects are the most significant types of urban planning projects which could be implemented during the execution of the strategic urban development master plan of GCR to achieve its strategic objectives. The prevailing obstacle lies in the fact that most projects of land-use reutilization projects in GCR have been executed with a unilateral approach, serving each individual project's objectives in the absence of a management methodology that comprehensively controls the whole region development strategy.

This significance highlights the need for a comprehensive, flexible, and tested management methodology for managing concurrent different types of land-use reutilization projects, and which directs and controls those multi projects (within the program or portfolio) during their life cycle. This management methodology helps in the formulation of standard and flexible management model which could be applied for the management of different types of land-use reutilization projects (within program or portfolio) in GCR.

RESEARCH HYPOTHESIS

The OPM (Organizational Project Management) methodology by developing and controlling certain interrelationships among selected standard management processes on the three levels of 3PM (project, program & portfolio management) provides an approach to comprehensive management methodology, as well as for formulating the management model (MLRP3 model) for managing land use reutilization projects during the execution of the strategic urban development master plan for regional sustainable development. The MLRP3 model provides a coherent governing framework for the management of different management areas of knowledge (integration, scope, time, cost, quality, human resources, communication, risk, and procurement) for land use reutilization projects. It also extends proper planning, execution, monitoring, and performing corrective actions during their life cycle stages in order to ensure successful completion of the land-use reutilization projects in accordance with achieving the objectives of the strategic urban development master plan.

RESEARCH OBJECTIVES

Based on both, integrated sustainable urban development and OPM with its 3PM levels (project, program & portfolio management) as two fields of knowledge, this thesis intends to achieve two main goals:

- To determine an approach to comprehensive and tested management methodology that provides a precise management framework and interrelated management processes on different 3PM levels for the land use reutilization projects which could be managed during the execution of the strategic urban development master plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects related to other regions in general.

- To use OPM methodology to formulate a standard, flexible and integrated 3PM model “MLRP3” that could be applied across different management levels (portfolio, program, and project management) during the execution of a strategic urban development master plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects related to other regions in general.

RESEARCH METHODOLOGY

In order to achieve the aforementioned research goals and to test the research hypothesis, this study intends to begin by conducting a comprehensive review of key concepts and theories pertaining to urban land uses, their patterns, their spatial distributions, their urban transformation process and the needs of land use reutilization management. The research also reviews important strategic planning concepts and the management approaches that are followed to achieve the strategic objectives. After this, an attempt will be made to understand the interrelationship between the land use reutilization and strategic planning management. Modern management approaches that are used in managing different types of land use reutilization projects will then be **discussed** with reference to the execution of the strategic urban development master plan, in different locations of selected global cities, with an attempt to understand and explain those management approaches and their different dependencies.

This research will then move from examining the partials of the phenomenon and then to disclose the rule or general principle governing these partials and will define the proper framework for an approach to comprehensively manage the land use reutilization projects by using OPM methodology. Consequently, the research will formulate a standard and flexible management model “MLRP3” with the intention that it could be typically applied on the three levels of 3PM in managing different types of land use reutilization projects.

RESEARCH STRUCTURE

To accomplish the objectives, the research will be divided into four parts, and each part will be divided into chapters as follows:

**PART ONE: LAND USE REUTILIZATION AND STRATEGIC PLANNING
MANAGEMENT – UNDERSTANDING THE INTERRELATIONSHIP**

This part is divided into four chapters (chapters one, two, three and four).

CHAPTER ONE: LAND USE REUTILIZATION PROCESSES: CONCEPTION AND NECESSITY

This chapter discusses the urban land-use patterns, spatial distribution theories within the city urban space and reviews different effects may influence that spatial distribution strategy. The chapter, then, sheds light on the city land-use transformation process which gives the city its shape as a result of intangible forces and finally discusses the city demand for land use reutilization management.

CHAPTER TWO: STRATEGIC PLANNING: APPROACH AND STRUCTURE

The purpose of this chapter is to shed light on strategic planning literature and its role in the context of regional land-use development. The main objective of this literature review is to provide the relevant theoretical framework and historical background. It attempts to discover the strategic planning tools used for regional land-use development.

CHAPTER THREE: LAND USE REUTILIZATION PROCESSES: ACHIEVING OBJECTIVES AND 3PM / OPM APPROACHES

The purpose of this chapter is to discuss the proposed different objectives of land-use reutilization processes within the organization's strategic plan and at two urban levels, the city level and regional level. Those objectives will cover different aspects; urban, environmental, economical, and social. Subsequently, the chapter will shed light on the 3PM approach for managing land-use reutilization projects, the link between OPM and strategic planning and the integration with the organizational governance.

CHAPTER FOUR: 3PM - INTEGRATED PROCESSES AND MANAGEMENT TOOLS

The purpose of this chapter is to shed light on the 3PM processes as per PMI[®] international standards. It also defines 3PM areas of knowledge, inputs, outputs, skills, tools, and techniques of different management processes which are applied in OPM environment to meet projects, programs, and portfolios' requirements and objectives.

PART TWO: GLOBAL EXPERIMENTS OF ACHIEVING LAND USE REUTILIZATION OBJECTIVES AND MANAGEMENT APPROACHES.

This part includes two chapters (chapters five and six) which present different case studies for global cities have examples of modern management approaches of land-use reutilization projects.

CHAPTER FIVE: LAND USE REUTILIZATION PROCESSES: MANAGEMENT APPROACH OF ACHIEVING OBJECTIVES – TWO WESTERN GLOBAL CITIES

This chapter looks into two western cities; Malmö (Sweden), and New Orleans (USA). The chapter discusses their land-use transformation process, their land-use reutilization objectives, and the modern management approach used to achieve the objectives.

CHAPTER SIX: LAND USE REUTILIZATION PROCESSES: MANAGEMENT APPROACH OF ACHIEVING OBJECTIVES – TWO SOUTHEAST ASIAN CITY-STATES

This chapter looks into two Southeast Asian city-states (Singapore and Hong Kong). It discusses their land-use transformation process, their land-use reutilization objectives, and the modern management approach used to achieve the objectives.

PART THREE: LAND USE REUTILIZATION IN GCR – AN APPROACH TO THE MANAGEMENT METHODOLOGY

This part is divided into two chapters (chapters seven and eight).

CHAPTER SEVEN: GCR – EXISTING CONDITIONS AND LAND USE REUTILIZATION URGENCY

This chapter is concerned with collecting information on GCR to form its profile and draws a picture for the region, its strengths and weaknesses; accordingly to explore influences during managing its land-use reutilization projects. Afterwards, the chapter discusses the region's problems from different aspects pertaining to land-use distribution, and then tries to investigate the urgency of some land use reutilization projects within the region urban space.

CHAPTER EIGHT: GCR STRATEGIC MASTER PLAN – VISION, MISSION, AND ORGANIZATIONAL STRATEGIC OBJECTIVES TOWARDS LAND USE REUTILIZATION PROJECTS

This chapter discusses the latest proposed GCR Strategic Urban Development Master Plan in accordance with available information to date, its vision, mission, organizational strategy, goals and objectives defined by the Egyptian government represented by General Organization for Physical Planning (GOPP). Finally, the chapter discusses the role of land-use reutilization in any future GCR proposed strategic master plan and the management approach of different types of land use reutilization projects.

PART FOUR: LAND USE REUTILIZATION MANAGEMENT – INTEGRATION INTO OPM METHODOLOGY

This part is divided into two chapters (chapters nine and ten).

CHAPTER NINE: LAND USE REUTILIZATION PROJECTS IN GCR - IMPLEMENTATION OF OPM METHODOLOGY

This chapter implements the OPM methodology to conclude an approach to comprehensive and examined management methodology that aims to set a precise management framework and sequenced / interrelated management processes on 3PM levels for the land use reutilization projects of GCR within any future proposed strategic master plan.

CHAPTER TEN: LAND USE REUTILIZATION MANAGEMENT MODEL (MLRP3)

This chapter formulates integrated 3PM model “MLRP3 – model” which is standard and flexible model could be applied during different management processes of organizational management for execution of any future proposed strategic urban development master plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects related to other Egyptian regions in general. Finally the chapter summarizes the research’s conclusions and recommendations.



CHAPTER 1

LAND USE REUTILIZATION PROCESSES: CONCEPTION AND NECESSITY

“The city is the most complex of human inventions, at the confluence of nature and artifact ...”

Lévi-Strauss, Cultural anthropologist.

Land-uses of any city are outcome of some individual actions, which occur daily in each certain area in the city. Roots and reasons of factors which direct those individual actions lie in several economical and social areas, which interact together to find actions in the form of land uses.

Along with early industrial evolution periods when factories had been developed within expanded cities, urban land-uses become an important topic to be studied. Obviously the more urban developments are expanding the more land-use problems are growing up and becoming a focal point for many economical and social studies. Since very old times, philosophers have realized that cities and similar urban communities are containers of inhabitants and their actions and behaviours, where, obviously, contents should be formed as per the container's shape.⁽¹⁾

Recently the term of “Land Use Transformation Process” is expressing, obviously, the phenomenon that happens to urban land-uses either during city's development-stage or during its operation-stage. Where some certain urban land-uses have been transformed to others, which in some cases, especially in developing societies, are not matching with the whole context of city's urban fabric. That is exactly what raises the necessity for land-use reutilization process or what may be called “urban re-land use” within either any attempt of urban planning treatment for inappropriate land-uses or within any strategic master planning process.

1.1 DEFINITION OF LAND USE PATTERNS

Land use is the human modification of natural environment or wilderness into built environment such as fields, pastures, and settlements. In other words, land-use could be defined as “the array of arrangements, activities, and inputs which people execute in various land-cover types”. Land use has been defined also as the description of how people utilize the land and practice socio-economics’ activities. Urban and rural land-uses are two of the most commonly recognized high-level classes of use. Regarding the urban land use, there may be multiple and alternate sub-land uses dedicated to many human activities such as residential, commercial, administrative, educational, religious, cultural, recreational, health care services, industrial, as well as public green areas ⁽¹⁾.

1.2 THE SPATIAL DISTRIBUTION OF URBAN LAND USES

Economical and social studies on urban societies have proved that urban agglomeration and industrialization together form the human behaviour, whereas industrial societies have their own habits and behaviours, which are different from what agricultural societies have ⁽²⁾. Accordingly, the factors which affect on the special distribution of urban land-use could be classified under three main categories as follows:

- Economical factors.
- Social factors.
- Factors arising from considering the public interest of the community.

1.2.1 ECONOMICAL FACTORS

The most significant economical factor which affects on the spatial distribution of urban land-uses is **Land value in the city land market**. The significance of this factor could be recognized through the following axioms:

1. **Prices adjust to achieve locational equilibrium:**

Location equilibrium occurs when no activity or land-use has an incentive to be relocated. The price of land adjusts to ensure locational equilibrium among users. For instance, business activities compete for the most

1 Ibid., P. 168,172

2 Ibid., P. 255

accessible land in the city, and land at the center is the most accessible and thus the most expensive. In equilibrium, business activities on less accessible land far from the center pay lower prices for land, and can be just as profitable as business activities on the most accessible land ⁽¹⁾.

2. Self-reinforcing effects generate extreme outcomes:

A self-reinforcing effect is a change in something which leads to additional changes in the same direction. In other words, self-reinforcing effects are the effects that come from the clustering of activities or similar land uses which lead to extreme benefits from what is called “agglomeration economies”. For instance, industrial activities in the cluster may share the suppliers of intermediate inputs, tap of labor pool, get better skill matches, or benefit from knowledge spillovers. Agglomeration economies lead to lower production costs. Lower production costs lead to lower output prices, and consumers will respond by purchasing more output ⁽²⁾. This axiom leads to identify the strength, weakness, opportunities and threats which lie in the agglomeration economies environment, which accordingly leads to better strategic decisions to perceive opportunities and to avoid the threats.

3. Externalities cause inefficiency:

In most transactions, the costs and benefits of the exchange are confined to the individual buyer and seller. The consumer pays a price equal to the full cost of producing the good, and he is the only one to benefit from the product. An externality occurs when some of the costs or benefits of a transaction are experienced by someone other than the buyer or seller, someone external to the transaction.

External cost occurs when customer pays a price that is less than the full costs of producing a product. For Instances, car’s buyer pays the price includes the costs of labor, capital, and raw materials, but doesn’t include the environmental costs from burning gasoline which generates air pollution. So part of cost of driving is borne by people who breathe polluted air. Accordingly, external cost occurs where people pay less than the full social cost of a driving action, and thus they drive too much.

External benefit occurs when a product purchased by one person generates a benefit for someone else. For Instances, education generates external benefits because it improves communication and thinking skills,

1 O’Sullivan, Arthur (2007). Urban Economics. (The McGraw Hill Companies, International Edition), P. 7, 8.

2 Ibid., P. 9

making a person a better team worker and benefits are experienced by that person's fellow workers. Accordingly, external benefit occurs when people get less than the social benefit from the education, and thus they stop short of the socially efficient level of education ⁽¹⁾.

Cities have all sorts of external costs and benefits which should be analyzed before coming up with any strategic land-use recycling decisions, which usually internalize the externality with taxes, and let individuals, who then bear the full social cost and benefits of their actions, decide what to do.

4. **Production is subject to economies of scale:**

Economies of scale occur when the average cost of production decreases as output increases. Scale economies occur for two reasons:

- **Individual inputs.** Some capital inputs are “lumpy” and cannot be scaled down for small operations. As a result, a small operation has the same indivisible inputs as a large operation.
- **Factor specialization.** In a small one-person production operation, a worker performs a wide variety of production tasks. In a large operation with more workers, each worker specialized in a few tasks, leading to higher productivity because of continuity (less time is spend switching from one task to another) and productivity (from experience and learning).

Scale economies play a vital role in urban economies. In fact, if there are no scale economies, there will be no cities. It is costly to transport products from a production site to consumers, so centralized production in cities will be sensible only if there is some advantage that more than offsets transport costs ⁽²⁾. Strategic planning analysis should take into consideration the scale economies studies, which will lead to strategic decisions that determine land uses pattern and distributions and also transportation and accessibility.

5. **Competition generates zero economic profit:**

When there are no restrictions on the entry of activities into a market, activities expected to enter the market until economic profit is zero, where that economic profit equals the excess of total revenue over total economic cost. In urban economics, competition has a spatial dimension. Each activity enters the

1 Ibid., P. 9,10.

2 Ibid., P. 10.

city's urban land market at some location, and the profit earned for each activity is affected by the locations of other activities. In case of unrestricted environment, activities will continue to enter the urban land market until economic profit drops to zero ⁽¹⁾. Strategic planning analysis should take into consideration the scale economies studies, which will lead to strategic decisions that determine land uses pattern and distribution form.

In general, there are some major theories govern the economic factors which affecting on the city land use distribution form and could be listed as follows:

A. Von Thünen theory:

The first author who arguably laid down the basis for all subsequent work in regional science is Von Thünen (1826). Thünen's theory dealt with the agricultural crops distribution pattern and set variables affect on that pattern; which are transportation costs, distance to the target, location in relation to city center, market conditions, production constituents, production costs and market prices. Figure (1-1) ⁽²⁾ shows the competing land uses in the Von Thünen model.

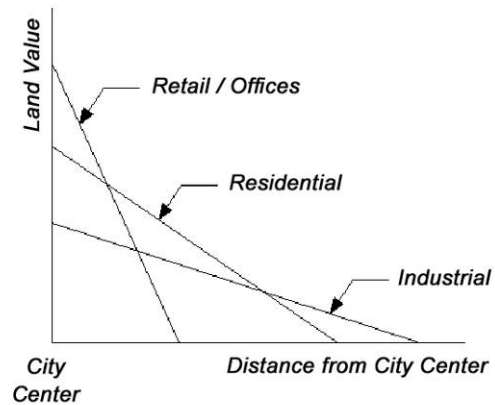


Figure (1-1) ⁽²⁾ competing land uses in the Von Thünen model

B. Lösch theory:

Thünen theory was subsequently extended into a non-agrarian setting by Lösch (1939), focused on production location decisions as a largely transport issue. If there is land

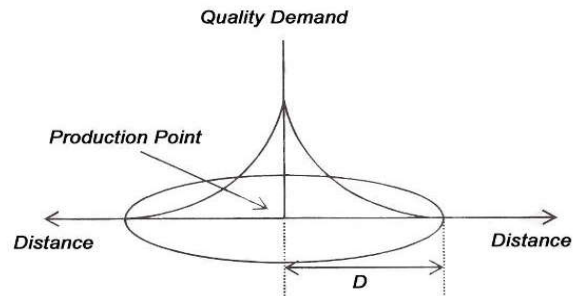


Figure (1-2) ⁽³⁾ the firm's market area in the Löschian framework

¹ Ibid., P. 11.

² Balchin, Poul N. and Bull, Gregory H. and Kieve, Jeffrey L. (1995). Urban land economics and public policy. (Macmillan press LTD., London), P. 50 - 52

³ McCann, Philip (2001). Urban and Regional Economics. (Oxford University Press), P. 75

of equally productive value for growing agricultural products (an example which Von Thünen suggested) around a central marketplace, the price of the land can be defined as a gradient with its price decreasing as distance increases. Farmers, who could produce goods that either fetch a high price or do not take much land to grow, would tend to buy more expensive land closer to the marketplace. The opposite is true for land farther out in the hinterland. As such, this might be called the even suburban development theory. According to the theory, all lands surrounding the central business district (CBD), where all commerce are traded, is equally productive. Farmers would only purchase land based on the transport costs to market. Figure (1-2) ⁽¹⁾ shows the firm's market area in the löschian framework.

C. Hotelling theory:

Nearly one hundred years after von Thünen, in 1929, Hotelling developed a linear spatial model that demonstrates the relationship between land location and its value. He represented this notion through a line of fixed length. Assuming all land uses or activities are identical (except for location) and users are evenly dispersed along the line, both the activities and users respond to changes in demand and the economic environment.

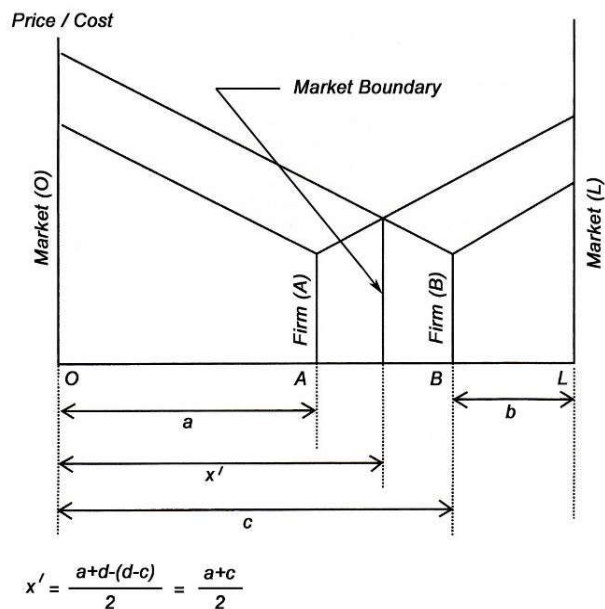


Figure (1-3) ⁽²⁾ the Hotelling spatial framework

Figure (1-3) ⁽²⁾ shows the concept of Hotelling spatial model, where firm A and firm B will maximize their profit by increasing their consumer pool to generate more profit and accordingly the land value will be increased. Firm A will move slightly toward firm B, in order to gain firm B's customers. In response, firm B will move slightly toward firm A to re-establish its loss, and increase the pool from its competitor. The cycle repeats until both firms are at the halfway point where each firm has the same amount of customers (and almost will have the same land value).

1 Ibid., P. 75

2 Ibid., P. 51

D. Christaller theory:

After the concentric development theory of Von Thünen and the linear economy of Hotelling, Christaller in (1933) developed his nodal hierarchy theory. Christaller noted that there existed in Southern Germany an urban hierarchy where cities were defined by the kinds of markets they supported. In the largest and most central cities in urban areas, the most expensive goods may be purchased. There are then a set of secondary smaller cities distributed around the central city which sell goods purchased on a weekly basis. Finally, interspersed among those secondary cities are smaller hamlets that sell day-to-day products and services. Thus, the organization of cities is dictated by the markets of goods, where relative size of the city is a function of the kinds of consumer goods sold ⁽¹⁾. Figure (1-4) ⁽²⁾ shows the Christaller model of the urban system.

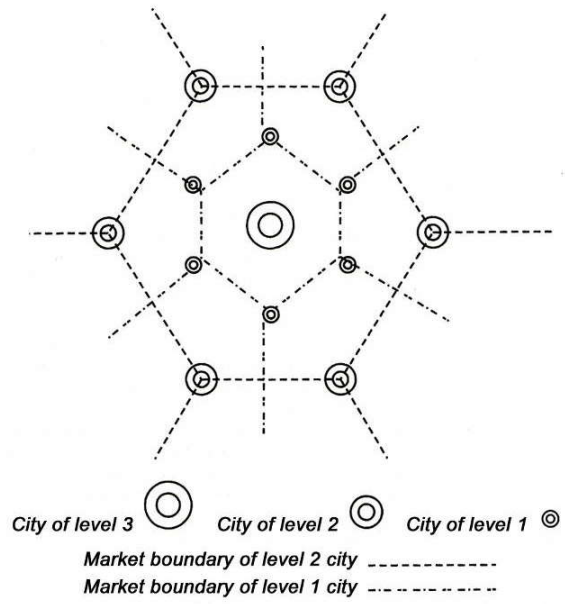


Figure (1-4) ⁽²⁾ the Christaller model of the urban system

E. Alonso theory:

In 1964, W. Alonso published his theory of location and land use, in which he defined a

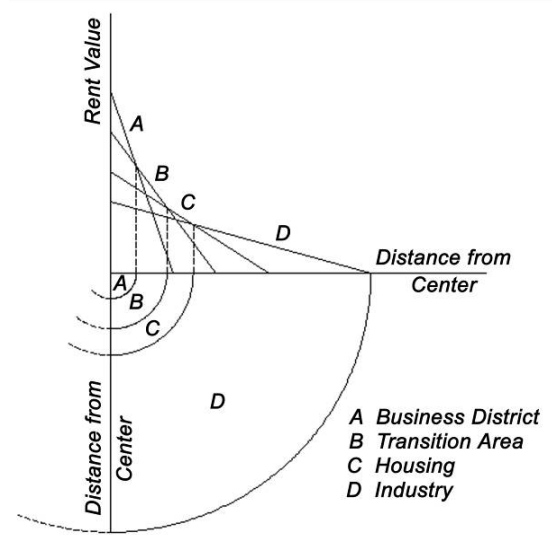


Figure (1-5) ⁽³⁾ Alonso spatial theory

1 Button, Kenneth (1998). Where did the 'new urban economics' go after 25 years? (Published Paper, the 38th Congress of the European Regional Science Association, Vienna), P. 3,4.

2 McCann, Philip (2001). Urban and Regional Economics. (Oxford University Press), P. 74

3 Scargill, D.I. (1979). The Form of cities. (Bell & Hyman Limited – London), P. 36 - 39

modeled approach on the formation of land rent in urban environments. Figure (1-5) ⁽¹⁾ shows Alonso model where the commercial and business activities are settled near the CBD with the highest rental rate, followed by residential activities and finally industrial activities at city border with lowest rental rate. Figure (1-6) summarizes the effect of economic factors on the land-use distribution form.

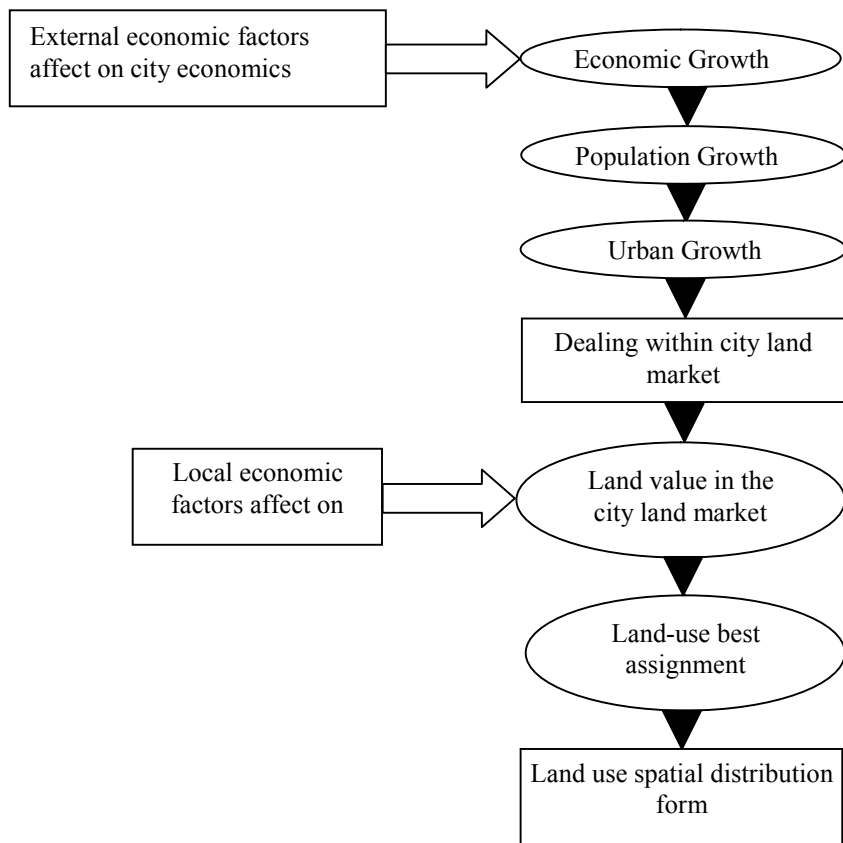


Figure (1-6) economic factors affect on spatial distribution of urban land-uses.

1.2.2 SOCIAL FACTORS

There is a chain of social factors, which affect on the spatial distribution of urban land uses. These social factors, to some extent, are not clearly identified comparing with the economical factors; however both economics and social factors are interfering and interacting together with a way

¹ Ibid., P. 36 - 39

which makes it difficult to separate one from another. The social factors' which affects on the spatial distribution of urban land uses could be studied through two main topics:

- Ecological Process, which means the way that the people deal to adapt with their urban context, and the effect of that to develop the urban context itself.
- Human behaviour and mass values.

1.2.2.1 ECOLOGICAL PROCESS

“Ecology” is the interdisciplinary scientific study of the distribution and quantities of organisms and their interactions with their environment. Sociologists use this term to describe the changes in the city urban context made by the people to adapt to their urban environment. Erickson, sociologist, has divided the Ecological process into five sub processes ⁽¹⁾:

- Concentration and Dispersion.
- Centralization and Decentralization.
- Segregation of Population.
- Dominance and Gradient.
- Invasion and Succession.

A. Concentration and Dispersion

Concentration is the agglomeration of individuals and services, while on the contrary the Dispersion is to locate individuals and services in small segregated groups. The segregated groups of individuals and services may transform, along with the population growth, to concentration groups. Figure (1-7) ⁽²⁾ shows the Concentration and Dispersion concept.

B. Centralization and Decentralization

Centralization means settling the population and different patterns of land uses into consolidated relationship within one city center. While on the contrary the Decentralization means distributing the population and services within multi city centers. Figure (1-8) ⁽²⁾ shows the Centralization and Decentralization concept.

1 Ali, Tarek M. (2000). Changes in land use formation along the main arterial roads - analytical study for some main arterial roads in greater Cairo. (Unpublished M.Sc. Dissertation, Cairo University, Faculty of Regional and Urban Planning) – Arabic reference, P.41

2 Ibid., P.41

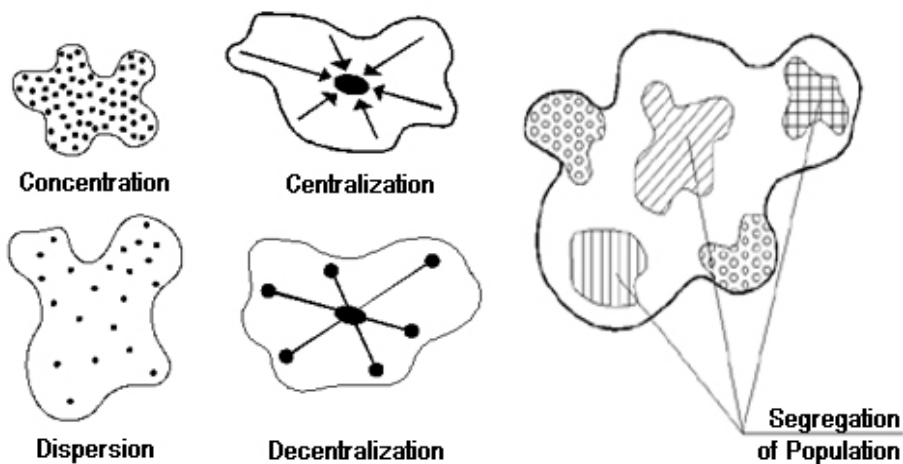


Figure (1-7)⁽¹⁾
Concentration
and Dispersion

Figure (1-8)⁽¹⁾
Centralization
and Decentralization

Figure (1-9)⁽¹⁾
Segregation
of Population

C. Segregation of Population

Segregation of population is a social classification process for the population based on racial bases, their native land, their professions, or their social characteristics.

In Egypt, this concept could be noticed in different cases as following:

- The segregation of Bedouins at Sinai or western desert based on racial bases.
- The segregation of rural communities around some urban boundaries based on their native land.
- People who are working in garbage collection at Munsha'at Naser in the East of Cairo based on their professions.
- The cemeteries' residents based on their social characteristics.

Figure (1-9)⁽¹⁾ shows the Segregation of Population concept.

D. Invasion and Succession

Invasion and succession are two linked social processes affecting the urban land use formation. Invasion is the action made by a group of people who are invading a certain district occupied by higher social and cultural level. Same action could happen in the field of urban activities, which may invade another urban activity. That could be seen when the industrial or commercial activities are invading the residential areas.

¹ Ibid., P. 41

Succession happens when either the original inhabitants or original urban activities are emigrating from their locations upon the invasion process. Figure (1-10) shows the Invasion and succession concept.

E. Dominance and Gradient ⁽¹⁾

Dominance and Gradient are social factors, which affect on the urban land use formation.

Dominance could become clear if we think of the main city center and its direct socio-economic effect on all other subordinate centers around the city.

Gradient means the gradual effect of different land uses on the surrounding urban context. In other words, the main city center has direct effect on the subordinate centers which are consequently having direct effect on the secondary centers.

Figure (1-11) ⁽²⁾ shows the Dominance and Gradient concept.

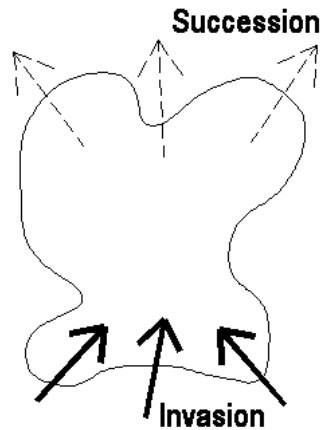


Figure (1-10) ⁽¹⁾
Invasion and Succession

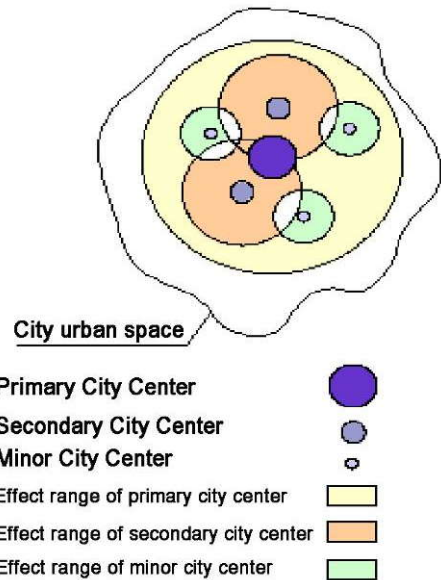


Figure (1-11) ⁽²⁾
Dominance and Gradient

1.2.2.2 HUMAN BEHAVIOUR AND MASS VALUES

Human behaviour affects on and is affected by the urban land-use form. Religion, civilization, economics, and environment in which the inhabitants live, form their values, which consequently affect on and direct their behaviour. Urban land-use form is no more than actual output of human behaviour which achieve its needs and desires. In general, there is a cycle which explains how the human

1 Allam, Ahmed Khalid (1993). City Planning (Egyptian Anglo Library, Cairo, Egypt), P.264

2 Figure prepared by the researcher.

behaviour and land-uses are affecting each other, as shown in figure (1-12)⁽¹⁾. This cycle could be represented in sequential steps as follows:

- 1- The governing social, economical, religious and values which form the human behaviour.
- 2- Origination of needs and desires within the governing values.
- 3- Goals' definitions.
- 4- Options and alternatives.
- 5- Decision making and implementation.
- 6- Land-use recycling.

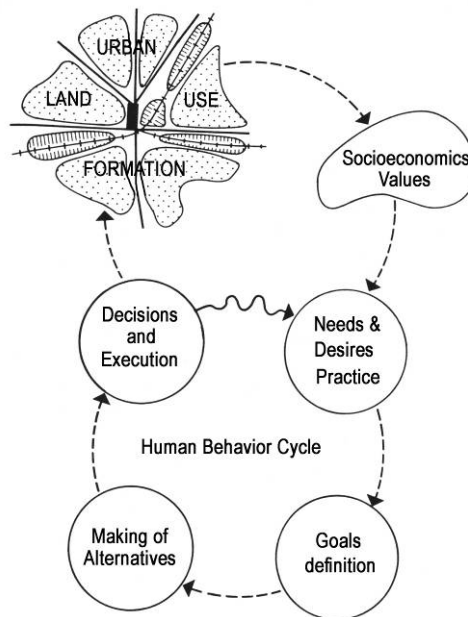


Figure (1-12)⁽¹⁾ Human behaviour effect on land use cycle

1.2.3 FACTORS ARISING FROM CONSIDERING THE PUBLIC INTEREST OF THE COMMUNITY

Public interest considerations are a set of concepts include several values, principles, criteria, and limits which are taken by a society to achieve public goals and desires. These considerations are being taken based on economical, social, political, religious and cultural ideologies. Consequently, public interest values are linked to both individual and public socioeconomic values and also affected by the local regulations which achieve the public goals and play a role in land-use recycling. Figure (1-13) shows the public interest considerations and their effect on land use formation.

1.3 THEORETICAL FRAMEWORK OF THE LAND USE TRANSFORMATION PROCESS

Over the years, transformations in urban areas have taken place in varied forms. One of the main transformation forms is the land-use transformation process. In many cases, especially in developing countries, the land use transformation does not happen in accordance with the planning

¹ Rhind, David and Hudson, Ray (1980). Land use. (Methuen & Co. - New York), P.213

norms of the city. It usually happens due to some interacting forces and variables, leading at the end, to different changes in the physical environment.

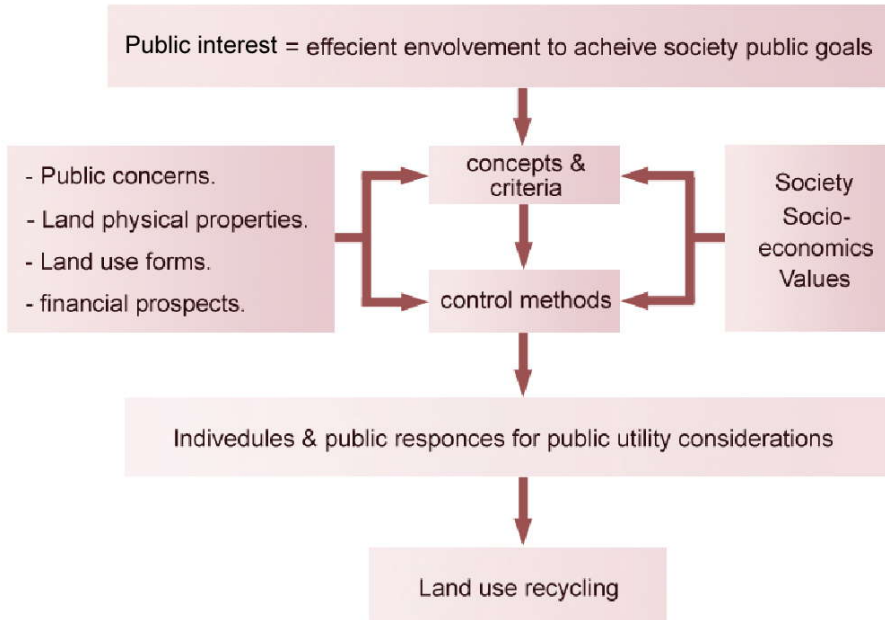


Figure (1-13)
Public utility considerations and their effect on the land use formation

1.3.1 DEFINITION OF URBAN TRANSFORMATION PROCESS

Urban transformative process could be defined as set of interacting, complex actions, which evolve inevitably in a dynamic socio-cultural context, and bring about marked changes to the physical environment of an operating urban settlement. Thus, they generally result in urban transformation. Urban transformation process may include many layers of physical environment / structures such as street pattern, block pattern, plot pattern, mass plan pattern, forms of masses, appearances of masses and certainly land use pattern⁽¹⁾.

1.3.2 DEFINITION OF LAND USE TRANSFORMATION PROCESS

Land use transformation process is a part of the generic urban transformation processes. This process is within direct proportion with the changing of the space accessibility, as it is very evident along the main

1 Rashed R. (2007). A Framework of Urban Morphological Analysis: The Physical Transformations of Three Districts in Cairo. (Austria, Unpublished Doctoral Dissertation, Graz University of Technology, Institute of Urbanism), P. 40

transport routes. In other words, it can be stated as the invasion of stronger land-use over weaker one in terms of prevailing demand, which is acting as an impetus for growth of a particular land use ⁽¹⁾.

1.3.3 THE FORCES AFFECTING LAND USE PATTERNS WITHIN URBAN TRANSFORMATION PROCESS

Urban settlements are manifestations of the development and progression of human societies worldwide. The physical environment / structure of a certain urban settlement takes shape as a result of intangible forces, which are brought about by the surrounding natural environment with its direct potentials and constraints, and by the prevailing operating ideologies, such as history, culture, socio-economics, politics, as well as science and technology – as shown in figure (1-14) ⁽²⁾.

These forces differ from one human society to the other with regards to

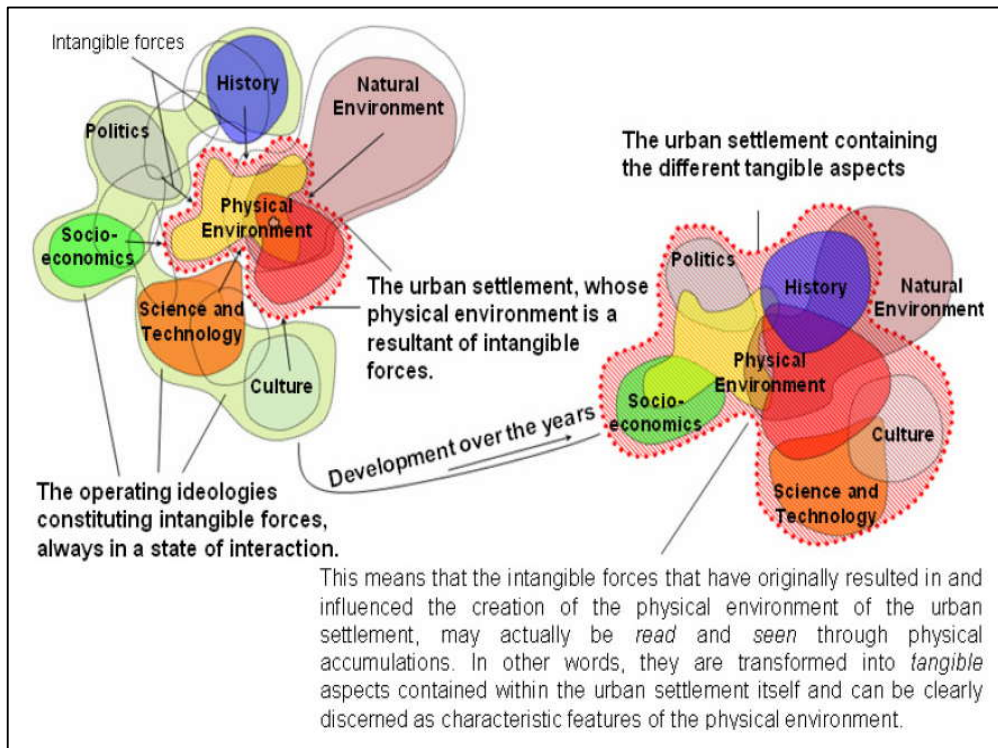


Figure (1-14) ⁽²⁾

The Theoretical Basis of Land Use Transformations

1 Bhatt A, Mehta P, Panda S. (2000). Transformation due to Socio-economic pressure, P.7

2 Rashed R. (2007). A Framework of Urban Morphological Analysis: The Physical Transformations of Three Districts in Cairo. (Austria, Unpublished Doctoral Dissertation, Graz University of Technology, Institute of Urbanism), P. 37.

their strengths, to the effects and after-effects they impose: some forces may be so strong that their effects linger long after they have actually disappeared. This means that the forces, which are always in a state of dynamic interaction, have weights and values which differ from one setup to another. The most enduring feature of any urban region is its physical environment / structure, which persists over time and gains increments that may be responsive, for example, to the most recent economic demand and may be reflective of the latest vogue, but at the same time, conserving evidence of past urban culture. Therefore, comprehending the reality of the physical environment / structure informs us of the operating ideologies that include the intangible forces, which may be mentioned and defined as follows ⁽¹⁾:

Environment refers to a complex of surrounding natural circumstances, conditions, or influences in which a thing is situated or is developed.

History is the study of past human activities and is generally considered a social science. It can also refer to actual events which have happened in the past.

Culture generally refers to patterns of human activity and the symbolic structures that give such activity significance.

Socio-Economics is the study of the relationship between economic activity and social life. Socio-economics typically analyzes both the social impacts of economic activity and economic impacts of social activity. In many cases, however, socioeconomics focus on the social impact of some sort of economic change.

Politics is the process by which groups make decisions. Although the term is generally applied to behaviour within governments, politics is observed in all human group interactions, including corporate, academic, and religious institutions.

Science and Technology is a term of art used to encompass the relationship between science and technology. It is the study of how social, political, and cultural values affect scientific research and technological innovation, and how these in turn affect society, politics, and culture ⁽²⁾.

1 Allam, Ahmed Khalid (1993). City Planning (Egyptian Anglo Library, Cairo, Egypt), P. 168,172

2 Rashed R. (2007). A Framework of Urban Morphological Analysis: The Physical Transformations of Three Districts in Cairo. (Austria, Unpublished Doctoral Dissertation, Graz University of Technology, Institute of Urbanism), P. 37.

1.4 NEEDS FOR LAND USE REUTILIZATION MANAGEMENT

Sometimes, changes in the urban land-use patterns resulting from transformation process through the years are directing the city urban development process versus the sustainability and ecological principles and cause many urban, economical, and social problems.

Hence, an urban planning treatment is extremely needed to deal with those changes and shifts and to refine the land use transformation trend and this is what could define land-use reutilization process or may be called land use recycling process. This land use recycling process should be a continual treatment process managed by using selected planning management approach to come up with the perpetual therapy and this is what will be discussed through next chapters.

1.5 EPILOGUE

- Urban land-use is the human modifications of natural environment by developing socio-economic activities and interacting with them.
- The main factors which affect the special distribution of urban land uses could be listed under three categories; economical factors, social factors, and public interest factors.
- Urban economics (UE) defined as the intersection of geography and economics, where economics explores choices have been made when resources are limited while geography studies how things are arranged across space.
- Five axioms lie at the heart of UE and together provide a foundation for the economic models of location choices: prices adjust to achieve locational equilibrium, self-reinforcing effects generate extreme outcomes, externalities cause inefficiency, production is subject to economies of scale, competition generates zero economic profit.
- UE could be divided into six related themes: market forces in the development of cities, land use within cities, urban transportation, crime and public policy, housing and public policy and local government expenditures and taxes.
- The social factors affecting on the special distribution of urban land uses could be comprised under two main categories: Ecological Process, and Human behavior and mass values effect.

- Ecological process could be divided into five sub-processes: Concentration and Dispersion, Centralization and Decentralization, Segregation of Population, Dominance and Gradient, Invasion and Succession.
- Land use transformation process is a part of the generic urban transformation process and defined as invasion of stronger land use over weaker in terms of prevailing demand.
- The physical environment and structure of a certain urban settlement takes its shape as a result of intangible forces such as history, culture, socio-economics, politics, as well as science and technology.
- Changes in the urban land use patterns resulting from transformation process are sometimes directing the city urban development process versus the sustainability and ecological principles.
- Land-use reutilization process is an urban planning treatment which is extremely needed to deal with bad effect changes of land use transformation.



CHAPTER 2

STRATEGIC PLANNING: APPROACH AND STRUCTURE

“Plans are nothing; planning is everything...”

Dwight D. Eisenhower, the 34th President of the United States.

“Every moment spent for planning saves three or four in execution...”

Crawford Greenwalt, former president of DuPont⁽¹⁾

The purpose of this chapter is to shed light on strategic planning literature and its role in the context of regional land use development. The objective of this literature-review is to provide the relevant theoretical framework and historical background. It also attempts to discover the strategic planning tools used for regional land use development.

One of the most common use terms in the strategic planning literature is "Organization" which will be used within the whole thesis structure and could be defined as follows:

- The word "Organization" is derived from the Greek word "Organ" and it means a compartment for a particular job⁽²⁾.
- **AN ORGANIZATION** is a social group of people, systematically structured and managed to meet a need or to pursue collective goals on a continuing basis. In the social sciences, organizations are the object of analysis for a number of disciplines, such as sociology, economics, political science, management, and organizational communication. The term “organization” does not necessary refer to an entire company, agency,

¹ DuPont is an American chemical public company that was founded in 1802 as a gunpowder mill. it was the world's third largest chemical company based on market capitalization and ninth based on revenue in 2009. Crawford Greenwalt served as president of the DuPont from 1948 to 1962

² New oxford English dictionary.

association, authority, or society. It can refer to business units, functional groups, departments, or sub-agencies within the whole ⁽¹⁾.

2.1 DEFINITION OF STRATEGIC PLANNING

Strategic planning is an organization's process of defining its strategy, or direction, and making decisions, goals and objectives to pursue this strategy. The strategic planning is a term related to the business discipline and which has recently been borrowed and used by urban planners to define the strategic goals for the strategic urban development master plans. In this thesis context, the strategic planning will be used to define the strategic goals of different land use reutilization projects in preparation of formulating their implementation management methodology.

Strategic planning has been defined in various ways. Kudla (1980) argues that the strategic planning has been referred to as the systematic process of determining the organization's goals and objectives and developing strategies that will govern the acquisition and use of resources to achieve these objectives ⁽²⁾.

Steiner (1983) defines strategic planning as the systematic identification of opportunities and threats which lie in the future environment (external and internal) which in combination with an analysis of organizational strengths and weakness provide a basis for an organization to make better current decisions to exploit the perceived opportunities and to avoid the threats ⁽³⁾.

William (1984) states that the strategic planning is the process which the guiding members of an organization introduce its future and develop the necessary procedures and operations to achieve that future ⁽⁴⁾.

Sorkin, Ferris, and Hudak (1984) recognize that strategic planning is a systematic way to manage change and create the best possible future. It is a creative process for identifying and accomplishing the most important actions in view of strengths and weaknesses, opportunities and threats ⁽⁵⁾.

1 <http://www.businessdictionary.com> (04/04/2012)

2 Kudla, R (1980). The effects of strategic planning on common stock returns. (Published paper, academy of management Journal, Vol. 23, No.1).

3 Steiner, G (1983). Formal strategic planning in the united states today. (Published paper, Long-Range planning, Vol. 16, No.3)

4 Abdel Hamid, Mohamed Abdel Aziz (1999). Applying strategic Planning Concept in the Regional Development in Egypt. (PhD dissertation, Al-Azhar university, Faculty of engineering, department of urban planning. P.20.

5 Ibid., P.20

Hussey (1985) suggests that strategic planning is a comprehensive, continuous process of management looking towards the future which is implemented within a formal framework and is responsive to changes in the external environment ⁽¹⁾.

Fogg (1994) states that the strategic planning is a process which requires the organization's intimate and enthusiastic involvement, often using formal and informal teams, in providing information, making decisions, and successfully implementing them ⁽²⁾.

Bryson (2004) suggests that the strategic planning is a disciplined effort to produce fundamental decisions and actions which shape and guide what an organization is, what it does, and why it does it, with a focus on the future. Moreover, strategic planning suggests that the actions we take today should be designed to enable us to face the future on our own terms, not on those which are imposed from the outside. Thus, the relevant question is not simply what should we do tomorrow, but rather what should we do in order to get ready for tomorrow ⁽³⁾. Olsen (2006) states that the strategic planning is a process which creates the strategic plan. It, typically, includes either several major activities or steps. People often have different names for these major activities. They may even conduct them in a different order. Strategic planning often includes the use of several key terms as well ⁽⁴⁾.

Figure (2-1) ⁽⁵⁾ presents the ABCs of strategic planning; summarizing what strategy planning is all about. Detail can be added as needed to this basic understanding. A is figuring out where you are, B is figuring out where you want to go, and C is figuring out how to get there. Leaders and managers come to understand A, B, and C as they formulate, clarify, and resolve strategic issues - the fundamental policy choices or challenges the organization has to face. The content of A and B are be organization's existing or new mission, structure and systems, communications, programs and services, people and skills, relationships, budgets, and other supports. The content of C is the strategic plan, plans for various functions, ways to redesign, restructure or reengineer, budget allocations, and other vehicles for change. Getting from A to C involves clarifying vision, mission, and the goals and is the process of strategy formulation, whereas getting from C to B is strategy implementation.

1 Abdel Hamid, Mohamed Abdel Aziz (1999). Applying strategic Planning Concept in the Regional Development in Egypt. (PhD dissertation, Al-Azhar university, Faculty of engineering, department of urban planning. P.20.

2 Fogg, C. Davis (1994). Team-based strategic planning: A complete guide to structuring, facilitating and implementing the process. P.3

3 Bryson, John M. (2004). Strategic planning for public and nonprofits organization. P.6

4 Olsen, Erica (2006). Strategic planning for dummies. P. 12,13.

5 Bryson, John M. (2004). Strategic Planning for Public and non-profit organization. P. 11

To do strategic planning well, it is needed to figure out A, B, and C and how they should be connected. Figure (2-1) makes it clear that strategic planning is not a single thing but a set of concepts, procedures, and tools ⁽¹⁾.



Figure (2-1) ⁽²⁾
Basic Strategic Planning Concept

2.2 HISTORY OF STRATEGIC PLANNING

The history of “Strategy” as a discipline extends back to the Greeks. The word “Strategy” comes from the Greek word “stratego” It is combination of stratos, or army, and ego, or leader. Strategic Planning from this perspective has always aimed at the “big picture”. The focus is either on results or outcomes, rather than products to achieve outcomes than with defining what those outcomes should be ⁽³⁾.

¹ Ibid., P.6, 7

² Bryson, John M. (2004). Strategic Planning for Public and non-profit organization. P. 11

³ Abdel Hamid, Mohamed Abdel Aziz (1999). Applying strategic Planning Concept in the Regional Development in Egypt. (PhD dissertation, Al-Azhar university, Faculty of engineering, department of urban planning. P.21.

Blackerby (1994) has stated that the strategic techniques began to find a new place in the corporate environment. In the early 1920s, the Harvard School developed the Harvard Policy Model, one of the first strategic planning methodologies for private businesses. This model defines “Strategy” as a pattern of purposes and policies defining the company and its business. The firm weaves purposes and policies in a pattern that unites company resources, senior management, market information, and social obligations. At that time, strategic planning’s focus on determining organizational structure and appropriate strategies leading to improved economic performance⁽¹⁾.

By the time of 1950s, the focus of strategic planning shifted away from organizational policy and structure towards the management of risk, industry growth, and market share. Business calls this approach to strategic planning the “Portfolio Model”⁽²⁾.

Until the mid 1980s, strategic planning remained mostly a private sector undertaking. Notions of customers, marketing, industry growth, market share and risk management were foreign to the public sector. Instead, local governments wrote comprehensive plans which dealt with the efficiency of land use and services, while federal and state agencies relied on program plans, usually limited to narrow chains of authority on the organization chart. Strategies and organizational structure became nearly independent concerns; management committees resolved inter-program conflicts. Seeking a better way, some governments began taking more strategic approach to public sector planning. Because the problems change over time, issues become more sophisticated, so that, strategic planning applied in the public sector as the organizations’ invent tools to guide specified actions⁽³⁾.

2.3 THE THEORITICAL FRAMEWORK OF STRATEGIC PLANNING

The literature of strategic planning suggests at least two important characteristics of the process. The first are those varieties of potential benefits which exist for any regional organization willing to invest in the strategic planning process. Among these benefits are more effective strategy development for the organization's current and future operations, the establishment of valid priorities for expenditure of resources and delivery of the service, the probability of improved decision-making based on lessons

1 Blackerby, P. (1994). History of strategic planning, Armed forces comptroller magazine, Vol 39, P.23.

2 Olsen, J., & Eadie, D. (1982). The game plan: Governance with foresight, Washington D.C., The council of state planning agencies, P.10-13.

3 Abdel Hamid, Ahmed A. (1999). Applying strategic Planning Concept in the Regional Development in Egypt. P.23.

learned during strategic planning process, and improved implementation of needed changes. The second characteristic is that most of the theory and practice of strategic planning in the 20th century have been focused on the private sector, specifically within for-profit business organizations ⁽¹⁾. Figure (2-2) ⁽²⁾ shows the basic strategic planning concept.

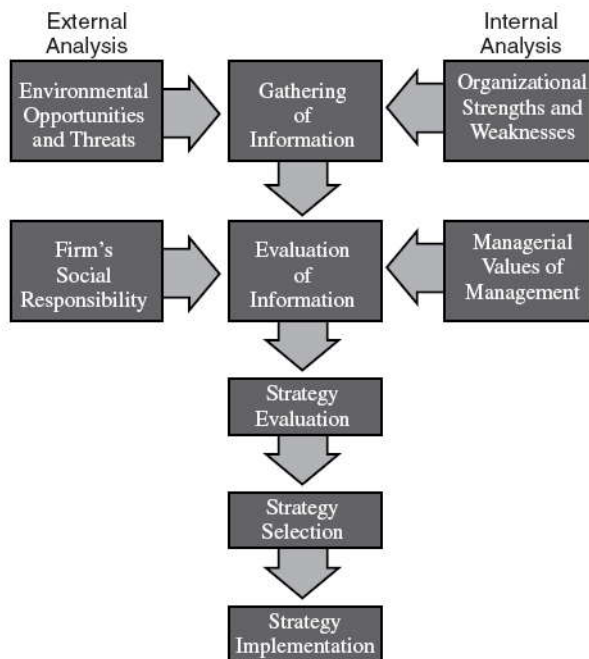


Figure (2-2) ⁽²⁾

Basic Strategic Planning Concept

Most of the history and development of strategic planning methods, concepts and procedures have happened inside the private sector. Bracker (1980) argues that there are two common characteristics for the strategic planning method (both of them in the public and private sector), which are found throughout the historical development of the strategic planning theory:

- An environmental analysis which is used to determine the future of an organization in its field.
- The utilization of an organization's available resources (human, financial, and raw material) in order to attain its major goals.

1 Kudla, R (1980). The effects of strategic planning on common stock returns. (Published paper, Academy of management Journal, Vol. 23, No.1).

2 Kerzner, Harold (2001). Strategic planning for project management using a project management maturity model. (John wiley & sons, Inc.) P. 13

2.3.1 DIFFERENT APPROACHES TO STRATEGIC PLANNING

Bryson and Roening (1987) believe that the strategic planning approaches developed in the private sector can be applied to public sector planning; the authors describe nine different approaches to strategic planning. They illustrate the special features, strengths and weaknesses, of each of these different planning approaches and evaluate their adaptability to the public sectors. The approaches are the Harvard Model, strategic planning system, management of stakeholders, portfolio models, competitive analysis, strategic issue management, strategic negotiations, logical incrementalism and strategic planning as a framework for innovation⁽¹⁾.

1. The Harvard Policy Model:

The major purpose of the Harvard Policy Model is to find "the best fit" between the organization and its environment (internally and externally). This model is studied through examination of the functions and responsibilities of the **organization's senior management**. In addition, it requires that this group have power to implement those strategies. The Harvard Policy Model is applicable in a strategic business unit which is a separated business area and which can be directed separately from other units of the organization. The advantage of this model is the assessment of internal environment "strengths and Weaknesses" and external environment "opportunities & threats" "SWOT", which can, also, be adopted by non-profit-organizations and regional planning agencies. The disadvantage of this model is its inability to answer the question of how strategies should be efficiently deduced from the SWOT analysis.

2. Strategic Planning Systems:

These are concepts and methodologies for operationalizing the corporate planning in all its aspects as strategic decision-making. The primary purpose of strategic planning systems is resource allocation. The advantage of this approach is applicable in public organizations as well as in community development. Strategic Planning Systems ask four basic questions which help public organizations to define their goals and strategies: Where are we going? (Destination). How can we get there? (Strategies). What is our action plan? (Implementation). How can we know that we are on the right road? (Monitoring & control).

3. The Stakeholder Management Approach:

Freeman (1984) argues that the strategy of a corporation can be efficient if it can satisfy stakeholders' demands. Usually, models of the private

¹ Bryson, John M. & Roening, William (1987). Applying private sector strategic planning in the public sector. (Journal of APA, Vol. 53, No.1).

sector have concentrated on economic factors. However, according to Freeman, the current situation demands that social and political factors should, also, be taken into account. For that reason, stakeholder management is claimed to be one of the best applicable models for public sector planning today.

Community planning, for example, involves an enormous number of different interest groups. The advantage of this approach is that it pays attention to different demands and expectations which are directed towards the organization from inside and outside. The disadvantage is equally apparent: How is it possible to formulate a strategy which takes into account all of the needs and expectations of shareholders? Moreover, if such a strategy were to be successfully formulated, it would be questionable whether it has any significance from the point of view of organizational adaptation.

4. Portfolio Models:

These models focus on the competitive analysis, which can be arrayed in a two-by-two matrix. The matrix position of each unit is then used to highlight the appropriate strategy for the business, including decisions regarding the allocation of corporate resources. This approach is applicable in organizations in which it is possible to segregate many business areas.

5. Competitive Analysis Approach:

The strength of the competitive analysis approach lies in the fact that it pays attention to its own position in relation to its competitors. The use of competitive analysis in community planning is questionable because in the public sector, organizational success depends on collaboration instead of competitions. The advantage of this approach is its ability to establish prioritizes (i.e., Shall we develop this region?) and cooperative advantages (i.e., For what shall we develop this region?).

6. Strategic Issue Approach:

This approach stresses the identification and management of external and internal factors which are of critical significance when it comes to the future development of the organization. The advantage of this approach is its ability to create a link between the SWOT-analysis and strategy formulation.

7. The Strategic Negotiations Approach:

Strategic negotiations approach indicates that a strategy is a result of a negotiation process in which the different options of the different groups of the organization are reconciled. In this approach, the strategy is seen as a flow of occurrences and evaluations in a certain context. Although this model gives some guidelines as to how political acceptance can be achieved in a complex decision making situation, it cannot guarantee the technical implementation of the strategy.

8. Logical Incrementalism Approach:

This approach considers strategy to be a process in which strategy formulation and implementation advance together. Logical incrementalism approach defines a strategy as a cluster of loosely coupled decisions which are handled incrementally, with marginal additions. Logical incrementalism is efficient in its ability to handle complexity and change. The disadvantage of this approach is its inability to ensure that the organization will be taken in the chosen direction by the loosely coupled "small decision". If this problem can be solved, the approach is worthwhile and suitable.

9. The Innovation approach:

The innovation approach emphasizes the need to develop systems which assure a continuous flow of innovations. Innovations are considered as the key prerequisite in organizational survival and ability to adopt. Innovations can be encouraged with informal structures like project groups, team work, research and development work. The Innovation approach requires that an organization develop a common vision concerning its desired future and the action to achieve its future demands. The advantage of this approach is its ability to support innovations. On the other hand, tendencies towards innovation almost inevitably lead to costly mistakes, and public sector organizations, in particular, can only afford mistakes to a modest degree. Bryson and Roering conclude that strategic planning represents a range of approaches which vary in applicability to the public sector (regional, and community development). In their view, this range of options and flexibility of application makes the process useful to the diverse organizations and gently differing communities who make up the public sector. They argue that, when conditions are right, the strategic planning provides a highly useful set of concepts, procedures, and tools for dealing with the changes in the community and environment.

2.3.2 THE BASIC ELEMENTS OF THE STRATEGIC PLANNING PROCESS

There are many ways to approach the strategic planning process. Figure (2-3)⁽¹⁾ shows Bryson's strategic planning process model.

According to Bryson, the general strategic planning process model often follows these steps⁽¹⁾:

- External Environment Assessment.
- Internal Environment Assessment.
- Mission & Vision Statement.

¹ Bryson, John M. (2004). Strategic planning for public and nonprofits organization. organization - **A Guide to strengthening and sustaining organizational achievement. (Jossey-Bass Publishers, San Francisco)**, P.130

- Goals and Objectives Identification.
- Strategies Formulation.
- Action Plans Implementation.
- Monitoring and Controlling.

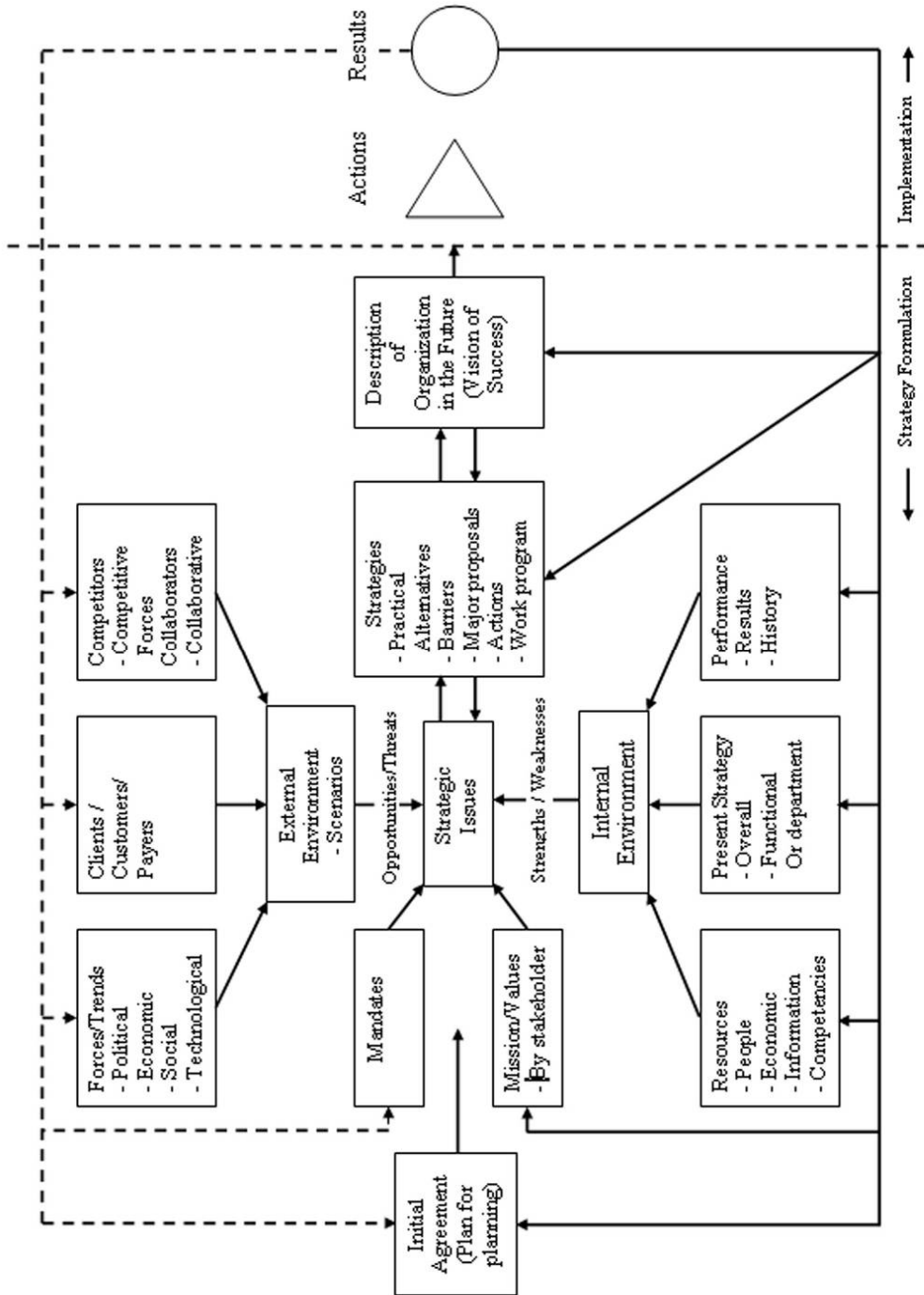


Figure (2-3) Bryson's Strategic Planning Model

However, if this is to be the long-range, multi-year process, it cannot be a simple linear model. Instead, the process is a circle or a spiral that keeps repeating. At this point, the strategic planning process involves clarifying the region's mission, assessing its resources and examining the environment to determine what the region's priorities and strategies should be. The strategic planning process is the process of developing a fit between the region's goals, and its capabilities (resources).

2.3.2.1 ASSESSMENT OF THE EXTERNAL ENVIRONMENT

Essential to strategic planning is scanning the external environment for opportunities and threats. Points for scanning include work force composition; work patterns and schedules; governmental influences; economic and geographic conditions; and the effect of competitive pressures.

Kaufman and Jacobs (1988) state that the environmental scanning encourages organization (regional and community) to look beyond itself in space and time. Thus, external scanning actually consists of a triad of activities consisting of scanning, analysis, and reporting. This process identifies the region's opportunities and threats to understand the external environment of this region. The opportunity, for instance could be, the private sector support services, and creates job opportunities. Examples of opportunities, also, could be; the open door policy, encouraged industrial and private sector investments. Examples of threats could be; the lack of commitment of financial institutions to invest in the region, or the lack of a good management information system and staff shortage. In general, two major categories of environmental activity may be monitored: forces and trends ⁽¹⁾. Kerzner (2001) has defined five factors in the external environment which can be tracked within strategic planning process in general and within implementing the project management methodology in specific, those factors described by Kerzner as follows:

1. The Demographic Factor

For general strategic planning, it focuses on such factors as population size, age structure, geographic structure, ethnic mix, and income distribution. For urban planning projects, including land use developments and their management methodologies in specific, the focus is more internal. The factors may include; corporate size: How many functional units will use the methodology? Will there be pockets of use or corporate-wide acceptance? Age structure: What will be the average age of the users of the methodology? Age

¹ Ibid., P.132

structure can affect both risk-taking and willingness/ability to work overtime. Geographic dispersion: If the organization is multinational, how do we get everyone to support the methodology? Will there exist the language/communication complexities? Types of projects: Will the methodology be general enough for all types of projects or it will need multiple methodologies? ⁽¹⁾

2. The Economic Factor

For general strategic planning, the economic environment is the external economic environment the study of micro and macro measures relevant to the financial and production environments in which the organization functions, and how it affects the operations of the organization. Included in this factor would be the inflation rates, interest rates, trade budget/surpluses, personal saving rates, business saving rates and gross domestic product. For urban planning projects including land use developments and their management methodologies, the economic environment will include; Cost of the capital: How much will it cost to borrow money for a new operation of development or on an interim basis to account for cash flow deficits? Forward pricing rates: Based upon current knowledge, what will costs look like over the next several years? Quality of cost estimates: How accurate are the cost estimates, and are there lessons learned? ⁽²⁾

3. The Political / Legal Factors

For general strategic planning, the political / legal factors include laws on antitrust, taxation, **team training**, and philosophies on deregulation and education. The body of government, its levels, and professional rules which frame the operations and actions of an organization.

For urban planning projects, including land use developments and their management methodologies, the list could include the above items for multinational efforts, but generally includes: Customer interfacing: This includes the development of a standard Practice Manual on morality and ethics in dealing with customers. It could include a corporate credo which specifies that the best interests of the customer come first. Product liability/truth of disclosure: Is there supporting data for information presented to the customers

1 Kerzner, Harold (2001). Strategic planning for project management using a project management maturity model. (John Wiley & Sons, Inc.), P.26

2 Ibid. P.27

or consumers? Changing laws: Does the methodology allow for changes if new laws are enacted? ⁽¹⁾

4. The Socio-Cultural Factor

The socio-cultural factor generally includes topics such as the nature of communities which an organization affect on, women / minorities in the workforce, quality of work-life, environmental concerns, and career preferences. For urban planning projects, including land use developments and their management methodologies, the list would include: customer requirements: do the customers mandate the hiring of women / minorities on the projects? Do the customers require that the subcontracts go to union shop organizations only? Health / safety issues: Do the rules specify that the employees will not violate health and safety regulations? Overtime: How much overtime are employees expected to perform? This includes both exempt and non-exempt employees. Career path: Is project management regarded as a career path position? ⁽²⁾

5. The Technological Factor

The technological factor is basically the same for both general strategic planning and urban planning projects; including land use developments and their management methodologies. Included in this factor are: offensive technology: Is the skill to develop new products / operation there? if so, does the methodology account for technical risk taking in this regard? Defensive technology: How quickly and effectively can defend the existing products / operations through enhancements? Does the methodology allow for short cuts for enhancement projects? Purchasing of technology: Does the organization allow to purchase technology (hardware, software, etc.) to improve the management processes? Technology gap: Does a technology gap exist between the organization and other competitors? Does the methodology allow for risk-taking to close the gap? The freedom to innovate: Is the methodology rigidly structured or does it allow some degree of freedom for creativity? ⁽³⁾

Trends in these five categories are monitored as part of the strategic planning process from three perspectives ⁽⁴⁾:

1 Ibid., P.27

2 Ibid., P.27

3 Ibid., P.28

4 Abdel Hamid, Ahmed A. (1999). Applying strategic Planning Concept in the Regional Development in Egypt - Case Study: South Upper Egypt Region. (Cairo: Unpublished PhD Dissertation, Al-Azhar University, Faculty of Engineering, Department of Urban Planning), P.48

A. Temporal Perspective

What has happened (the past), what are current conditions (the present), and what is likely during the time frame of the plan (the immediate future)? What factors and forces will affect the course of events (long run future)?

B. Issues Perspective:

For a given issue, what is happening locally, regionally, nationally and internationally (in all aspects of the relevant markets) which has or is likely to have a bearing on the organization and implementation of plans?

C. Scanning Perspective:

What potential opportunities are likely to be faced? What constrains are known or foreseeable? Figure (2-4) ⁽¹⁾ shows the external environment five factors and the Stakeholders who are identified in the immediate environment circle and their effect on the organization within strategic planning process.

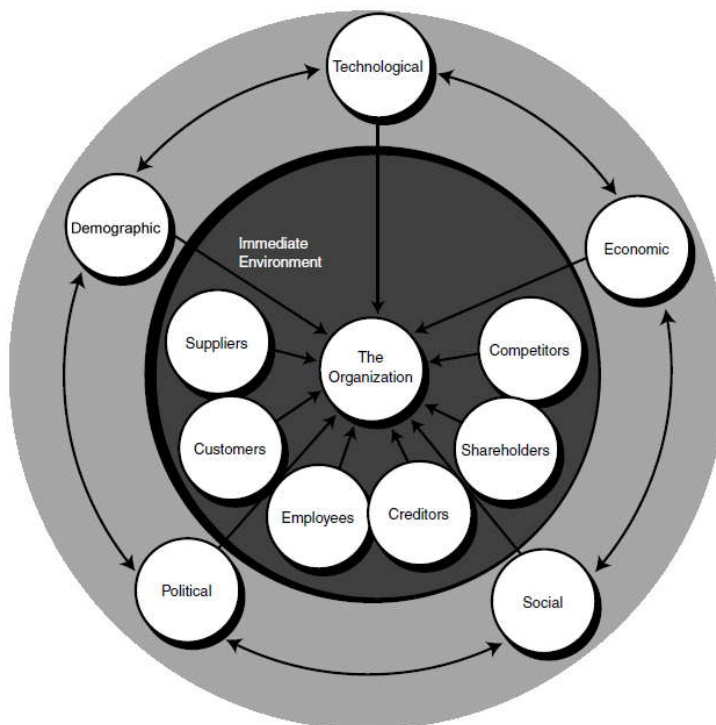


Figure (2-4) ⁽¹⁾

The effect of external environment factors on the organization

1 Kerzner, Harold (2001). Project Management: A system approach to planning, scheduling and controlling. (John Wiley & sons, Inc.), P.1018

2.3.2.2 ASSESSMENT OF THE INTERNAL ENVIRONMENT

The purpose of this step is to assess the internal environment of the organization in order to identify its strengths and weaknesses, those aspects which help or hinder the accomplishment of the organization's mission. Internal assessment leads to prioritizing strengths and weaknesses based on making the best use strengths, overcoming weaknesses, affecting operations and implementing the results of a strategic planning process. The prime importance in the assessment of the internal environment is, the current financial picture, including past financial performance and future financial requirements for support of the strategic plan.

Internal assessment measures capabilities in such areas as human resources, research and development, management information systems, and marketing. An internal assessment, integrated with an external assessment, is designed to provide detail of the major effects on an organization's ability to react to and manage relevant strategic issues.

The internal environment scan process assesses the major assets of the region, and defines the region's strengths; for example: transportation linkages and accessibility, or availability of agricultural lands and mining resources. Weaknesses could be either concentrated poverty in the rural area, or the lack of infrastructure ⁽¹⁾.

2.3.2.3 MISSION & VISION STATEMENT

Mission statement is crucial to organizational or regional achievement, providing both a sense of purpose and the possibility of expansion into a vision of success. The region's vision statement for example could be to expand the economy and improve the region's quality of life. Therefore, the mission statement outlines organizational purposes while it describes how the regional organization should look as it implements its strategies and moves towards achieving its full potential.

As derived from the vision statement, an organization's mission statement describes the nature and concept of the organization's future policies. It establishes what the organization plans to do and for whom. Therefore, a mission statement should be short, inspiring, and punchy. In almost all cases, mission statements reflect the basic purposes of the regional organization,

¹ Bryson, John M. (2004). Strategic planning for public and nonprofits organization. - A Guide to strengthening and sustaining organizational achievement. (Jossey-Bass Publishers, San Francisco), P.136

including profitability aims, social demands for improved quality of life, personal interests of the top executives, and standards for management practices.

In regional development, many mission statements have a common theme: to provide the maximum quantity and quality of public services, thereby improving the quality of life to the taxpayer and other constituents at the lowest possible tax rate. The mission statement, for example, could be: the region, with the involvement of its citizens, will devise and mobilize innovative community partnerships.

2.3.2.4 IDENTIFICATION OF GOALS AND OBJECTIVES

The mission statement mentioned above, specifies the purpose of the plan. Purpose implies that goals are to be achieved. The strategic planning literature often confuses objectives and goals when the distinction is not very significant. Both terms refer to a description of where the organization wants to go.

In one common typology, an objective is a broad statement of purpose, while a goal is specific and concrete, with measurable results and a stated period. Marrus (1984) defines that the goals motivate action, management, and operations within the region. The plan must be compatible with the goals and objectives of the organization and the strategies flowing from them⁽¹⁾.

Specifying goals as targets for action is basic to any planning process including strategic planning. In the strategic planning process, goals are specified after an organization has scanned and assessed its environment, forecast emerging conditions, defined its mission, identifies its skills and capacities, has a clear picture of how to deploy existing resources, and identifies the skills it must develop to achieve its mission. Strategic goals focus on the following points:

- Opportunities and potential threats, to capture the former and ameliorate the latter.
- Organizational strengths and weaknesses, to enhance the former and ameliorate the latter.

1 Marrus, Stephanie k. (1984). Building the Strategic Plan: Find, Analyze, and Present the Right Information. (John Wiley & Sons Inc).

Goals must be few in number, precise, and prioritized for efficient resource allocation. High priority goals should be given the most attention and economic resources. Strategic goals, for example, could be to provide a positive economic environment and facilitate the business growth. A strategic goal for example, could be to utilize available open spaces to create a healthy and attractive living environment.

Strategic planning goals are not a “wish list” as goals in traditional planning approaches, goals are defined at the start and analytical work is done to elucidate normative values. In strategic planning, goal formulation comes after analyze the regional environment to identify its opportunities and threats, and to determine its trends.

2.3.2.5 FORMULATION OF STRATEGIES

In strategies formulation, planning leaves the conceptual mission and goals stage to build a complex network of working connections among management systems, internal resources, and an organization’s environment. Strategy, design for action to manage critical issues, provides a way to array complex often-unstructured problems. Strategies are designs that indicate how goals will be achieved, opportunities seized, and threats controlled to maintain an organization, its resources and capacities.

For instance, one strategy for a region could be to establish a coordinated approach to the provision of industrial, commercial, and residential development services. Strategy develops from environmental and self-knowledge, quantitative and qualitative analysis, management intuition, political judgment, operations, and resource handling policies. Strategy formulation uses mission and goals to specify choices, and it is supported by resources to specify targets which are achieved over time ⁽¹⁾.

2.3.2.6 IMPLEMENTATION OF ACTION PLANS

Once the strategic and action plans are formulated, it should be implemented within the organization in a visible and noteworthy manner. Plans provide systematic structure for work which the organizations do. Without implementation, planning is futile.

1 Steiner, G (1983). Formal strategic planning in the united states today. (Published paper, Long-Rang planning), Vol. 16, No.3.

Berman (1990) states that the successful implementation of a strategic plan depends on the following elements ⁽¹⁾:

- Creation of an implementation group.
- Refinement of the action plan and implementation work program.
- Negotiation of the implementation of priority strategic initiatives.
- Establishment of monitoring and evaluation mechanisms and processes.

The implementation of a strategic plan should include these processes:

- Designing the organization's structure and climate to match the strategy.
- Ensuring that divisional and functional managers have the right background, skills, and attributes to make the strategy work.
- Employing the right functional policies to make the strategy work.
- Assignment of responsibility and resource allocation.

2.3.2.7 MONITORING AND CONTROLLING

Strategic planning controls involve measuring, monitoring, evaluating and corrective action. Their results can be used to reevaluate strategy chosen or to undertake new planning efforts. This monitoring and controlling come up with some essential feedback steps leading to the implementation and correction of the strategic plan.

2.4 THE OUTCOMES OF THE STRATEGIC PLANNING FOR REGIONAL AND LOCAL COMMUNITIES

The first outcome from using strategic planning process in the public sector (regional, local, and community development) involves people in the planning process. In efforts to stimulate local initiatives, "public discussion" is often used to make the citizens and all the agents of a region aware of the threats as well as of the opportunities which may affect the development of the region. Through this awareness, citizens can influence future development. In addition, the participants in the strategic planning process can obtain a common understanding concerning both the surrounding world and concerning their own position in that world.

1 Berman, N. (1990). Local Strategic Planning: A Handbook for community leaders. (Lansing, Michigan Department of Commerce).

The second outcome is the initiation of the process of regional environmental scanning. This outcome forces regions to assess their strengths, weaknesses, opportunities, and threats in relation to the corresponding characteristics of the other regions.

The third outcome is the implementation of strategic plan. Strategy implementation determines whether the current regional strategic planning process is considered success. It includes the following key guidelines:

- Raising funds for implementing the regional plan.
- Defining the responsibility for each agency in the body of the region.

The last outcome is the publicity. This means that the regional organization develops, for examples, newsletters and special publication such as newspaper articles, web sites, and public meetings.

Finally, the idea of regional strategy development should rather be developed as a learning process for citizens and planners. The goals and methods, planning, implementation and just-in-time management are interrelated, and keep renewing the process.

2.5 EPILOGUE

- Strategic planning is a systematic, creative, and comprehensive process of determining the organization's future goals and objectives and developing strategies which will govern the acquisition and use of resources to achieve these objectives.
- There are two important characteristics of the strategic planning process: First is the organization's looking to benefits of effective strategy development, establishment of priorities for expenditure of resources and delivery of services, improvement of decision making and implementation of needed changes. Second is the fact of the strategic planning process is commonly applied in most cases in the private sector, specifically within for-profit business organizations.
- There are nine different approaches to strategic planning which could be defined: the Harvard model, strategic planning system, management of stakeholders, portfolio models, competitive analysis, strategic issue management, strategic negotiations, logical incrementalism, and strategic planning as a framework for innovation.

- The general strategic planning process model often follows seven steps: external environment assessment, internal environment assessment, mission & vision statement, goals and objectives identification, strategies formulation, action plans implementation, and finally monitoring & controlling.
- There are four outcomes resulting from using strategic planning process on the both regional and local levels:
 - Involving people in the planning process.
 - Initiation of the process of regional environmental scanning.
 - Implementation of strategic plan; by raising regional required funds, and defining the responsibility for each agency in the body of the region.
 - Publicity, by developing regional newsletters and special publication such as newspaper articles, web sites, and public meetings.



CHAPTER 3

LAND USE REUTILIZATION PROCESSES: ACHIEVING OBJECTIVES AND 3PM / OPM APPROACHES

“Any organization has a strategic plan accompanied by mission and vision statements as well as strategic goals and objectives. The goal of linking portfolio management to the strategy is to balance the use of the resources to maximize value in executing strategic and operational activities...”

PMBOK® Guide – American P.M. National Standard, 2008

The purpose of this chapter is to discuss the proposed different objectives of land-use reutilization processes within the organization’s strategic plan and at two urban levels, the city level and regional level. Those objectives will cover different aspects; urban, environmental, economical, and social. Subsequently, the chapter will shed light on the 3PM approach for managing land-use reutilization projects, the link between OPM and strategic planning and the integration with the organizational governance.

3.1 LAND USE REUTILIZATION OBJECTIVES

In the recent past, new developments were often carried out on clear *Greenfield*⁽¹⁾ sites. There are many advantages to starting with a clean sheet; for instance, the planning and layout design can be performed so as to maximize benefits such as daylight and solar heat gain, control of air flows and orientation to good views. There is also the opportunity to plan the location of amenities and facilities in order to maximize benefit for the local inhabitants. Unfortunately, many of the opportunities for optimum layout and design were not carried through in the past because of the natural desire by developers to

¹ Greenfield is a term used to describe any piece of land in a city or rural area which has not been developed for any use or activity yet.

maximize the profit and minimize the cost. This, combined with a lack of understanding of the consequences and undesired urban transformation process, resulted in socio-economical conflicts and low environmental benefits.

The concept of re-use of occupied lands of so-called *Brownfield*⁽¹⁾ sites has much to recommend. Urban sprawl and the degradation of green areas are reduced; it is also likely that existing infrastructure can be modified or enhanced to cope with the new redevelopment. There are also other benefits in the revitalization of an area and the encouragement of new investments.

When development occurs within existing areas and is linked to renovation and refurbishment of existing structures, there may be requirements for the preservation of character or historical record in particular areas and buildings; each of these create additional complications. The preservation of important examples of building styles and types can be justified, as can general styles within an area. However, the insistence on exact replication of unsustainable features in every case may need reconsideration. Planning strategies, thus, have to be more flexible in this regard. Another area which requires consideration relates to possible risks of previously used land. Depending upon former use, there may be contamination or other technical considerations which limit the redevelopment. Clear strategies concerning redevelopment policy and responsibilities must be set out so as to avoid future conflicts.

In general, any strategy of re-use of existing lands should deal with certain objectives which cover different aspects; urban, environmental, economical, and social.

3.1.1 URBAN OBJECTIVES

The planned development, expansion of urban areas and reuse of lands within existing developments are very important for long-term sustainability and must be addressed through sophisticated and detailed planning approaches. Within land use reutilization projects, there are main urban objectives which should be achieved; those main objectives could be combined with the following eight items.

¹ Brownfield is a term used to describe any previously used land which has the potential to be reused once it is cleaned up.

3.1.1.1 DEFINE SIZE AND PLACEMENT OF REDEVELOPMENT

The optimum size of development is extremely important. A completely new urban area may need to be planned on the basis of having certain number of population in order to insure sustainability of its local infrastructure. Redevelopment within existing urban areas may be easier to integrate but will still require enhancement of local facilities. Some of the most awkward planning issues arise with the placement of substantial developments within existing urban areas and the consequent objections from the local area's residents / users. The new developments may require new facilities and amenities to support it and it is more likely that existing local residents / users and potential new residents / users will favour development if substantial, good quality and attractive ⁽¹⁾.

3.1.1.2 URBAN DENSITY CONTROL

A city is defined as a place with relatively high population density. The conventional measure of urban density is the total population of a metropolitan area divided by the amount of land in urban use, including residential areas, industrial districts, commercial areas, roads, schools and city parks. This is called built-up density. Urban density varies dramatically across cities around the world – as shown in figure (3-1).

Over recent decades, the density of residential development, measured in terms of numbers of dwellings, has been in a process of decline, with the consequent creation of urban sprawl. In most of European cities, the prevalent urban densities at the start of twentieth century had dropped to almost the third at its end. Many people consider that reversing the trend and encouraging greater urban densities is the main method to deliver sustainable urban development. However the situation is somewhat complex. High urban densities may deliver the intensities required to support transport and local amenities and facilities, but the resulting buildings may not be visually appealing and may not encourage a variety of occupancy or integrated communities. There are also issues related to urban density which affect both environmental performance and the surrounding area.

The vitality of urban areas depends, to some extent, on a good mix of users and occupant types. It may therefore be more effective to combine a variety of building types to suit a variety of uses / needs and at a variety of urban densities. Some of the recently planned new European neighbourhoods

1 Pitts, Adrian (2004). Planning and design strategies for sustainability and profit. (Architectural press, An imprint of Elsevier), P.32:34

have a higher density close to the main commercial and shopping areas and transport routes, combined with lower densities elsewhere. The use of such an approach can still deliver the average urban densities required for sustainability but with potential for a better, more integrated community, particularly when the local amenities are well planned and matched with the overall scheme. ⁽¹⁾

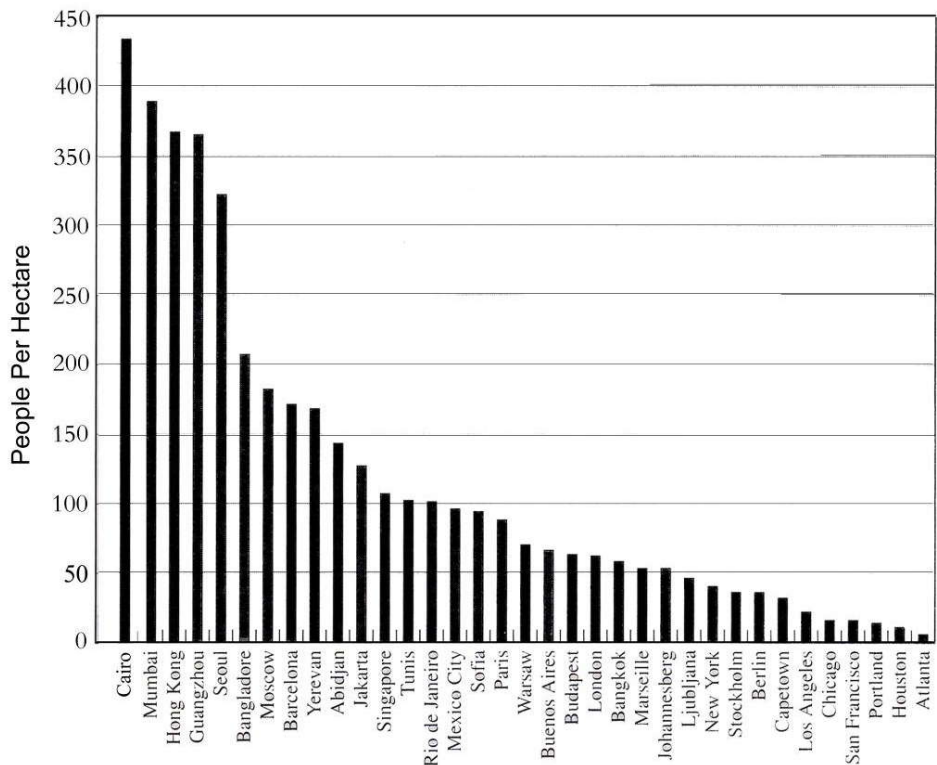


Figure (3-1) ⁽²⁾
Urban density in some global cities

3.1.1.3 LAND USE / BUILDING TYPES DEVELOPMENT

The types of land-uses / buildings planned for redevelopment schemes, in terms of their function (residential, commercial, retail, industrial or leisure), is the key factor in achieving successful urban environmental design. In recent times, there has been great emphasis on *mixed-use* development in which a variety of building types are located in close proximity. The reasoning behind promotion of mixed development is that, by creating such areas, the need for travel to work by private vehicle can be much reduced, local facilities become more viable due to increased local demand (from the local workforce as well as

1 O'sullivan, Arthur (2007). Urban Economics. (The McGraw Hill Companies, International Edition), P.138-139

2 Ibid., P. 139

local residents) and community spirit is encouraged. There, also, needs to be consideration of urban grain and positioning of strategic building types on a local level so as to optimize opportunities for linkage.

Strategic planning can encompass traits which focus on the benefits of good design in ways which allow longer-term sustainability to be included too if best value principles are invoked on this scale. One concern, at present, is that the value or benefits of development are viewed in a disjointed manner and individual buildings can be difficult to assess in isolation because important factors at the urban scale are rarely included in the analysis. If the boundaries of a development are set at the broader scale, a number of alternatives can be considered; that is, not only should the building on its own be efficient and effective, but it should also be efficient and effective (and of good quality) within the context of its urban area.

In new redevelopment, there is also a need to encompass flexibility for potential future uses. As is now evident, the lifetime of many buildings exceeds the timescale over which they might be used in their initial capacity. Robust planning and design that allows for reuse rather than demolition is a preferable and more sustainable option which also maximizes the future value of the building. This must be linked to specification of materials and choice of construction techniques which provide long operational life and opportunity for modification without wholesale refitting or refurbishment. Wherever possible, construction materials available locally should be preferred so as to reduce transport costs and pollution, and also to aid the local economy.⁽¹⁾

3.1.1.4 ENHANCE LOCAL SERVICES AND CIVIC AMENITIES

Local facilities and amenities provided in any development may not have been appropriate for the needs of the community. One of the urban objectives of land use reutilization projects is to enhance local services and civic amenities of the intended development. In the strategic planning level, all urban, environmental, socioeconomic studies should be conducted to define the actual local services / civic amenities rates and to compare with the targeted standard rates. Accordingly the required land areas for these facilities are to be calculated and considered in land use reutilization processes.

3.1.1.5 ENHANCE TRANSPORT SYSTEM AND PEDESTRIAN MOVEMENT NETWORK

1 Allam, Ahmed Khalid (1993). City Planning. (Published Book, Egyptian Anglo Library, Cairo, Egypt), P. 168,172

One of the greatest growing urban problems is created by the transport systems which enable the population to travel within the city urban space to different destinations. The development of many cities has meant the dispersal of population to outlying areas some distance from places of work and commercial and retail centers, making transport more difficult to plan and operate. Congestion and wasted time in use of transport is becoming an increasingly important concern. There has also been a marked increase in the reliance on private vehicles for movement and an increase in distance travelled. Movement and transport systems are thus some of the key elements of successful sustainable urban design, not just because of the potential to reduce congestion, pollution and energy use, but also for the sense of community and connectedness which good movement systems provide.

Several factors require attention; the matching of local transport policies to development requires an understanding of the range of citizens' needs, particularly in the provision of safe and secure systems designed to meet required periods of use, service frequency and length of journey. The proximity of transport systems to local facilities, amenities, and workplaces is important, as is the availability within principal housing zones.

Safe pedestrian routes and appropriate provision for cyclists are also required. Several specialists have used the so-termed 'Five Cs' as a way of expressing the needs of the local community, particularly for pedestrian movement. These 'Five Cs' could be explained as follows:

Connectivity: networks for pedestrians need to connect the places they require to travel between, serving all major needs and providing a choice of routes. Easy access to public transport is required and opportunities for movement through safe green routes should also be provided.

Convenience: Primary routes should be direct and avoid awkward landscape features. Crossing roads should be easy and not require extended waiting periods.

Comfort: paths and roadways should be of suitable width (two metres for most uses, three metres for paths shared with cycles) and constructed from suitable materials, avoiding steep slopes on primary routes. A sense of safety from positioning and surveillance should be created.

Convivial: routes should be well lit at night, be suitable for meeting and chatting (away from noise and fumes) and designed to be aesthetically appealing.

Conspicuous: routes should be easy to find and follow with clear signage, landmarks, and surface treatments.

Integration of transport systems linking buses, trains and other public transport, and also with private vehicle use, is needed and may involve planning new road layouts and transport networks to provide optimum solutions that take account of traffic surveys and traffic impact assessments. ⁽¹⁾

3.1.1.6 ROADS NETWORK DEVELOPMENT

Roads network in any development represents the backbone of the development. Roads network development is one of the most important urban objectives of the land use reutilization.

Many studies should be considered in that regard to specify the required actions during land use reutilization processes, some of these studies could be summarized in bullet points as follows:

- Road configuration (Width, hierarchy, and capacity).
- Surrounding land uses.
- Road efficiency (Paving type, and maintenance cost).
- The relationship between entrances and exits of roads and main city arterial roads, bridges, and tunnels.
- Roads movement directions.
- Road capacity during peak hours.
- Type of public transportation on the desired road.
- Available and required parking areas along the desired road.

3.1.1.7 LANDSCAPE AND OPEN SPACE SCHEME DEVELOPMENT

Landscaping is one of the natural resources of any site. Protection and enhancement of landscape features help to promote a feeling of well-being and also creates a more pleasant place to use. Provision for green open space and parkland should be made within the proposals, appropriate to the size and scale of the development and suitable means of access in relation to residential areas should be ensured.

The planning of these spaces needs to consider their linkage, networking and suitability to the facility and function they provide. Routing and interconnection and are important so as to engage with all suitable public areas and encompass a logical hierarchy. The places must create a sense of safety through surveillance and frequency of use, and also by engaging the interest of the local community. The spaces should be suitable for a variety of

1 Pitts, Adrian (2004). Planning and design strategies for sustainability and profit. (Architectural press), P.45:47

groups of different ages to use, and features such as public gardens can be incorporated as focal points in urban centres. With regard to many of these issues, good environmental design can aid and improve the operation and benefits and it is also important to design for linkages to smaller or private spaces around dwellings. These concepts should be set within a broad long-term strategy for ecological maintenance and development during land use reutilization processes.

3.1.1.8 IMPLEMENTING INTELLIGENT CITY CONCEPTS

City intelligence refers to the capacity of the city to adequately serve the requirements of its inhabitants, matching its potential to their aspirations, which are not unlike the sustainable principle of fulfilling the needs of the present generation. The concept of 'city intelligence' can be and has been interpreted in many different ways: from referring simply to the level of digital infrastructure provision to the idea of the city as a functioning being in and of itself, capable of autonomous reaction to stimuli. This relationship with the provision of digital infrastructure arises largely through the derivation of the concept from studies concerning intelligent buildings ⁽¹⁾.

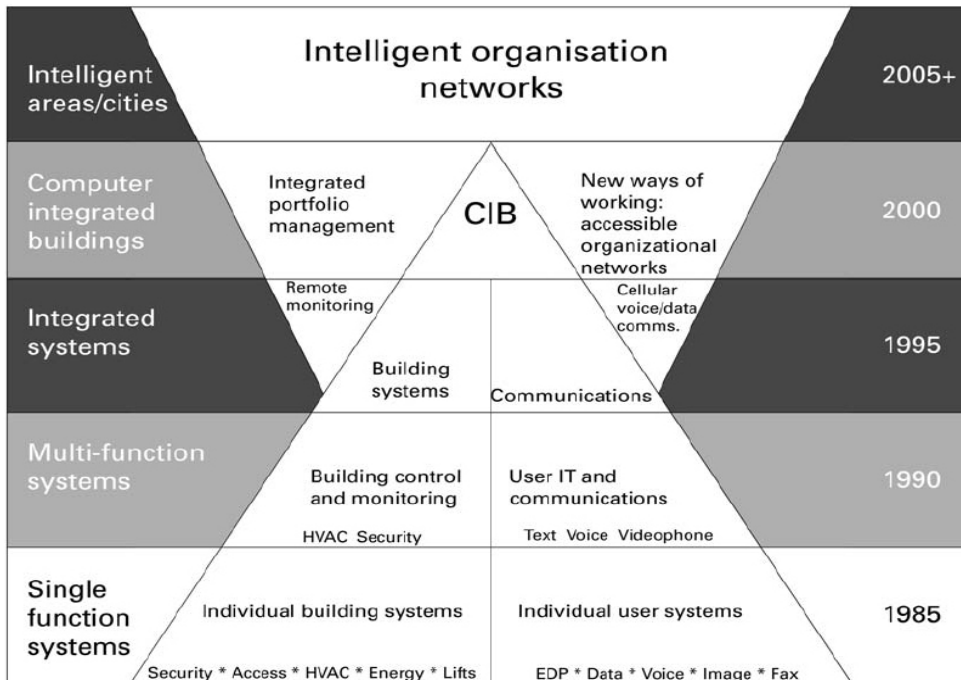


Figure (3-2) ⁽²⁾ Extension of intelligence concept through the years

1 Jenks, Mike and Dempsey, Nicola (2005). Future Forms and Design for Sustainable Cities. (Architectural press) P.35
 2 Ibid., P. 35

Many studies and experiments began to examine how the concept of intelligent might be extended out beyond the building to describe a wider area. Intrinsic to this concept was the idea of the organization as a network, as business organizations dispersed themselves and their functions around building, so they would need an 'intelligent area' in which to function, (Figure 3-2) ⁽¹⁾. This was interpreted as suggesting that intelligence operates across a range of scales, from a single building to a multiple city region.

A series of studies related to intelligent urban areas and buildings have been carried out during the 1990s by design consultancy DEGW and others, defined a set of intelligent city attributes, related to the primary goals of living, moving and working (Figure 3-3). Each of these goals is broken down into a series of sub-tasks, from which the attributes are derived. ⁽²⁾

Goals	Tasks	Intelligent city attributes						
Living	Shelter Leisure Learning Caring	Urban infrastructure and masterplan	Information network	Urban management strategy	Houses			
					Hotels			
Hospitals								
Learning environments								
Work environments								
Retail facilities								
Moving	People Goods Information	Urban infrastructure and masterplan	Information network	Urban management strategy	Entertainment facilities			
					Airports			
					Railway stations			
					Bus stations			
Working					Urban infrastructure and masterplan	Information network	Urban management strategy	Freight distribution centres
								Road/rail networks
		Transportation vehicles						
		Green spaces						
		Urban infrastructure and masterplan	Information network	Urban management strategy				Outdoor facilities

Figure (3-3) ⁽³⁾
The DEGW intelligent city model

Apart from broad strategic aims set out in unitary development plans, planning policy is essentially reactive and confrontational. The planning system will need to shift from defining possible products and acceptable standards, to becoming the process enabler, by working to articulate ambitions for development and acting to manage the process. Re-orienting policy towards process, rather than product, is the means to achieving effective policy in tune with the requirements of urban intelligence. Management of land use

¹ Ibid., P.35

² Ibid., P.32:36

³ Ibid., P. 36

reutilization processes has many to do regarding developing and re-orienting intelligent city concepts. ⁽¹⁾

3.1.2 ECOLOGICAL OBJECTIVES

The first United Nations conference on Environment and Development (Earth Summit) held in Rio de Janeiro in 1992 was marked a turning point in the way Man look at environment and development. The world leaders acknowledged the summit agenda, a plan of action for achieving sustainable development in the 21st century, an executive program to achieve a comprehensive sustainable development and address environmental and development issues in an integrated manner at global, national and local levels.

Since that time, gradually but quickly, ecological objectives represent significant requirement needs to be considered within all urban planning activities. Definitely, within executing land use reutilization projects, issues like ecology, eco-cities, energy saving, reduce pollution, and waste management are the core items need to be implemented.

3.1.2.1 ACHIEVING URBAN ECOLOGY AND ECOCITIES PRINCIPLES

Urban ecology is a subfield of ecology which deals with the interaction of organisms in an urban community and their interaction with that community. Urban ecologists study the trees, rivers, wildlife and open spaces found in cities to understand the extent of those resources and the way they are affected by pollution, over-development and other pressures. Analysis of urban settings in the context of ecosystem ecology may ultimately help to design healthier, better managed communities, by understanding what threats the urban environment brings to humans. There is an emphasis on planning communities with an ecological design, by using alternative building materials and methods in order to promote a healthy urban ecosystem. ⁽²⁾

Ecocity or sustainable city is a city designed with consideration of environmental impact, inhabited by people dedicated to minimization of required inputs of energy, water and food, and waste output of heat, air pollution, CO₂, methane. Richard Register first coined the term "ecocity" in his 1987 book, *Ecocity Berkeley: building cities for a healthy future*. *Ecocity* can feed itself with minimal reliance on the surrounding countryside, and power itself with renewable sources of energy. The crux of this is to create the

¹ Ibid., P.46-47

² http://en.wikipedia.org/wiki/Urban_ecology (March 26, 2010)

smallest possible ecological footprint, and to produce the lowest quantity of pollution possible, to efficiently use land; compost used materials, recycle it or convert waste-to-energy, and thus the city's overall contribution to climate change will be minimal, if such practices are adhered to. ⁽¹⁾

Ecocities development principles could be achieved during land use reutilization processes, those principles could be summarized in bullet points as follows:

- Restore degraded land.
- Fit the bioregion.
- Balance development.
- Halt urban sprawl.
- Optimize energy performance.
- Contribute to the economy.
- Provide public health and security services.
- Encourage community.
- Promote social equity.
- Respect history.
- Enrich the cultural landscape.
- Heal the biosphere.

3.1.2.2 ENERGY SAVING

The reduction of fossil-fuel-based energy use is a key issue for environmental sustainability and can be greatly assisted by the more informed and strategic development of energy planning at an early planning stage of land use reutilization projects. There are opportunities to optimize supply opportunities as well as to reduce demand. The use of energy in buildings, mainly to create acceptable and comfortable indoor environments, consumes between 40 and 50 percent of primary energy in many developed nations, which means that planning and design is an extremely important influence on overall use. Buildings have conventionally been seen as energy and resource consumers, but perhaps a new view is now emerging in which the building itself begins to be designed in order to make net contributions to the resource system by both reducing its energy demand and acting as an energy source.

The means for energy production and supply have normally been seen as quite separate from the built environment and urban planning. The world's developed economies are characterized by centralized or large-scale power

1 Register, Richard (2006). Ecocities – Rebuilding Cities in Balance with Nature. (New society publishers), P.182-183

generation, fuel processing and energy supply systems. These can be located some distance from the end user. This has a number of consequences, not least from the disjunction and separation of awareness of the user from the effects of the use, particularly in terms of pollution, damage to the local ecology, and intrusion into the landscape.

The current relatively small use of renewable and alternative energy sources is likely to increase, with improved economies in their operation, recognition of their beneficial environmental effects, and encouragement from national governments. Renewable energy plants and systems often operate at more local and indeed even individual building scales; policies and strategies for successful integration are needed, however, taking an urban viewpoint. Such sources can also offer some exciting alternatives for incorporation into the urban landscape, and perhaps a greater degree of understanding in planning approval is required from an aesthetic point of view for the use of a variety of alternatives within the built and local environment. There will also need to be changes from a technological standpoint, since current distribution and cost systems are predisposed towards centralized systems.



Figure (3-4) geothermal power plant



Figure (3-5) wind farm

Development of policies and methods of controlling and enhancing the use of alternative energy sources are therefore needed. This is particularly important if buildings are developed to be energy providers rather than consumers and if alternative fuel sources are to be used. Combined heat and power (CHP) systems, which provide heat as well as electricity, offer some useful options but the balance between the two forms of energy supply and the schedule of demand is important for the viability of the system. The matching of supply and demand within local areas and the connection of loads to the system need consideration at urban planning scale because of the importance of the mix of building types and activities. Alternative building forms,

orientations and design features may be necessary to provide for, or enhance, the energy supply potential of the alternative technologies.

Renewable energy is derived from natural resources which are replenished constantly. In its various forms, it derives directly from the sun (solar energy), or from heat generated deep within the earth (Geothermal energy) – figure (3-4) shows geothermal power plant, or from water flowing (Hydropower), or from air movement (wind power) – figure (3-5) shows wind farm, or from biological material derived from living, or recently living organisms, such as wood, waste, and alcohol fuels (biomass fuels).

In addition to new means of supply, there are also other issues which can be dealt with at an urban planning level, such as the choice of energy source and illumination devices used for community facilities and street lighting. Light pollution and energy consumption can both be better controlled and reduced. ⁽¹⁾

3.1.2.4 WASTE MANAGEMENT AND REDUCE POLLUTION

Hundreds million tons of waste is produced each year in the developed countries, in UK for example with population of about 62 Million persons, it produces about 470 million tons of waste each year, about 28 million tons (6%) of it is household waste and average of 16% of it is produced by business premises. Construction waste is also a very significant fraction of the total (about 15%), and this occurs as demolition and refurbishment wastes or as the by-products of new build. There are also significant amounts of wastes material now produced in urban areas as synthesized, rather than natural, materials, which can pose specific disposal problems either because of an active pollutant threat or through the long life of the material before it is naturally broken down.

In Egypt, about 20 million tons of household waste are produced each year, 3 million tons of it produced by Cairo city. The conventional means to deal with many of these wastes has been to bury them in landfill sites, with a number of environmental consequences, therefore alternative means of disposal need to be developed, including recycling.

Production of wastes and pollution within the urban environment can be reduced and controlled by a number of processes. Though household waste is only small proportion of the total waste that a development society produces, it is symbolic of wider concerns and the most visible component for the general

¹ Pitts, Adrian (2004). Planning and design strategies for sustainability and profit. (Architectural press), P.40-45

public. Methods for dealing with domestic waste should therefore be a prominent part of an overarching strategy for commercial and industrial wastes and of course, construction-generated waste.

Policies and procedures for dealing with wastes are therefore required at urban level and also need to be based on a national approach in order to avoid simple transference of problems to neighboring areas. Local authorities should begin to introduce more encouragement for recycling and wider provision of special recycling collections should be encouraged.

In the case of building design and construction, the initial choice of materials and construction techniques can affect eventual waste generation. Planning policies and site design for subsequent reuse/ recycling/ reclamation need to be better defined. Active use of recycled, reused and reclaimed materials should be encouraged through policies and planning.

In urban areas, a waste disposal strategy which includes composting facilities and recycling facilities can promote much more efficient systems for dealing with such wastes. Collection of wastes should be designed as part of new development. Other pollution and wastes policies should aim to encourage a change of business culture concerning wastes, seeing such material as a potential future resource.

Air quality, noise pollution issues, the effects of wastes and sewage/ foul water treatment on local aquatic environments, are each deserving of inclusion in an overall policy. The burning of waste may have an energy benefit, but this must be weighed against environmental issues such as the release of contaminants to the air. ⁽¹⁾

3.1.3 SOCIO-ECONOMICAL OBJECTIVES

Socio-economic relates to the relation of economics to social values. It focuses on the social impact of some sort of economic changes.

There are main Socio-economical objectives could be achieved within land use reutilization processes; those objectives could be combined in the following two items.

I Ibid., P.51:55

3.1.3.1 ENHANCE THE LIVING ENVIRONMENT FOR RESIDENTS

Enhancing the living environment for intended area's residents in particular and city residence in general is the most important Socio-economic objectives for land use reutilization projects. Studying and analyzing the current urban situation of the intended areas should come up with conclusions of current services situation and its adequacy. In most of the areas need land use reutilization projects which are usually lack of services (education, cultural, social, open spaces, landscaping and parking spaces). In addition to enhancing the basic required level of services, land use reutilization projects may assist in supporting some additional requirements related to providing more sustainable living environment.

3.1.3.2 INCREASE LAND USE ECONOMIC PROFIT

One of the most important land use reutilization objectives in the strategic planning process from economic point of view is achieving the highest land profit. This may be achieved by providing uses with economic profit proportionate to land economic value, this could be measured by considering some aspects which determined real land market price such as; land accessibility, land location within the city urban space, surrounding roads, adjacent land uses and their values.

3.2 THE ROLE OF STRATEGIC PLANNING IN THE LANDUSE REUTILIZATION PROCESSES

The well-governed city must establish a clear vision, where all policies, strategies, and programs contribute to high quality urban development. In partnership with its citizens and its business and urban expert, the city should have a flexible city-wide strategic plan which brings together core urban, environmental, economic and social objectives. This strategic plan could provide long term vision and which can consider in a holistic way all the major needs and opportunities of a city with the engagement of its people.

There are many pressures for development in most of existing cities, which could classify on several levels; urban, environmental, economical, and social. This will mean a substantial increase in new development activities, which have great concern because of the consequential urban and environmental impact this will have. Accordingly, to a significant extent, the need of reuse of the lands located within urban areas is coming out. Land use reutilization processes may require in some cases to revisit the infrastructure networks operation status and may cause to redesign and reconstruct them.

Strategic planning concept can be applied in most of land use reutilization activities. In addition to the development of the strategies, it should encompass use of benchmarking and target setting, analysis of trends and performance, and the setting of goals for achievement. These features are interlinked and might be expressed in the diagrammatic way shown in figure (3-6).



Figure (3-6)
The Role of strategic planning in land use reutilization processes

A series of actions recommended by Pitts (2004) should be included in strategic planning activities during land use reutilization processes are as follows ⁽¹⁾:

- Coordination of urban, environment, economic, and social requirements.
- Embodiment of approaches to issues which can operate over time scales set at short, medium, and long term (up to 30 years); and the formulation of a range of over all objectives linking different scales of development and influences.
- Involvement of a wide group of stakeholders, particularly including local communities.
- Inclusion of assessment of performance, targets and goal setting, and feeding back of results.
- Ensuring that the overarching issues of built environment, energy, transport, water, wastes and pollution are addressed in a coherent manner to avoid conflicts.

¹ Ibid., P.31:55

3.3 STRATEGIC PLANNING APPROACH IN THE LANDUSE REUTILIZATION PROCESSES

As already explicated in the previous chapter, strategic planning has great value at the urban city or regional level in that it should both connect upwards with boarder regional and national policies and plans and should also have dialogue with the more Local Township or district level. The body most suitably placed therefore to undertake and coordinate such a task is the local authority, council, or similar level of government. This level also offers the chance for interaction with elected representatives of the communities who are being served, and provides sufficient size that the employment of specialist advisors and other professionals becomes viable within the process.

In order to coordinate and facilitate the land use reutilization processes it is recommended that a small team of planners and project managers with appropriate skills be established within the local council or authority. There should also be investigation of potential development in terms of community and culture issues; the built and natural environments; and resources and finances. The local community should be involved in developing and testing ideas for new developments within land use reutilization processes which enable the proposal and evaluation of policies which lead to the creation of a wide-ranging strategy.

The local community and stakeholders can then be included in the development of an agreed master plan. The powers and facilities of the local council or authority should be used to promote then chosen strategy and support activities which contribute to its execution, including the monitoring and review of performance, with information feedback on the success or otherwise of the various stages of operation.

3.3.1 APPLICATION OF LAWS, REGULATIONS AND CONTROLS ⁽¹⁾

The local council or authority should be charged with ensuring that legislation, regulations and controls are applied within its area of jurisdiction. These may have been set at international, national, or local level and it has a duty to apply these fairly but comprehensively when dealing with issues of land use reutilization objectives. The functioning of revised strategic planning should ensure that policies and regulations are well integrated, and this may also require some degree of flexibility in application.

¹ Ibid., P.56, 57

Although environmental sustainability must be coordinated with urban, economic, and social issues there should be a predisposition towards placing the environment as the prime consideration, for without it the other three cannot function in the longer term. There is a number of assessment techniques which will be described later can be employed and they should be more frequently used in determining appropriate actions.

Indeed, procedures which involve monitoring, measuring, targeting and goal setting should be integrated into strategic planning so that feedback produces improved results. The public discussion of such elements can be beneficial too since the community is enabled to be more connected with the decision-making process and it also permits better understanding of issues of sustainability and their evaluation.

Control of development through land use reutilization planning process needs to have a more local dimension. The operation of strategic planning can facilitate this by providing the framework and the information for the more localized plan. Plans developed by a local council or authority would require a more comprehensive approach, in effect providing strategic planning at the small scale, and all members of the community must face up to issues rather than passing them on; they would have to balance competing influences. Strategy planning, by being proactive rather than reactive, can be a means to wrest the initiative from narrow-focus and narrow-minded groups. The devolution of a certain level of power has risks but should also encourage those currently unlikely to become involved in urban scale decision making to take a role.

3.3.2 ENCOURAGING SUSTAINABILITY IN THE WIDER COMMUNITY

The local authority may offer encouragement for change to more sustainable processes and practices by the levying of charges on less sustainable alternatives, the granting of permissions and the offering of loans, tax rebates or grants for more environmentally sensitive solutions. The key to this is information provision, however, and strategic planning must provide the framework for elucidating information about new developments within land use reutilization processes in a form digestible by non-specialists.

One means to encourage more public understanding and participation is to focus on issues of quality of life and human well-being, terms which most people understand. Of course, underlying these broad terms are complex listing of factors which have been identified as influencing them and can be used to measure the benefit or otherwise of changes to the urban environment, albeit in sometimes rather indirect ways.

3.4 3PM / OPM APPROACHES FOR MANAGING LAND USE REUTILIZATION PROJECTS

3PM is an international management term refers to the three levels of management (project management, program management, and portfolio management). As per PMI ⁽¹⁾ (Project Management Institute) international standards; in matured project management environment, project management exists in a broader context governed by program management and portfolio management. This context where 3PM interact in alignment with the achievement of strategy goals is internationally known as “OPM” (Organizational Project Management). Moreover, PMI developed a model called “OPM3” (Organizational Project Management Maturity Model) which could measure the maturity level of organization in applying OPM comprehensively.

In OPM context, portfolio management is the highest level which ensures that interrelationships between programs and projects are identified and that resources (e.g., people, funding) are allocated in accordance with organizational priorities. Program management which is the intermediate level focuses on achieving the benefits expected from the portfolio as determined by strategic organizational objectives and ensuring the integration process of project management activities. The lowest level is Project management largely concerned with achieving specific deliverables that support specific organizational objectives. ⁽²⁾

As Figure (3-7) illustrates, organizational strategies and priorities are linked and have relationships between portfolios and programs, and between programs and individual projects. Organizational planning impacts the projects by means of project prioritization based on risk, funding, and the organization’s strategic plan. Organizational planning can direct the funding and support for the component projects on the basis of risk categories, specific lines of business, or general types of projects.

The above described management configuration (OPM) could provide the framework to develop comprehensive methodology of managing land use reutilization projects within execution of the strategic urban development

1 PMI is one of the world's largest professional membership associations, with half a million members and credential holders in more than 180 countries. It is an American not-for-profit organization which advances the project management profession through globally recognized standards and certifications, collaborative communities, an extensive research program, and professional development opportunities.

2 Morris, Peter and Jamieson, Ashley (2004). Translating Corporate Strategy into Project Strategy: Realizing Corporate Strategy through Project Management. (Project Management Institute, Pennsylvania, USA), P. 8-12

master plan for the sustainable development, and that is what this thesis aims to achieve.

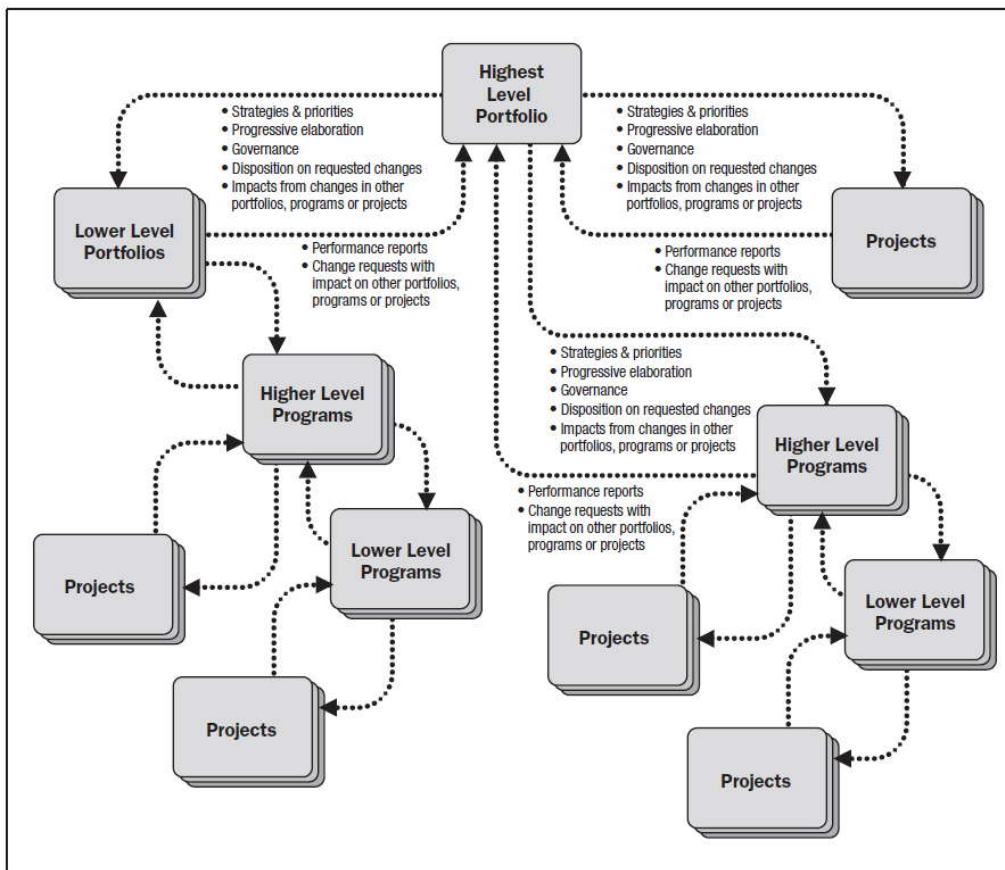


Figure (3-7) ⁽²⁾ Portfolio, Program, and Project Management Interactions

3.4.1 PROJECT MANAGEMENT APPROACH ⁽¹⁾

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirement. This application of knowledge requires the effective management of appropriate processes comprising the 5 processes groups (Initiating, Planning, Executing, Monitoring and Controlling, and Closing).

1 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge, Fourth Edition.

(Project Management Institute, Pennsylvania, USA), P. 5-8

2 Ibid., P.5

Managing a project typically includes:

- Identifying requirements.
- Addressing the various needs, concerns, and expectations of the stakeholders as the project is planned and carried out.
- Balancing the competing project factors including, but not limited to scope, quality, schedule, budget, resources and risk.

The relationship among these factors is such that if any one factor changes, at least one other factor is likely to be affected. For example, if the schedule is shortened, often the budget needs to be increased to add additional resources to complete the same amount of work in less time. If a budget increase is not possible, the scope or quality may be reduced to deliver a product in less time for the same budget. Project stakeholders may have differing ideas as to which factors are the most important, creating an even greater challenge. Changing the project requirements may create additional risks. The project team must be able to assess the situation and balance the demands in order to deliver a successful project.

Because of the potential for change, the project management plan is iterative and goes through progressive elaboration throughout the project's life cycle. Progressive elaboration involves continuously improving and detailing a plan as more-detailed and specific information and more accurate estimates become available. Progressive elaboration allows a project management team to manage to a greater level of detail as the project evolves.

3.4.2 PROGRAM MANAGEMENT APPROACH ⁽¹⁾

A program is a group of related projects managed through program management in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside of the scope of the discrete projects in the program. Programs are comprised of various components. Most of these components are the separate projects within the program, but another component is the management effort and infrastructure needed to manage the program. Thus, programs may include elements of related work (e.g. managing the program itself) outside the scope of the discrete projects in a program.

Programs and projects deliver benefits to organizations by enhancing current capabilities or developing new capabilities for the organization to use.

¹ Project Management Institute (2008). The standard for Program Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P. 5,6

A benefit is an outcome of actions and behaviors which provides utility to the organization. Programs, like projects, are a means of achieving organizational goals and objectives, often in the context of a strategic plan. Some projects within a program can deliver useful incremental benefits to the organization before the program itself has completed.

Program management is the centralized coordinated management of a program to achieve the program's strategic objectives and benefits. It involves aligning multiple projects to achieve the program goals and allows for optimized or integrated cost, schedule, and effort.

Projects within a program are related through a common outcome or a collective capability that is delivered. If the relationship among the projects is only that of a shared client, seller, technology, or resources, the effort should be managed as a portfolio of projects rather than as a program. In programs, it is important to integrate, monitor, and control the interdependencies among the components. Program management focuses on these project interdependencies and helps to determine the optimal approach for managing them. Actions related to these interdependencies may include:

- Resolving resource constraints and/or conflicts that affect multiple projects within the program.
- Mitigating risk activities which run across components, such as contingency planning.
- Aligning organizational/ strategic direction that affects project and program goals and objectives.
- Resolving issues and scope/ cost/ schedule/ quality changes within a shared governance structure.
- Tailoring program management processes and interfaces across a global program to handle culture, language, time, and distance differences.

Through structured governance, program management enables appropriate planning, scheduling, executing, monitoring, and controlling across the projects within the program to achieve program benefits. Program management provides a framework for managing related projects considering key factors such as strategic benefits, coordinated planning, complex interdependencies, deliverable integration, and optimized pacing.

3.4.3 PORTFOLIO MANAGEMENT APPROACH ⁽¹⁾

A portfolio is a collection of projects or programs and other work which are grouped together to facilitate effective management of that work to meet strategic business objectives. Portfolio management application is intended for all types of organizations (i.e., profit, nonprofit, and government).

A portfolio exists within an organization and it consists of a set of current components and planned or future initiatives. Therefore, portfolios are not temporary like projects or programs. An organization may have more than one portfolio, each addressing unique business areas or objectives. Proposed initiatives become part of the portfolio when they are identified, selected, and/or approved. At any given moment, the portfolio represents a view of its selected components and reflects the strategic goals of the organization.

All components of a portfolio exhibit certain common features:

- They represent investments made or planned by the organization.
- They are aligned with the organization's strategic goals and objectives.
- They typically have some distinguishing features which permit the organization to group them for effective management.
- They are quantifiable and therefore can be measured, ranked, and prioritized.

Portfolio management is the coordinated management of portfolio components to achieve specific organizational objectives. Portfolio management is also an opportunity for a governing body to make decisions that control or influence the direction of a group of components (a sub portfolio, program, projects, or other work) as they work to achieve specific outcomes. An organization uses certain tools and techniques to identify, select, prioritize, govern, monitor, and report the contributions of the components to, and their relative alignment with, organizational objectives. **It is not concerned with managing the components.**

3.4.4 ORGANIZATIONAL PROJECT MANAGEMENT (OPM) APPROACH

Organizational Project Management (OPM) is the systematic management of projects, programs, and portfolios in alignment with the organization's strategic business goals. The purpose of OPM is to ensure that the organization undertakes the right projects and allocates critical resources

¹ Project Management Institute (2008). The standard for Portfolio Management. Second Edition. **(Project Management Institute, Pennsylvania, USA)**, P. 4-6

appropriately. Next, OPM helps ensure that all the objectives resulted from the vision, mission, and strategic planning process will be implemented within defined methodology – Figure (3-8) shows comparative overview of project, program, and portfolio management.

The term “organization” does not necessary refer to an entire company, agency, association, authority, or society. It can refer to business units, functional groups, departments, or sub-agencies within the whole. While individual projects may be considered tactical, OPM is, by definition, strategic. Organizational Project Management includes an organization’s business execution strategy, providing a high-level perspective to focus the selection of projects and assignment of critical resources to implement goals through initiatives which directly impact financial result ⁽¹⁾.

	PROJECTS	PROGRAMS	PORTFOLIOS
Scope	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a larger scope and provide more significant benefits.	Portfolios have a business scope that changes with the strategic goals of the organization.
Change	Project managers expect change and implement processes to keep change managed and controlled.	The program manager must expect change from both inside and outside the program and be prepared to manage it.	Portfolio managers continually monitor changes in the broad environment.
Planning	Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Program managers develop the overall program plan and create high-level plans to guide detailed planning at the component level.	Portfolio managers create and maintain necessary processes and communication relative to the aggregate portfolio.
Management	Project managers manage the project team to meet the project objectives.	Program managers manage the program staff and the project managers; they provide vision and overall leadership.	Portfolio managers may manage or coordinate portfolio management staff.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	Success is measured by the degree to which the program satisfies the needs and benefits for which it was undertaken.	Success is measured in terms of aggregate performance of portfolio components.
Monitoring	Project managers monitor and control the work of producing the products, services or results that the project was undertaken to produce.	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor aggregate performance and value indicators.

Figure (3-8) ⁽²⁾

Comparative overview of project, program, and portfolio management

1 Project Management Institute (2008). Organizational Project Management Maturity Model (OPM3) Knowledge Foundation, second edition. (Project Management Institute, Pennsylvania, USA), P. 9

2 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge, Fourth Edition. (Project Management Institute, Pennsylvania, USA), P. 9

3.4.5 THE LINK BETWEEN PORTFOLIO MANAGEMENT AND ORGANIZATIONAL GOVERNANCE

Organizations have governance frameworks in place to guide the execution of organizational activities. Organizational governance establishes the limits of power, rules of conduct, and protocols that organizations use to manage progress towards the achievement of their strategic goals. This is accomplished through controls intended to maximize the delivery of value while minimizing risk. For the purposes of this standard, organizational governance is the process by which an organization directs and controls its operations and strategic activities, and by which the organization responds to the legitimate rights, expectations, and desires of its stakeholders. Project Portfolio Governance is a set of interrelated organizational processes by which an organization prioritizes, selects, and allocates limited internal resources to best accomplish organizational objectives.

Portfolio management is one discipline within organizational governance. Organizations which do not link portfolio management to governance increase the risk which misaligned or low priority initiatives will consume critical resources. Therefore, applying the techniques of portfolio management within the context of organizational governance provides reasonable assurance which the organizational strategy can be achieved. Portfolio management is both a framework and a management activity. The framework provides the means to translate the organizational strategy into a portfolio of strategic and operational initiatives. The management activity ensures actualization of those initiatives through the use of organizational resources.

Figure (3-9) ⁽¹⁾ illustrates the relationships between organizational governance, operational management, and management of initiatives which comprise the portfolio. Governance principles ensure alignment between resulting activities and organizational strategy.



Figure (3-9) ⁽¹⁾ Relationships among organizational governance, operations, and portfolio management

¹ Project Management Institute (2008). The standard for Portfolio Management, Second Edition. (Project Management Institute, Pennsylvania, USA), P. 8

3.4.6 THE RELATIONSHIP BETWEEN PORTFOLIO MANAGEMENT AND ORGANIZATIONAL STRATEGY

Organizations build strategy to define how their vision will be achieved. The vision is enabled by the mission, which directs the execution of the strategy. Organizational strategy is a plan that describes how the company's strengths and core competencies will be used to:

- Capitalize on opportunities.
- Minimize the impact of threats.
- Respond to changes in the market.
- Reinforce focus on critical operational activities.

Any organization has a strategic plan accompanied by mission and vision statements as well as strategic goals and objectives. The goal of linking portfolio management to the strategy is to balance the use of resources to maximize value in executing strategic and operational activities.

A *Vision statement* Defines the desired or intended future state of an organization or enterprise in terms of its fundamental objective and/or strategic direction. Vision is a long term view and concentrates on the future, sometimes describing how the organization would like the world in which it operates to be. It is a source of inspiration and provides clear decision-making criteria.

A *Mission statement* Defines the fundamental purpose of an organization or an enterprise, succinctly describing why it exists and what it does to achieve its vision. The mission statement should guide the actions of the organization, spell out its overall goal, provide a sense of direction, and guide decision-making. It provides "the framework or context within which the company's strategies are formulated."

The *organizational strategy* is a result of the strategic planning cycle, where the vision and mission are translated into a strategic plan. The strategic plan is subdivided into a set of initiatives which are influenced by market dynamics, customer and partner requests, shareholders, government regulations, and competitor plans and actions. These initiatives establish strategic and operational portfolios to be executed in the planned period.

The *portfolio* links the organizational strategy to a set of prioritized programs and projects, addresses the relevant internal and external business drivers referenced as objectives in the strategic plan. The ultimate goal of linking portfolio management with organizational strategy is to establish a balanced, executable plan that will help the organization achieve its goals.

Figure (3-10)⁽¹⁾ describes a general relationship between the strategic and operational processes in an organization and portfolio management. The impact of the portfolio plan upon strategy is attained by the five areas shown below:

- **Maintaining portfolio alignment.** Each component should be aligned to one or more strategic goals. Alignment cannot occur without a clear understanding of those goals, and any proposal would describe how it supports the goals.
- **Allocating financial resources.** The priority of each component guides financial allocation decisions, while at the same time each component requires an allocation if it is to be executed.
- **Allocating human resources.** The priority of each component guides resource planning, hiring efforts, and time and skill allocations.
- **Measuring component contributions.** If the purpose of undertaking the component is to achieve a strategic goal, its contribution must be measured in the context of that goal.
- **Strategic risk management.** Each component should be evaluated for risks and how those risks may impact the achievement of the strategic goals.



Figure (3-10)⁽¹⁾

The organizational context of portfolio management

¹ Ibid., P. 9

3.4.7 STRATEGIC PLANNING AND 3PM CORRELATION

Projects are often utilized as a means of achieving an organization's strategic plan. Projects are typically authorized as a result of one or more of the following strategic considerations:

- Market demand (e.g., a governmental housing authority authorizing a project to build low-level class residential development in response to housing shortages for low-income citizens. Or a real state company authorizing a project to build A-class mixed-use residential compound in response to high-income tenants' demand).
- Strategic opportunity / business need (e.g., an engineering consultant authorize a project to create a new training courses for the engineers to increase their know-how in respect of the consultant involvement in a new special engineering discipline project).
- Customer request (e.g., an electrical utility authorizing a project to build a new substation to serve a new industrial park).
- Technological advance (e.g., a governmental infrastructure construction authority authorizing a project to develop fiber optics cable networking for the new community).
- Legal requirements (e.g., a chemical manufacture authorize a project to establish guidelines for the handling of a toxic material in respect of adhering with the new environmental regulations issued by the government).

Projects, within programs or portfolios, are a means of achieving organizational goals and objectives, often in the context of a strategic plan. Although a group of projects within a program can have discrete benefits, they can also contribute to the benefits of the program, to the objectives of the portfolio, and to the strategic plan of the organization.

Organizations manage projects based on their strategic plan. One goal of portfolio management is to maximize the value of the project by the careful examination of its component. An organization's strategic plan becomes the primary factor guiding investments in projects; at the same time, projects provide feedback to programs and portfolios by means of status reports and change requests that may impact other projects, programs, or portfolios. The needs of the projects, including the resource needs, are rolled up and communicated back to the portfolio level, which in turn sets the direction for

organizational strategic planning – Figure (3-11) ⁽¹⁾ illustrates the Strategic planning and 3PM correlation.

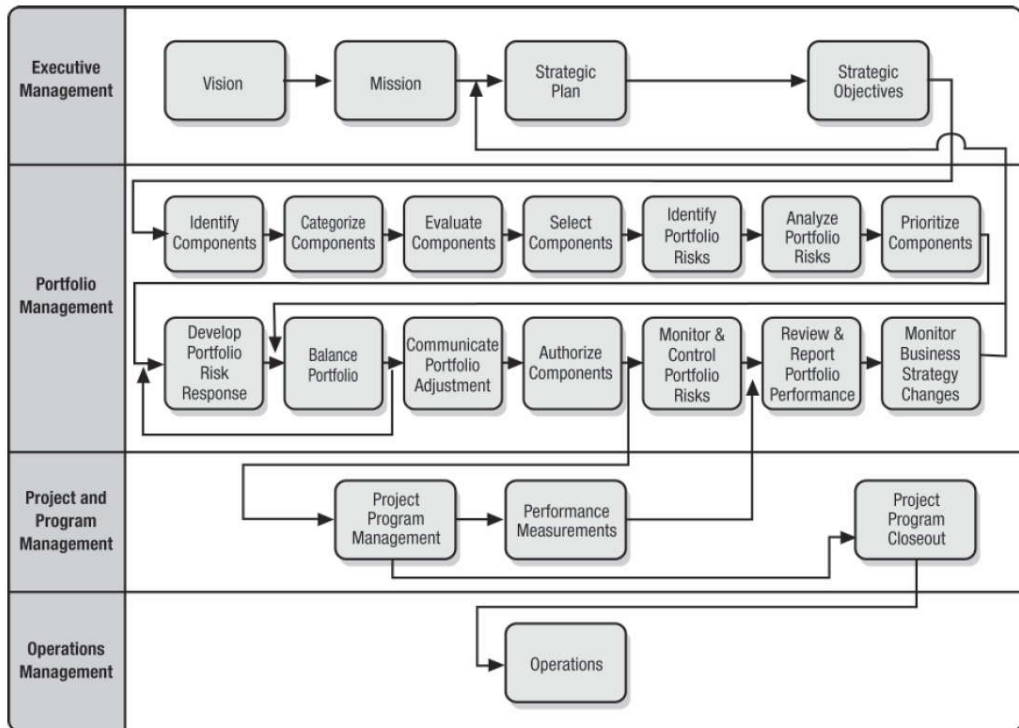


Figure (3-11) ⁽¹⁾ Strategic planning and 3PM correlation

3.5 EPILOGUE

- Land use reutilization objectives could be classified under three different categories; urban, **ecological**, socio-economical.
- Land use reutilization urban objectives could be combined in the following eight items:
 - Define size and placement of redevelopment.
 - Urban density control.
 - Land use / building types development.
 - Enhance local services and civic amenities.
 - Enhance transport system and pedestrian movement network.
 - Roads network development.
 - Landscape and open space scheme development.
 - Implementing intelligent city concepts.

¹ Ibid., P. 11

- Land use reutilization ecological objectives are combined in three items:
 - Achieving urban ecology and ecocities principles.
 - Energy saving.
 - Waste management and reduce pollution.
- Land use reutilization socio-economical objectives could be combined in two items:
 - Enhance the living environment for residents.
 - Increase land use economic profit.
- The well-governed city establishes a clear vision & mission; accordingly, it should have a flexible city-wide strategic plan which brings together core urban, environmental, economic and social objectives and could draw the roadmap of land use reutilization activities.
- The functioning of strategic planning should ensure that policies are well integrated with some degree of flexibility in application.
- 3PM is an international management term refers to the three levels of management (project management, program management, and portfolio management). The context where 3PM interact is internationally known as “OPM” (Organizational Project Management) which is the systematic management of projects, programs, and portfolios in alignment with the organization’s strategic business goals to provide a framework to develop comprehensive methodology of managing land use reutilization projects.
- Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements through five process groups (Initiating, Planning, Executing, Monitoring & Controlling, and Closing).
- A program is a group of related projects managed through program management in a coordinated way to obtain benefits and control not available from managing them individually.
- A portfolio is a collection of projects or programs and other work which are grouped together to facilitate effective management of that work to meet strategic business objectives.
- The portfolio links the organizational strategy and objectives determined to achieve organization’s vision and mission to a set of prioritized programs and projects.
- A vision statement defines the intended future state of an organization in terms of its fundamental objective and/or strategic direction.
- A mission statement defines the fundamental purpose of an organization, describing why it exists and what it does to achieve its vision.



CHAPTER 4

3PM - INTEGRATED PROCESSES AND MANAGEMENT TOOLS

“Activities should be coordinated to avoid interferences ...”

Henry Gantt, the father of planning and control techniques.

The purpose of this chapter is to shed light on the 3PM processes as per PMI[®] international standards. It also defines different 3PM areas of knowledge, skills, tools, and techniques which are applied in OPM environment to meet project, program, and portfolio requirements so that to achieve the strategic objectives of land use reutilization projects.

4.1 3PM LIFE CYCLE

3PM life cycle is a collection of generally sequential and sometimes overlapping phases in each management level whose name and number are determined by the management and control needs of the organization involved in the project / program / portfolio, its nature, and its area of application. 3PM life cycle can be determined or shaped by the unique aspects of the organization. The life cycle provides the basic framework for managing the project, program, and portfolio regardless of the specific work involved and in general can be standardized as described below.

4.1.1 PROJECT LIFE CYCLE⁽¹⁾

All projects can be mapped to the following life cycle structure:

¹ Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P.15:17

- Starting the project (initiation).
- Organizing and preparing (planning).
- Carrying out the project work (execution).
- Monitoring and Controlling.
- Closing the project.

The generic life cycle structure, generally, displays the following characteristics:

- Cost and staffing levels are low at the start, peak as the work is carried out, and drop rapidly as the project draws to a close. The dashed line in (Figure 4-1) ⁽¹⁾ illustrates this typical pattern.

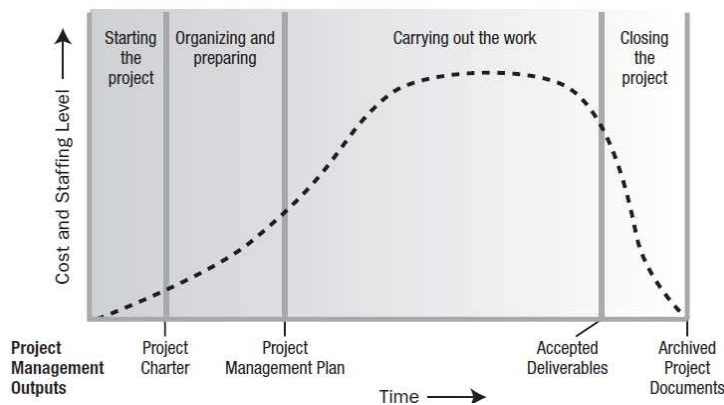


Figure (4-1) ⁽¹⁾ Typical cost and staffing levels across the project life cycle

- Stakeholder influences, risk, and uncertainty are greatest at the start of the project. These factors decrease over the life of the project – as illustrated in (Figure 4-2) ⁽²⁾ .
- Ability to influence the final characteristics of the project's product, without significantly impacting cost, is highest at the start of the project and decreases as the project progresses towards completion. (Figure 4-

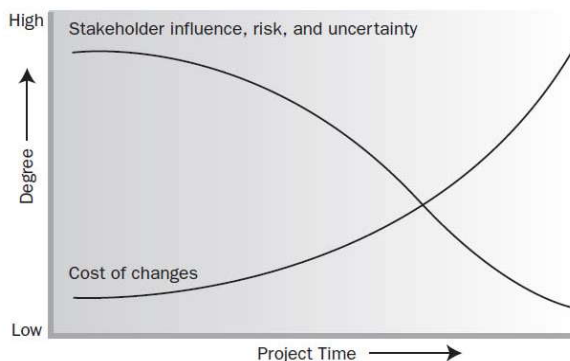


Figure (4-2) ⁽²⁾ Impact of variable base on project time

1 Ibid., p. 16

2 Ibid., p. 17

2) illustrates the idea that the cost of changes and correcting errors typically increases substantially as the project approaches completion.

4.1.2 PROGRAM LIFE CYCLE ⁽¹⁾

Programs, just as projects, have an initiation effort, a development effort, and an end. The details within those three spans are dependent on the type of program. The program begins either when funding is approved or when the program manager is assigned. The program is ended by the steering committee when all components within the program have successfully produced their deliverable, or are at the stage whereby they can deliver these benefits in the future, and they have been incorporated into the final product; and that final product is either delivered to the customer or transitioned into an operations phase. The major life cycle phases and their deliverables remain similar. Five main phases are identified in a program life cycle:

- 1- Pre-Program Preparations.
- 2- Program Initiation.
- 3- Program Setup.
- 4- Delivery of Program Benefits.
- 5- Program Closure.

4.1.3 PORTFOLIO LIFE CYCLE ⁽²⁾

Portfolio components pass through a number of steps prior to being authorized and then implemented as follows:

- 1- Identify Components.
- 2- Categorize Components.
- 3- Evaluate Components.
- 4- Select Components.
- 5- Prioritize Components.
- 6- Balance Components.
- 7- Authorize Components.

4.2 STANDARD PROJECT PROCESSES

A project process is a set of interrelated actions and activities which are performed to achieve a pre-specified product, result, or service. Project

1 Project Management Institute (2008). The standard for Program Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.17:19

2 Project Management Institute (2008). The standard for Portfolio Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.23-24

management Institute (PMI[®] – member of American National Standards Institutes “ANSI”) is defining the standard processes which are used to manage different types of projects. Within PMI’s Guide to the Project Management Body of Knowledge (PMBOK[®] Guide 4th edition – an American national standard), *42 standard project management processes* have been defined. However, the organization, within its strategic plan, should provide guidelines and criteria for tailoring the project processes to the specific needs of the project. Standard project management processes have been categorized by PMI under nine areas of management knowledge (integration, scope, time, cost, quality, human resources, communication, risk, and procurement). Each process is characterized by its inputs, the tools and techniques that can be applied, and the resulting outputs.

4.2.1 PROJECT INTEGRATION MANAGEMENT PROCESSES ⁽¹⁾

Integration management includes the processes which are needed to identify, combine, unify, and coordinate the various project management activities. Integration management includes the characteristics of unification, consolidation, articulation, and integrative actions that are crucial to project completion, successfully managing stakeholder expectations, and meeting requirements. Project integration management is involved in managing the interdependencies among different project management areas of knowledge. Integration management knowledge area includes the following six processes.

- 1. DEVELOP PROJECT CHARTER:** It is the process of developing a document that formally authorizes a project or a phase and documenting initial requirements that satisfy the stakeholders’ needs and expectations.
- 2. DEVELOP PROJECT MANAGEMENT PLAN:** It is the process of documenting the actions which are necessary to define, prepare, integrate, and coordinate all subsidiary plans.
- 3. DIRECT AND MANAGE PROJECT EXECUTION:** It is the process of performing the work which is defined in the project management plan to achieve the project’s objectives.
- 4. MONITOR AND CONTROL PROJECT WORK:** It is the process of tracking, reviewing, and regulating the progress to meet the performance objectives which are defined in the project management plan.

1 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P.71

5. PERFORM INTEGRATED CHANGE CONTROL: It is the process of reviewing change requests, approving and managing changes, organizational process assets, project documents, and project management plan.

6. CLOSE PROJECT OR PHASE: It is the process of finalizing all activities across all Project Management Process Groups to formally complete the project.

4.2.2 PROJECT SCOPE MANAGEMENT PROCESSES ⁽¹⁾

Scope management includes the processes required to ensure that the strategy plan includes all the work required, and only the work required, to complete the project successfully. Managing the project scope is concerned with defining and controlling what is and is not included in the project. Scope management area of knowledge includes the following five processes.

1. COLLECT REQUIREMENTS: It is the process of defining and documenting stakeholders' needs to meet the project objectives.

2. DEFINE SCOPE: It is the process of developing a detailed description of the project and product.

3. CREATE WORK BREAKDOWN STRUCTURE (WBS): It is the process of subdividing project deliverables and project work into smaller, more manageable components.

4. VERIFY SCOPE: It is the process of formalizing acceptance of the completed project deliverables.

5. CONTROL SCOPE: It is the process of monitoring the status of the project and product scope and managing changes to the scope baseline.

4.2.3 PROJECT TIME MANAGEMENT PROCESSES ⁽²⁾

Time management includes the processes which are required to manage timely completion of the project. The project time management processes and their associated tools and techniques are documented in the schedule management plan. The schedule management plan is contained in, or is a subsidiary plan of, the project management plan. Project time management area of knowledge includes the following six processes.

¹ Ibid., P.103

² Ibid., P.129

1. **DEFINE ACTIVITIES:** It is the process of identifying the specific actions to be performed to produce the project deliverables.
2. **SEQUENCE ACTIVITIES:** It is the process of identifying and documenting relationships among the project activities.
3. **ESTIMATE ACTIVITY RESOURCES:** It is the process of estimating the type and quantities of material, people, equipment, or supplies which are required to perform each activity.
4. **ESTIMATE ACTIVITY DURATIONS:** It is the process of approximating the number of work periods which are needed to complete individual activities with estimated resources.
5. **DEVELOPE SCHEDULE:** It is the process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule.
6. **CONTROL SCHEDULE:** It is the process of monitoring the status of the project to update project progress and managing changes to the schedule baseline.

4.2.4 PROJECT COST MANAGEMENT PROCESSES ⁽¹⁾

Cost management includes the processes which are involved in estimating, budgeting, and controlling costs so that the project can be completed within the approved budget. Cost management includes the following three processes.

1. **ESTIMATE COSTS:** It is the process of developing an approximation of the monetary resources which are needed to complete project activities.
2. **DETERMINE BUDJET:** It is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.
3. **CONTROL COSTS:** It is the process of monitoring the status of the project to update the project budget and managing changes to the cost baseline.

4.2.5 PROJECT QUALITY MANAGEMENT PROCESSES ⁽²⁾

1 Ibid., P.165

2 Ibid., P.189

Quality management includes the processes of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Quality management area of knowledge includes the following three processes.

- 1. PLAN QUALITY:** It is the process of identifying quality requirements / standards for the project, and documenting how the project will demonstrate compliance.
- 2. PERFORM QUALITY ASSURANCE:** It is the process of auditing the quality requirements and the results from quality control measurements to ensure appropriate quality standards and operational definitions are used.
- 3. PERFORM QUALITY CONTROL:** It is the process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

4.2.6 PROJECT HUMAN RESOURCES MANAGEMENT PROCESSES ⁽¹⁾

Human resources management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. While their roles and responsibilities are assigned, the involvement of all team members in project planning and decision-making can be beneficial. Human resources management area of knowledge includes the following four processes.

- 1. DEVELOP HUMAN RESOURCES PLAN:** It is the process of identifying and documenting project roles, responsibilities, and required skills, reporting relationships, and creating a staffing management plan.
- 2. ACQUIRE PROJECT TEAM:** It is the process of confirming human resource availability and obtaining the team necessary to complete project assignments.
- 3. DEVELOP PROJECT TEAM:** It is the process of improving the competencies, team interaction, and the overall team environment to enhance project performance.
- 4. MANAGE PROJECT TEAM:** It is the process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

¹ Ibid., P.215

4.2.7 PROJECT COMMUNICATION MANAGEMENT PROCESSES ⁽¹⁾

Communication management includes the processes which are required to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information. Effective communication creates a bridge between diverse stakeholders involved in a project. Communication management area of knowledge includes the following five processes.

1. **IDENTIFY STAKEHOLDERS:** It is the process of identifying all people and organizations that are impacted by the project, and documenting relevant information regarding their interests, involvement, and impact on project success.
2. **PLAN COMMUNICATIONS:** It is the process of determining the project stakeholder's information needs and defining a communication approach.
3. **DISTRIBUTE INFORMATION:** It is the process of making relevant information available to project stakeholders as planned.
4. **MANAGE STAKEHOLDER EXPECTATIONS:** It is the process of communicating and working with stakeholders to meet their needs and addressing issues as they occur.
5. **REPORT PERFORMANCE:** It is the process of collecting and distributing performance information, including status reports, progress measurements, and forecasts.

4.2.8 PROJECT RISK MANAGEMENT PROCESSES ⁽²⁾

Risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and monitoring and control on a project. The objectives of project risk management are to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project. Project risk management area of knowledge includes the following six processes.

1. **PLAN RISK MANAGEMENT:** It is the process of defining how to conduct risk management activities for a project.

1 Ibid., P.243

2 Ibid., P.273

2. IDENTIFY RISKS: It is the process of determining which risks may affect the project and documenting their characteristics.

3. PERFORM QUALITATIVE RISK ANALYSIS: It is the process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.

4. PERFORM QUANTITATIVE RISK ANALYSIS: It is the process of numerically analyzing the effect of identified risks on overall project objectives.

5. PLAN RISK RESPONSES: It is the process of developing options and actions to enhance opportunities and to reduce threats to project objectives.

6. MONITOR AND CONTROL RISKS: It is the process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

4.2.9 PROJECT PROCUREMENT MANAGEMENT PROCESSES ⁽¹⁾

Procurement management includes the processes which are necessary to purchase or acquire products, services, or results that needed from outside the project team. Procurement management area of knowledge includes the following four processes.

1. PLAN PROCUREMENTS: It is the process of documenting project purchasing decisions, specifying the approach, and identifying potential sellers.

2. CONDUCT PROCUREMENTS: It is the process of obtaining seller responses, selecting a seller, and awarding a contract.

3. ADMINISTER PROCUREMENTS: It is the process of managing procurement relationships, monitoring contract performance, and making changes and corrections as needed.

4. CLOSE PROCUREMENTS: It is the process of completing each project's procurement.

4.3 STANDARD PROGRAM PROCESSES ⁽²⁾

¹ Ibid., P.313

² Project Management Institute (2008). The standard for Program Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.35

A process is a set of interrelated actions and activities which is performed to achieve a pre-specified outcome. Each program management process is characterized by its inputs, the tools and techniques that can be applied, and the resulting outputs. The process definitions and terminology at the program level are similar to the processes at the project level. However, program management processes address issues at a higher level and involve less detailed project-level analysis. The program level seeks to resolve issues between projects, and enable a synergistic approach, so as to deliver program benefits. Similar to project management processes, program management processes require coordination with other functional groups in the organization as well as stakeholder management in general but in a broader context.

Standard program processes are categorized, by PMI, under twelve areas of management knowledge (integration, scope, time, cost, quality, human resources, communication, risk, procurement, financial, stakeholder, and governance).

4.3.1 PROGRAM INTEGRATION MANAGEMENT PROCESSES ⁽¹⁾

The Program Integration Management Knowledge Area includes the processes which are needed to identify, define, combine, unify, and coordinate multiple components within the program and coordinate various processes and program management activities within the Program Management Process Groups. Program integration management includes the following eight processes.

1. INITIATE PROGRAM: It is the starting point for a program which is, may be, nothing more than a concept and a business case. Initiating a program begins with determining the need for a program, and defining the program's expected outcomes. Initiate Program process may ends with an approved charter or the decision not to continue. Either decision is documented in the charter and stored for future reference. Considerable preliminary work must be completed before the program execution. This is because of the size, cost, duration, and inherent risks in a program. The purpose of Initiate Program is to produce the information needed to begin program planning as a basis for efficient execution and obtain the authorization for this work approval of the program charter.

2. DEVELOP PROGRAM MANAGEMENT PLAN: It is the process of consolidating and coordinating all subsidiary plans into a program management plan and updating the program roadmap. This plan will serve as the consolidated plan for executing, monitoring, and closing the program.

¹ Ibid., P.71:73

3. DEVELOP PROGRAM INFRASTRUCTURE: It is the process of identifying, assessing, and developing the infrastructure which is required to support the program.

4. DIRECT AND MANAGE PROGRAM EXECUTION: It is the process of managing the execution of the program management plan to achieve program objectives.

5. MANAGE PROGRAM RESOURCES: It is the process of tracking, assessing, and adapting to the use of resources throughout the program's life cycle.

6. MONITOR AND CONTROL PROGRAM PERFORMANCE: It is the process of monitoring and controlling the program's execution to meet performance objectives as defined in the program management plan.

7. MANAGE PROGRAM ISSUES: It is the process of addressing unplanned risks and events that may impact the program's planned directives. Issues are assessed and, if necessary, a change request is issued to address the issue or referred to the Risk Management process, for example, for further analysis and planning.

8. CLOSE PROGRAM: It is the process of finalizing all activities across all of the Program Management Process Groups to formally close the program.

4.3.2 PROGRAM SCOPE MANAGEMENT PROCESSES ⁽¹⁾

Program Scope Management identifies the deliverables, estimates the major risks, and establishes the relationship between product scope and program scope, while setting standards for clear achievable objectives. Program scope management knowledge area includes eight processes.

1. PLAN PROGRAM SCOPE: It is the process of identifying and developing activities to produce deliverables and benefits that meet the program goals and objectives.

2. DEFINE PROGRAM GOALS AND OBJECTIVES: It is the process for establishing the overall goals and objectives of the program and ultimately what is to be delivered.

3. DEVELOP PROGRAM REQUIREMENTS: It is the process for development and formal identification of the program requirements and specifications to deliver the program goals and objectives.

¹ Ibid., P.103

4. DEVELOP PROGRAM ARCHITECTURE: It is the process of defining the structure of the programs components and identifies the interrelationships between all of the program components.

5. DEVELOP PROGRAM WBS: It is the process for subdividing the program into its constituent parts (components, deliverables, and activities). It provides a deliverable orientated hierarchical decomposition of the work to be executed and accomplished by each component of the program.

6. MANAGE PROGRAM ARCHITECTURE: It is the process for managing the relationships among all of the program components to ensure the program architecture remains up to date.

7. MANAGE COMPONENT INTERFACES: It is the process for maintaining the adherence of program delivery and its constituent parts and managing interrelationships between the program components.

8. MONITOR AND CONTROL PROGRAM SCOPE: It is the process for ensuring the program's scope is controlled to meet the agreed-upon goals and realize the agreed program objectives and benefits identified in the program charter.

4.3.3 PROGRAM TIME MANAGEMENT PROCESSES ⁽¹⁾

Program Time Management involves processes for scheduling the program components which are necessary to produce the final deliverables. It includes determining the order in which the individual components are executed, the critical path for the program, the milestones to be measured to keep the overall program on track and within the defined constraints. Program time management area of knowledge includes the following two processes.

1. DEVELOP PROGRAM SCHEDULE: It is the process of defining the program components which are needed to produce the deliverables, determine the order in which the components must be executed, estimate the time which is required to accomplish each component, and identify the major program level milestones during the performance period.

2. MONITOR AND CONTROL PROGRAM SCHEDULE: It is the process of ensuring the program produces the required deliverables and solutions on time. Activities include tracking the start and finish dates as well as significant intermediate milestones against the planned timelines. Updating the schedule and reporting the impact of missed dates is part of this process.

I Ibid., P.125

4.3.4 PROGRAM COST MANAGEMENT PROCESSES ⁽¹⁾

The processes under this program management knowledge area are aligned with the project processes in project equivalent management area of knowledge (described in section 4.2.4).

4.3.5 PROGRAM QUALITY MANAGEMENT PROCESSES ⁽²⁾

The processes under this program management knowledge area are aligned with the project processes in project equivalent management area of knowledge (described in section 4.2.5).

4.3.6 PROGRAM HUMAN RESOURCES MANAGEMENT PROCESSES ⁽³⁾

The processes under this program management knowledge area are aligned with the project processes in project equivalent management area of knowledge (described in section 4.2.6).

4.3.7 PROGRAM COMMUNICATION MANAGEMENT PROCESSES ⁽⁴⁾

Program communication is the management area of knowledge that includes the processes for ensuring timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of program information. The Program Communication Management processes provide the critical links between people and information that are necessary for successful communications. Program managers can spend a significant amount of time communicating with the program team, project teams, project managers, stakeholders, customer, and sponsor. Everyone who is involved in the program should understand how communications affect the program as a whole. Managing communications on the program, both internal and external communications, is an area that cannot be underestimated or overlooked. Significant problems can occur if a sufficient effort is not committed to communications. Program communication management area of knowledge includes the following three processes.

1 Ibid., P.135

2 Ibid., P.137

3 Ibid., P.139

4 Ibid., P.141

1. PLAN COMMUNICATIONS: It is the process of determining the information and communications needs of the program stakeholders.

2. DISTRIBUTE INFORMATION: It is the process of making needed information available to program stakeholders in a timely manner.

3. REPORT PROGRAM PERFORMANCE: It is the process of collecting and distributing performance information. This includes status reporting, progress measurement, and forecasting.

4.3.8 PROGRAM RISK MANAGEMENT PROCESSES ⁽¹⁾

Program risk is an event, or series of events or conditions that, if they occur, may affect the success criteria of the program. Positive risks are often referred to as opportunities and negative risks as threats. These risks arise from the program components and their interactions with each other, from technical complexity, schedule and/or cost constraints, and with the broader environment in which the program is managed. Program risk management area of knowledge includes the following five processes.

1. PLAN PROGRAM RISK MANAGEMENT: It is the process of deciding how to approach, plan, and execute the risk management activities for a program, including risks identified in the individual program components.

2. IDENTIFY PROGRAM RISKS: It is the process of determining which risks might affect the program and documenting their characteristics.

3. ANALYZE PROGRAM RISKS: It is the process of prioritizing risks for further analysis or action by assessing and tabulating their probability of occurrence and impact, analyzing the effect on the overall program and its components, and managing interdependencies.

4. PLAN PROGRAM RISK RESPONSES: It is the process of developing options and actions to enhance opportunities, and to reduce threats to program objectives

5. MONITOR AND CONTROL PROGRAM RISKS: It is the process of tracking and monitoring identified risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout program life cycle.

¹ Ibid., P.157 - 158

4.3.9 PROGRAM PROCUREMENT MANAGEMENT PROCESSES ⁽¹⁾

The procurement process is critical in ensuring the success of a program. During this process, through careful analysis and planning, the economies of scale can be obtained in procurement for the components of the program. Additionally, careful planning and analysis ensures overall quality and integration of components and activities throughout the program. For these reasons, well-documented and designed procurement processes are required. Procurement departments within the parent organization should be involved in the very initial stages of the procurement process. For international procurements, often the organization's legal department is involved to ensure legally compliant wording is incorporated into the procurement documents and contracts. Program procurement management area of knowledge includes the following four processes.

- 1. PLAN PROGRAM PROCUREMENTS:** It is the process of determining what to procure, when and how to develop procurement strategies. This process precedes all other procurement efforts.
- 2. CONDUCT PROGRAM PROCUREMENTS:** It is the process which describes how to conduct the procurement activities of a program. It includes strategies, tools, methods, metrics gathering, reviews and update mechanisms, standard assessment parameters, and reporting requirements to be used by each component of the program in conducting the procurement activities for the program.
- 3. ADMINISTER PROGRAM PROCUREMENTS:** It is the process involved in managing the contracts during the program to ensure that the deliverables meet requirements, deadlines, cost, and quality established in the contract.
- 4. CLOSE PROGRAM PROCUREMENTS:** It is the process of formally close out each contract on the program after ensuring that all deliverables have been satisfactorily completed, all payments have been made, and there are no outstanding contractual issues.

4.3.10 PROGRAM FINANCIAL MANAGEMENT PROCESSES ⁽²⁾

Program Financial Management includes all the processes which are involved in identifying the program's financial sources and resources, integrating the budgets of the individual program components, developing the

¹ Ibid., P.185

² Ibid., P.207

overall budget for the program, and controlling costs throughout the life cycle of both the component and program. Program financial management area of knowledge includes the following five processes.

1. ESTABLISH PROGRAM FINANCIAL FRAMEWORK: It is the process of identifying the overall financial environment for the program and pinpointing the funds that are available according to identified milestones.

2. DEVELOP PROGRAM FINANCIAL PLAN: It is the process of creating the processes for developing and managing the program budget and the payment schedules to the components.

3. ESTIMATE PROGRAM COSTS: It is the process of developing the initial program cost estimates that will be presented to the decision makers for approval and further funding.

4. BUDGET PROGRAM COST: It is the process of developing the detailed budgets for the program and for the components based on the estimates provided by the components.

5. MONITOR AND CONTROL PROGRAM FINANCIALS: It is the process of influencing the factors that create cost variances, controlling those variances at the program level, and closing out the program and component finances.

4.3.11 PROGRAM STAKEHOLDER MANAGEMENT PROCESSES ⁽¹⁾

The program stakeholder management knowledge area defines program stakeholders as individuals and organizations whose interests may be affected by the program outcomes, either positively or negatively. These stakeholders play a critical role in the success of any program. Stakeholders of a program can be internal or external to the organization. Internal stakeholders cover all levels of the organization's hierarchy. Many stakeholders provide valuable inputs and also have the ability to influence programs, they can either help or hinder depending on the perceived benefits or threats. The program manager must understand the stakeholders and the way they may exert their influence, and their source of power. Program stakeholder management area of knowledge includes the following four processes.

1. PLAN PROGRAM STAKEHOLDER MANAGEMENT: It is the process to plan how stakeholders will be identified, analyzed, engaged, and managed throughout the life of the program.

I Ibid., P.227-228

2. IDENTIFY PROGRAM STAKEHOLDERS: It is the process of addressing the systematic identification and analysis of program stakeholders and creates the stakeholder register.

3. ENGAGE PROGRAM STAKEHOLDERS: It is the process of engaging program stakeholders where the management team ensures that stakeholders are involved in the program.

4. MANAGE PROGRAM STAKEHOLDER EXPECTATIONS: It is the process of managing communications to satisfy the requirements of, and resolve issues with, program stakeholders.

4.3.12 PROGRAM GOVERNANCE ⁽¹⁾

Program Governance ensures decision-making and delivery management activities are focused on achieving program goals in a consistent manner, addressing appropriate risks, and fulfilling stakeholder requirements. Program governance management area of knowledge includes eight processes.

1. PLAN AND ESTABLISH PROGRAM GOVERNANCE STRUCTURE It is the process of identifying governance goals and defining the governance structure, roles, and responsibilities.

2. PLAN FOR AUDIT: It is the process of ensuring the program is prepared for both external and internal audits of program finances, processes, documents, and demonstrates compliance with organizational program management processes.

3. PLAN PROGRAM QUALITY: It is the process of identifying quality standards applicable to the program, the processes, and the standards to be applied, and ensuring compliance to these standards.

4. APPROVE COMPONENT INITIATION: It is the process of defining the decision-making structures and processes, enabling initiating and changing the program and/or components within the program.

5. PROVIDE GOVERNANCE OVERSIGHT: It is the process of providing governance and audit ability throughout the course of the program.

¹ Ibid., P.243

6. MANAGE PROGRAM BENEFITS: It is the process of ensuring governance of expected program benefits is delivered consistently throughout the program life cycle.

7. MONITOR AND CONTROL PROGRAM CHANGE: It is the process of ensuring the appropriate level of governance is applied to decision making of proposed changes to the program plan.

8. APPROVE COMPONENT TRANSITION: It is the process of ensuring transition of knowledge, responsibilities, and benefit realization from the program to ongoing operations.

4.4 STANDARD PORTFOLIO PROCESSES

PMI, within its standard for portfolio management, has defined 14 standard portfolio management processes, they are categorized under two process groups (aligning process group and monitoring & controlling process group) and two areas of management knowledge (portfolio governance and portfolio risk management). However, the organization within its strategic plan should provide guidelines and criteria for tailoring the portfolio processes to the specific needs of its portfolio. The fourteen standard processes can be described under the two portfolio area of knowledge as followings.

4.4.1 PORTFOLIO GOVERNANCE ⁽¹⁾

Governance processes ensure that investment decisions are taken to identify opportunities, to select activities to fund, and to achieve performance targets. Portfolio governance management area of knowledge includes the following ten processes.

1. IDENTIFY COMPONENTS: It is the process of creating an up-to-date list of qualified components that will be managed through portfolio management

2. CATEGORIZE COMPONENTS: It is the process of organizing components into relevant business groups to which a common set of decision filters and criteria can be applied for evaluation, selection, prioritization, and balancing.

3. EVALUATE COMPONENTS: It is the process of gathering information for the review of portfolio components in preparation for the selection process.

¹ Project Management Institute (2008). The standard for Portfolio Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.47 - 48

4. SELECT COMPONENTS: It is the process of developing a subset of the organization's components based on the organization's selection criteria that will be considered for further prioritization.

5. PRIORITIZE COMPONENTS: It is the process of ranking components within categories according to established criteria for balancing the portfolio.

6. BALANCE PORTFOLIO: It is the process of creating the component mix with the greatest potential to collectively support the organization's strategic initiatives and achieve strategic objectives.

7. COMMUNICATE PORTFOLIO ADJUSTMENT: It is the process of setting stakeholder expectations and providing a clear understanding of the impact of changes on the organization's portfolio performance goals and business strategies.

8. AUTHORIZE COMPONENTS: It is the process of allocating resources required to develop business cases or execute selected components and to formally communicate portfolio-balancing decisions.

9. REVIEW AND REPORT PORTFOLIO PERFORMANCE: It is the process of gathering and reporting performance indicators against established criteria for success and reviewing the portfolio at an appropriate predetermined frequency to ensure alignment both with the organizational strategy and effective resource utilization.

10. MONITOR BUSINESS STRATEGY CHANGES: It is the process of maintaining an awareness of changes in the business strategy to enable the portfolio management process to respond accordingly.

4.4.2 PORTFOLIO RISK MANAGEMENT ⁽¹⁾

Portfolio risk is an uncertain event, set of events, or conditions that if they occur, have one or more effects, either positive or negative, on at least one strategic business objective of the portfolio. A risk may have one or more causes and, if it occurs, the corresponding effects have an impact on one or more portfolio success criteria. The objectives of Portfolio Risk Management are to increase the probability and impact of positive events and to decrease the probability and impact of events adverse to the portfolio. Portfolio Risk Management includes the processes concerned with conducting risk identification, analysis, response development, as well as monitoring and

¹ Ibid., P.85

control of the risks. These processes are carried out as an integral part of the overall portfolio management life cycle. Portfolio risk management area of knowledge includes the following four processes.

- 1. IDENTIFY PORTFOLIO RISKS:** It is the process of determining which risks might affect the portfolio and documenting their characteristics.
- 2. ANALYZE PORTFOLIO RISKS:** It is the process of assessing and combining the probability of occurrence and impact of identified risks, numerically analyzing the overall effect of selected risks on the portfolio, and prioritizing risks for subsequent further analysis or action.
- 3. DEVELOP PORTFOLIO RISK RESPONSES:** It is the process of developing options and actions to enhance opportunities and to reduce threats to portfolio objectives
- 4. MONITOR AND CONTROL PORTFOLIO RISKS:** It is the process of tracking identified risks, monitoring residual risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout the portfolio life cycle.

4.5 3PM MANAGEMENT TOOLS AND TECHNIQUES

3PM management tools and techniques are management aids used for running 3PM processes. Although many management tools and techniques are commonly used in running many processes within different management areas of knowledge, however they could generally categorized under management areas of knowledge as following.

4.5.1 INTEGRATION MANAGEMENT MAIN TOOLS AND TECHNIQUES ⁽¹⁾

1- EXPERT JUDGMENT: It is an expertise based on knowledge and experience in the management area, such judgment is provided by any group or individual with specialized knowledge, education, skills, experience or training, and is available from many sources, including project management experts, consultants, stakeholders, professional & technical associations, governmental and nongovernmental organizations, subject matter experts, and others.

2- PROGRAM / PROJECT MANAGEMENT INFORMATION SYSTEM: It provides access

¹ Project Management Institute (2008). The standard for Program Management. Second Edition. [\(Project Management Institute, Pennsylvania, USA\)](#), P.77, 82, 85, 90

to an automated tool, such as a scheduling software tool, a configuration management system, an information collection and distribution system, or web interfaces to other online automated systems used during the direct and manage program / project executions effort.

3- FEASIBILITY STUDIES: Consulting the business case, the strategic directive, organizational goals, and other existing initiatives, it assesses and recommends the feasibility of creating a program to achieve the desired objectives. An analysis of the strengths, weaknesses, opportunities and threats (SWOT) of the endeavor provides information for developing a viable program charter.

4- COST / BENEFIT ANALYSES: It seeks to define the benefits that will be provided by the program and compare it to the costs of the program. Benefits may be financial, such as increased profits, but may also be non-financial such as increased market share or a new capability. The cost/benefit analysis should be tracked and re-evaluated as required during the program, as the program changes or as the financial or competitive environment changes.

5- PROGRAM ROADMAP: It is a chronological representation of a program's intended direction. It depicts key dependencies between major milestones, communicates the linkage between the business strategy and the planned and prioritized work, reveals and explains gaps, and provides a high level view of key milestones and decision points. The program roadmap summarizes key end-point objectives, key challenges and risks, comments on evolving aspects. A program roadmap communicates, in a chronological fashion, the high-level overall scope and execution of the program. It accomplishes this by building a bridge between program activities and expected benefits.

6- REVIEW MEETINGS: They could be performed on different 3PM levels. They are typically held with executive management to discuss individual project reports with project managers in attendance. These meetings keep program managers and executives informed of the program's / projects' progress.

7- DECISION LOGS: The decision logs should be kept, which documents all major decisions made in managing the program including the background information supporting the decision. Decision logs are significant especially in long-term programs where it may be necessary to look up, sometimes years later, why a particular technical or management decision was made.

8- IMPACT ANALYSIS: Change requests received from program components must be analyzed to determine impacts on scope, schedule, cost, risk, and other considerations, both to the overall program and to program components.

4.5.2 SCOPE MANAGEMENT MAIN TOOLS AND TECHNIQUES ⁽¹⁾

1- FACILITATED WORKSHOPS: They are focused sessions that bring key cross-functional stakeholders together to define product requirements. Workshops are considered a primary technique for quickly defining cross-functional requirements and reconciling stakeholder differences.

2- DECOMPOSITION: It is the subdivision of project deliverables into smaller, more manageable components until the lowest level in the WBS (work package level), and is the point at which the cost and activity duration for the work can be reliably estimated and managed. Decomposition of the total project work into work packages generally involves the following activities:

- Identifying and analyzing the deliverables and related work.
- Structuring and organizing the WBS.
- Decomposing the upper WBS levels into lower level detailed components.
- Developing and assigning identification codes to the WBS components.
- Verifying that the degree of decomposition of the work is sufficient.

A portion of sample WBS with some branches of the WBS decomposed down through the work package level shown in figure (4-3).

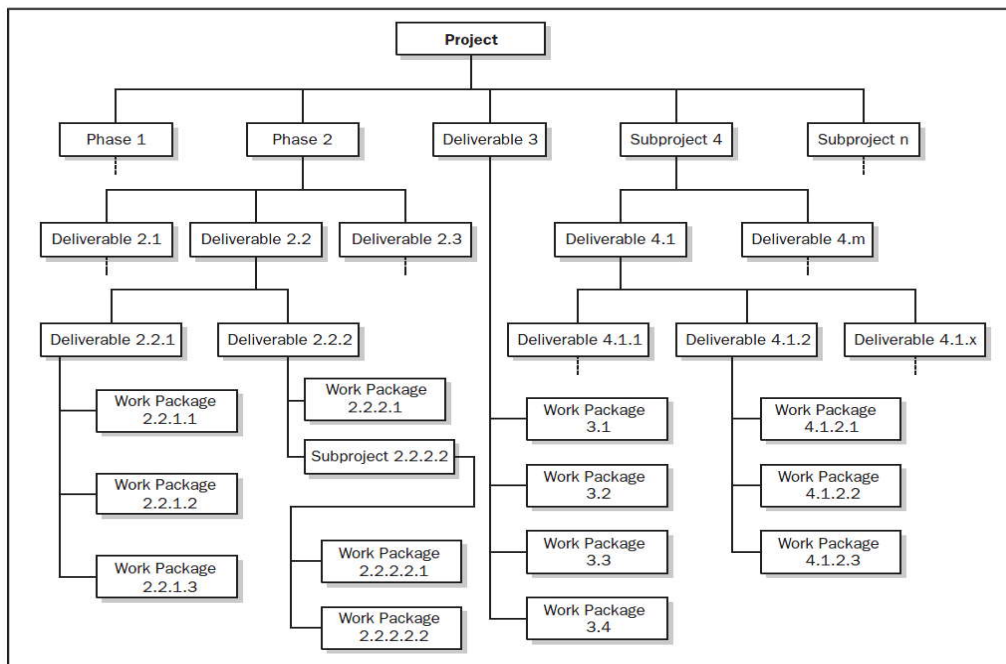


Figure (4-3) ⁽²⁾ A sample of Work Breakdown Structure

1 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P.107, 108, 109 ,118, 124, 127

2 Ibid., 119

3- QUESTIONNAIRES AND SURVEYS: They are written sets of questions designed to quickly accumulate information from a wide number of respondents. Questionnaires and/or surveys are most appropriate with broad audiences, when quick turnaround is needed, and where statistical analysis is appropriate.

4- GROUP CREATIVITY TECHNIQUES: several group activities can be organized to identify project and product requirements. Some of the group creativity techniques that can be used are:

- **Brainstorming:** A technique used to generate and collect multiple ideas related to project and product requirements.
- **Nominal group technique:** It enhances brainstorming with a voting process used to rank the most useful ideas for further brainstorming.
- **The Delphi technique:** A selected group of experts answers questionnaires and provides feedback regarding the responses from each round of requirements gathering. The responses are only available to the facilitator to maintain anonymity.
- **Idea / Mind mapping:** Ideas created through individual brainstorming are consolidated into a single map to reflect commonality and differences in understanding, and generate new ideas.
- **Affinity diagram:** This technique allows large numbers of ideas to be sorted into groups for review and analysis.

5- INSPECTION: It includes activities such as measuring, examining, and verifying to determine whether work and deliverables meet requirements and product acceptance criteria. Inspection is sometimes called reviews, audits, and walkthroughs.

6- PROTOTYPES: Prototyping is a method of obtaining early feedback on requirements by providing a working model of the expected product before actually building it. The requirements obtained from the prototype are sufficiently complete to move to a design or build phase.

7- VARIANCE ANALYSIS: Performance measurements are used to assess the magnitude of variation from the original scope baseline. Important aspects of project / program scope control include determining the cause and degree of variances relative to the scope baseline and deciding whether corrective or preventive action is required.

4.5.3 TIME MANAGEMENT MAIN TOOLS ⁽¹⁾

¹ Ibid., P.135:144 and 149:156

1- ROLLING WAVE PLANNING: It is a form of progressive elaboration planning where the work to be accomplished in the near term is planned in detail and future work is planned at a higher level of the WBS. Therefore, work can exist at various levels of detail depending on where it is the project life cycle.

2- BOTTOM-UP ESTIMATING: When an activity cannot be estimated with a reasonable degree of confidence, the work within the activity is decomposed into more detail. The resource needs are estimated. These estimates are then aggregated into a total quantity for each of the activity's resources.

3- ANALOGOUS ESTIMATING: It uses parameters such as scope, cost, duration, budget, size, and complexity, from a previous, similar project, as the basis for estimating the same parameter or measure for a future project.

4- WHAT-IF SCENARIO ANALYSIS: This is an analysis of the question "what if the situation represented by scenario 'X' happens?" A schedule network analysis is performed using the schedule to compute the different scenarios. The outcome of the what-if scenario analysis can be used to assess the feasibility of the project schedule under adverse conditions, and in preparing contingency and response plans to overcome or mitigate the impact of unexpected situations.

5- CRITICAL PATH METHOD: It calculates the theoretical early start and finish dates, and late start and finish dates, for all activities without regard for any resource limitations, by performing a forward and backward pass analysis through the schedule network. The schedule flexibility is measured by the positive difference between early and late dates, and is termed "total float". Critical paths have either a zero or negative total float, and schedule activities on a critical path are called "critical activities". Adjustments to activity durations, logical relationships, leads and lags, or other schedule constraints may be necessary to modify the network critical paths.

6- PRECEDENCE DIAGRAMMING METHOD (PDM): PDM is a method used in critical path methodology (CPM) for constructing a project schedule network diagram that uses nodes to present activities and connects them with arrows that show the logical relationships that exist between them. Figure (4-4) ⁽¹⁾ shows a simple schedule network diagram drawn using PDM which includes four types of independencies of activities logical relationships: Finish-to-Start (FS), Finish-to-Finish (FF), Start-to-Start (SS), Start-to-Finish (SF).

I Ibid., P.138

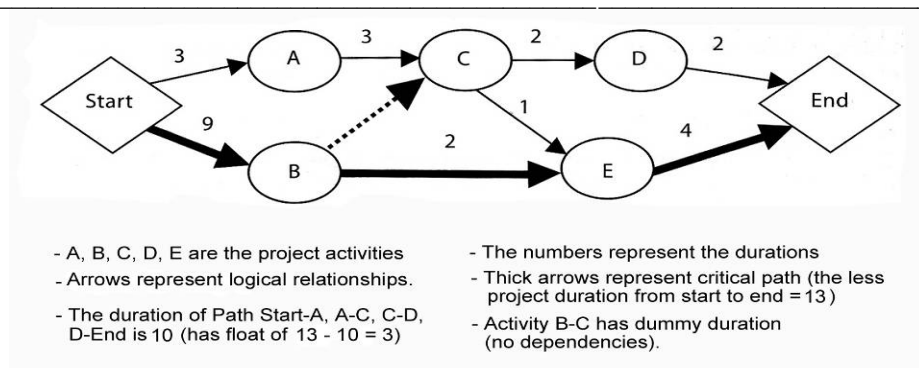


Figure (4-4)⁽²⁾ The Precedence Diagramming Method

7- DEPENDENCY DETERMINATION⁽¹⁾: Three types of dependencies are used to define the sequence among the activities:

- **Mandatory dependencies (hard logic):** inherent in the nature of the work being done.
- **Discretionary dependencies (soft logic):** optional way to set dependencies
- **External dependencies:** Based on the needs come from outside parties.

8- APPLYING LEADS AND LAGS: The dependencies that may require a lead or a lag are determined to accurately define the logical relationship.

A lead may be added to start an activity before the predecessor activity is completed. A lag is inserted waiting time between activities.

9- SCHEDULE NETWORK TEMPLETES: Standardized schedule network diagram templates can be used to expedite the preparation of networks of project activity.

10- SCHEDULE COMPRESSION: It shortens the project schedule without changing the project scope, to meet schedule constraints, imposed dates, or other schedule objectives. Schedule compression techniques include:

- **Crashing:** A schedule compression technique in which cost and schedule tradeoffs are analyzed to determine how to obtain the greatest amount of compression for the least incremental cost. Crashing may include bringing in additional resources, or paying to expedite activities on the critical path. Crashing may result in increased risk and/or cost.
- **Fast tracking:** A schedule compression techniques in which phases or activities normally performed in sequence are performed in parallel. Fast tracking may result in rework and increased risk. Fast tracking only works if activities can be overlapped to shorten the duration.

¹ Ibid., P.156, 157

² Ibid., P. 139

11- SCHEDULING TOOL: Automated scheduling tools expedite the scheduling process by generating start and finish dates based on the inputs of activities, network diagrams, resources and activity durations. A scheduling tool can be used in conjunction with other project management software applications as well as manual methods.

12- RESOURCE LEVELING: Resource leveling is a schedule network analysis technique applied to a schedule that has already been analyzed by the critical path method. Resource leveling can be used when shared or critical required resources are only available at certain times and in limited quantities. Resource leveling can often cause the original critical path to change.

13- CRITICAL CHAIN METHOD: Critical chain is a schedule network analysis technique that modifies the project schedule to account for limited resources. Initially, the project schedule network diagram is built using duration estimates with required dependencies and defined constraints as inputs. The critical path is then calculated and identified then the resource availability is entered and the resource limited schedule result is determined. The resulting schedule often has an altered critical path. The resource-constrained critical path is known as the critical chain. The critical chain adds duration buffers that are non-work schedule activities to manage uncertainty and to protect the target finish date from slippage along the critical chain.

14- THREE-POINT ESTIMATES: the accuracy of activity duration estimates can be improved by considering estimation uncertainty and risk. This concept originated with the Program Evaluation and Review Technique (PERT). PERT uses three estimates to define an approximate range for an activity's duration:

- **Most Likely (C_M).** The activity duration, given the resources likely to be assigned, their productivity, realistic expectations of availability for the activity, dependencies on other participants, and interruptions.
- **Optimistic (C_O).** The activity duration is based on analysis of the best-case scenario for the activity.
- **Optimistic (C_P).** The activity duration is based on analysis of the worst-case scenario for the activity.

PERT analysis calculates an expected (C_E) activity duration using a weighted average of these three estimates: $C_E = (C_O + 4 C_M + C_P) / 6$

Duration estimates based on this equation may provide more accuracy.

4.5.4 COST MANAGEMENT MAIN TOOLS ⁽¹⁾

¹ Ibid., P.173, 177, 178

1- COST AGGREGATION: Cost estimates are aggregated by work packages in accordance with the WBS. The work package cost estimates are then aggregated for the higher component levels of WBS.

2- RESERVE ANALYSIS: Budget reserve analysis can establish both the contingency reserves and the management reserves for the project. Contingency reserves are allowances for unplanned but potentially required changes that can result from realized risks identified in the risk register. Management reserves are budgets reserved for unplanned changes to project scope and cost.

3- VENDOR BID ANALYSIS: Cost estimating methods may include analysis of what the project should cost, based on the responsive bids from the vendors.

4- COST OF QUALITY (COQ): It includes all costs incurred over the life of the product by investment in preventing nonconformance to requirements, appraising the product or service for conformance to requirements, and failing to meet requirements.

5- FUNDING LIMIT RECONCILIATION: The expenditure of funds should be reconciled with any funding limits on the commitment of funds for the project. A variance between the funding limits and the planned expenditures may necessitate the rescheduling of work to level out the rate of expenditures.

6. EARNED VALUE MANAGEMENT ⁽¹⁾: Earned value management (EVM) in its various forms is a commonly used method of performance measurement. It integrates project scope, cost, and schedule measures to help assessing and measuring project performance and progress. EVM develops and monitors three key dimensions for each work package and control account:

Planned value (PV) is the authorized budget (planned budget) assigned to the work to be accomplished for an activity or work breakdown structure component.

Earned value (EV) is the value of work performed expressed in terms of the approved budget assigned to that work for an activity or work breakdown structure component.

Actual cost (AC) is the total cost actually incurred and recorded in accomplishing work performed for an activity or WBS component.

Efficiency indicators reflect the cost and schedule performance of any project for comparison against all other projects or within a portfolio of projects could be defined as followings:

¹ Project Management Institute (2005). Practice standard for Earned value Management. (Project Management Institute, Pennsylvania, USA)., P.7, 8, 17, 19

Schedule Performance Index (SPI) is a measure of progress achieved compared to progress planned on a project. The SPI is equal to the ratio of the EV to the PV ($SPI = EV/PV$). An SPI value less than 1.0 indicates less work was completed than was planned; SPI greater than 1.0 indicates that more work was completed than was planned.

Cost Performance Index (CPI) is a measure of the value of work completed compared to the actual cost or progress made on the project. The CPI is equal to the ratio of the EV to the AC ($CPI = EV/AC$). A CPI value less than 1.0 indicates a cost overrun for work completed; CPI value greater than 1.0 indicates a cost under run of performance to date.

4.5.5 QUALITY MANAGEMENT MAIN TOOLS ⁽¹⁾

1- BENCHMARKING: It involves comparing actual or planned project practices to those of comparable projects to identify best practices, generate ideas for improvement, and provide a basis for measuring performance.

2- CONTROL CHARTS: They are used to determine

whether or not a process is stable or has predictable performance upper and lower specification limits are based on requirements of the contract. They reflect the maximum and minimum values allowed. For repetitive processes, the control limits are generally ($\pm 3\sigma$) a process is considered out of

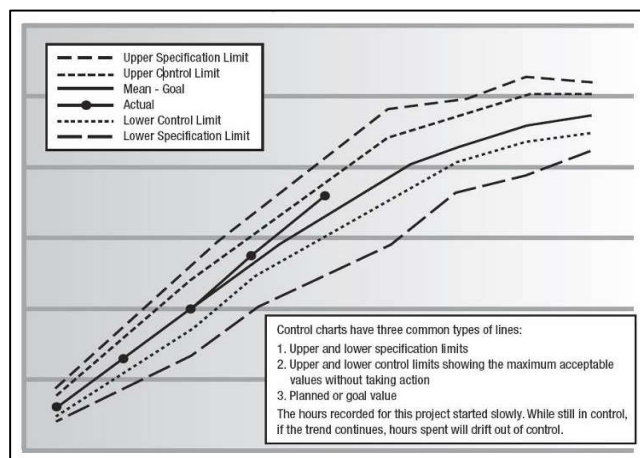


Figure (4-5) ⁽²⁾ A sample of Control Chart

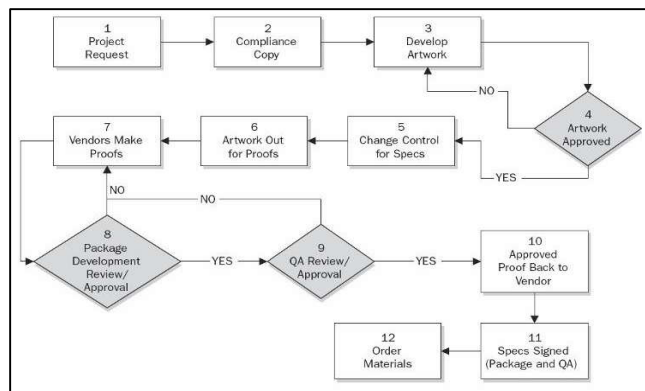


Figure (4-6) ⁽³⁾ A sample of Flowchart diagram

1 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P.196:198 and 204:213

2 Ibid., P. 196

3 Ibid., P. 199

control when a data point exceeds control limits or if seven consecutive points are above or below the main - (figure 4-5) ⁽¹⁾ shows a sample of control charts.

3- FLOWCHARTING: It is a graphical representation of a process showing the relationships among process steps. There are many styles, but all process flowcharts show activities, decision point, and the order of processing. During quality planning, flowcharting can help in anticipating quality problems that might occur - (figure 4-6) shows a sample of Flowchart diagram.

4- DESIGN OF EXPERIMENTS: Design of experiments (DOE) is a statistical method for identifying which factors may influence specific variables of a product or process under development or in production. DOE should be used during the plan quality process to determine the number and type of tests and their impact on cost of quality.

5- QUALITY AUDITS: It is a structured, independent review whether project activities comply with organizational and project policies, processes, and procedures. Quality audits can confirm the implementation of approved change requests including corrective action, defect repairs, and preventive action.

6- HISTOGRAM: It is a vertical bar chart showing how often a particular variable state occurred. Each column represents an attribute or characteristic of a problem/situation. The height of each column represents the relative frequency of the characteristic - (figure 4-7) shows a sample of Histogram.

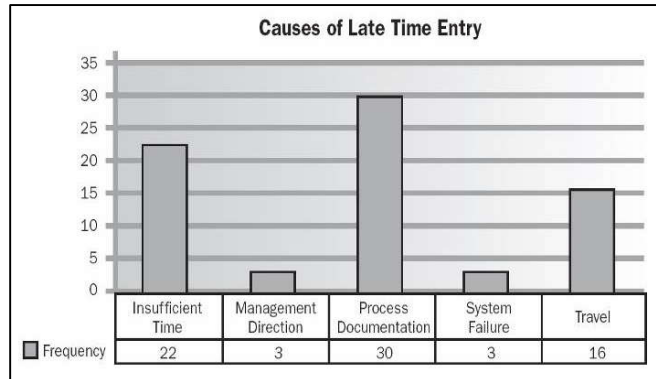


Figure (4-7) ⁽²⁾ A sample of Histogram

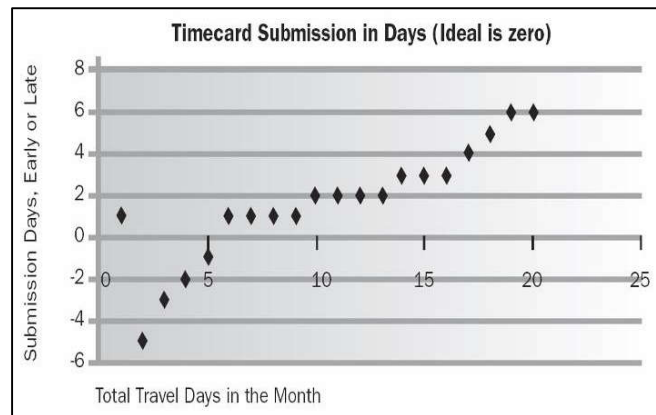


Figure (4-8) ⁽³⁾ A sample of Scatter Diagram

¹ Ibid., 196

² Ibid., P. 210

³ Ibid., P. 212

7- PARETO CHART: It is a specific type of histogram, ordered by frequency of occurrence. It shows how many defects were generated by type or category of identified cause.

8- SCATTER DIAGRAM:

It shows the relationship between two variables (figure 4-8). This tool allows the quality team to study and identify the possible relationship between changes observed in two variables. Dependent variables versus independent variables are plotted. The closer the points are to a diagonal line, the more closely they are related.

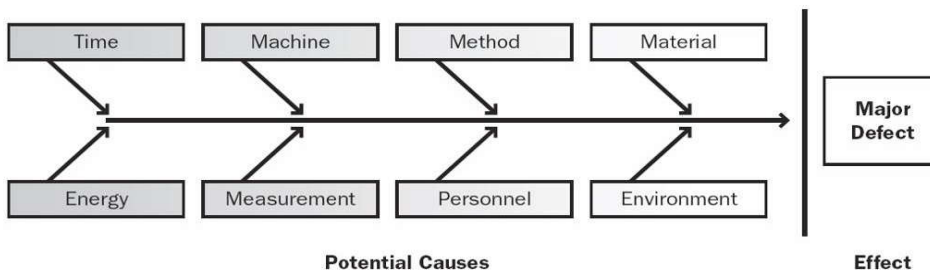


Figure (4-9) (2) A sample of cause and effect diagram

9- CAUSE AND EFFECT DIAGRAMS: It also called diagrams or fishbone diagrams, illustrate how various factors might be linked to potential problems or effects - Figures (4-9) shows sample cause and effect diagram.

4.5.6 HUMAN RESOURCES MANAGEMENT MAIN TOOLS (1)

1- ORGANIZATION CHARTS AND POSITION DESCRIPTIONS: Various formats exist to document team member roles and responsibilities. Most of the formats fall

RACI Chart	Person				
	Project Manager	Urban Planner	Architect	Economic Expert	Traffic Expert
Define	A	R	I	I	I
Design	I	A	R	C	C
Develop	I	A	R	C	C
Test	A	I	I	R	I

R = Responsible A = Accountable C = Consult I = Inform

Figure (4-10) (3) A sample of Responsibility Assignment Matrix (RAM)

1 Ibid., P.221, 222, 228, 232, 233, 234, 240

2 Ibid., P. 209

3 Ibid., P. 221

into one of three types (figure9-4): hierarchical, matrix, and text-oriented. The objective is to ensure that each work package has an unambiguous owner and that all team members have a clear understanding of their roles and responsibilities - Figures (4-10) shows Responsibility Assignment Matrix (RAM) using a RACI format.

2- NETWORKING: It is the formal and informal interaction with others in an organization, industry, or professional environment. it is a constructive way to understand political and interpersonal factors that will impact the effectiveness of various staffing management options.

3- ORGANIZATIONAL THEORY: It provides information regarding the way in which people, teams, and organizational units behave. Effective use of this information can shorten the amount of time, cost, and effort needed to create the human resource planning outputs and improve the likelihood that the planning will be effective.

4- VIRTUAL TEAMS: It can be defined as groups of people with a shared goal who fulfill their roles with little or no time spent meeting face to face. The availability of electronic communication such as e-mail, audio, conferencing, web-based meetings and video conferencing has made such teams feasible.

5- TRAINING: It includes all activities designed to enhance the competencies of the project team members such as classrooms, e-learning, training, and courses. If project team members lack necessary management or technical skills, such skills can be developed as part of the project work. Scheduled training takes place as stated in the human resource plan. Unplanned training takes place as a result of observation, conversation, and project performance appraisals conducted during the controlling process of managing the project team.

6- TEAM-BUILDING ACTIVITIES: Its objective is to help individual team members work together effectively. Informal communication can help in building trust and establishing good working relationship. One of the important activities should be taken place during building the team is developing. One theory states that there are five stages of development that teams may go through.

- **Forming.** This phase is where the team meets and learns about the project and what their formal roles and responsibilities are.
- **Storming.** During this phase, the team begins to address the project work, technical decisions, and the project management approach.
- **Norming.** In this phase, team members begin to work together and adjust work habits and behaviors that support the team. The team begins to trust each other.

- **Performing.** Teams that reach this stage function as a well-organized unit. They are interdependent and work through issues smoothly and effectively.
- **Adjourning.** In this phase, the team completes the work and moves on from the project.

Duration of each stage depends upon team dynamics, size, and team leadership.

7- GROUND RULES: It establishes clear expectations regarding acceptable behavior by project team members.

8. CO-LOCATION: It involves placing many or all of the most active project team members in the same physical location to enhance their ability to perform as a team.

9- CONFLICT MANAGEMENT: Conflict inevitable in a project environment. Sources of conflict include scarce resources, scheduling priorities, and personal work styles. Team ground rules, group norms, and solid management practices like communication planning and role definition, reduce the amount of conflict. There are six general techniques for resolving conflict .as each one has its place and use, there are not given in any particular order.

- **Withdrawing /avoiding.** Retreating from an actual or potential conflict situation.
- **Smoothing/accommodating.** Emphasizing areas of agreement rather than area of difference.
- **Compromising.** Searching for solutions that bring some degree of satisfaction to all parties.
- **Forcing.** Pushing one's viewpoint at the expense of others, offers only win-lose solutions.
- **Collaborating.** Incorporating multiple viewpoint and insights from differing perspectives; leads to consensus and commitment.
- **Confronting/problem solving.** Treating conflict as a problem to be solved by examining alternatives and open dialogue.

4.5.7 COMMUNICATION MANAGEMENT MAIN TOOLS ⁽¹⁾

1- COMMUNICATION TECHNOLOGY: The methods use to transfer information among project stakeholder can vary significantly. Many technologies could be

¹ Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P.221, 222, 228, 232, 233, 234, 240

used from brief conversation all the way through to extended meetings, or from simple written documents to material (e.g., schedules and databases).

2- COMMUNICATION METHODS: There is several communication methods used to share information among project stakeholders. These methods can be broadly classified into:

- **Interactive communication.** Between two or more parties performing a multidirectional exchange of information.
- **Push communication.** Sent to specific recipients who need to know the information. Push communication includes letters, memos, repots, emails, faxes, voice mails, press releases etc.
- **Pull communication.** Used for very large volumes of information, or for very large audiences. These methods include intranet sites, e-learning, and knowledge repositories, etc.

3- COMMUNICATION MODELS: A basic model of communication, shown in figure (4-11), demonstrates how information is sent and received between two parties, defined as the sender and the receiver.

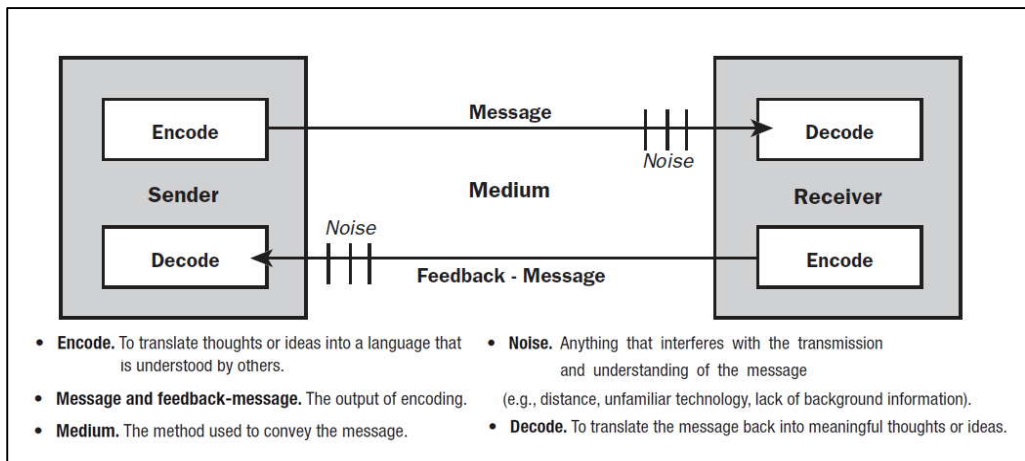


Figure (4-11) ⁽²⁾ Basic communication model

4- REPORTING SYSTEMS: It provides a standard tool to capture, store, and distribute information to stakeholders about the project cost, schedule progress, and performance.

4.5.8 RISK MANAGEMENT MAIN TOOLS ⁽¹⁾

1 Project Management Institute (2009). Practice Standard for Project Risk Management. (Project Management Institute, Pennsylvania, USA), P.28, 34, 35, 46, 47

2 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P. 255

1- SWOT ANALYSIS: This technique examines the project from each of the SWOT (strengths, weaknesses, opportunities, and threats) perspectives to increase the breadth of identified risks by including internally generated risks. SWOT analysis also examines the degree to which organizational strengths offset threats and opportunities that may serve to overcome weaknesses.

2- RISK PROBABILITY AND IMPACT ASSESSMENT: It investigates the likelihood that each specific risk will occur. Risk impact assessment investigates the potential effect on a project objective such as schedule, cost, quality, or performance, including both negative effects for threats and positive effects for opportunities.

3- PROBABILITY AND IMPACT MATRIX: Risks can be prioritized for further quantitative analysis and response based on their risk rating.

Risk-rating rules can be tailored to the specific project in the Plan Risk Management process . Evaluation of each risk’s importance is typically conducted using a probability and impact matrix – figure (4-12) ⁽¹⁾

Probability	Threats					Opportunities				
0.90	0.05	0.09	0.18	0.36	0.72	0.72	0.36	0.18	0.09	0.05
0.70	0.04	0.07	0.14	0.28	0.56	0.56	0.28	0.14	0.07	0.04
0.50	0.03	0.05	0.10	0.20	0.40	0.40	0.20	0.10	0.05	0.03
0.30	0.02	0.03	0.06	0.12	0.24	0.24	0.12	0.06	0.03	0.02
0.10	0.01	0.01	0.02	0.04	0.08	0.08	0.04	0.02	0.01	0.01
	0.05	0.10	0.20	0.40	0.80	0.80	0.40	0.20	0.10	0.05

Impact (numerical scale) on an objective (e.g., cost, time, scope or quality)

Each risk is rated on its probability of occurring and impact on an objective if it does occur. The organization’s thresholds for low, moderate or high risks are shown in the matrix and determine whether the risk is scored as high, moderate or low for that objective.

Figure (4-12) ⁽¹⁾ A sample of probability and impact matrix

4- RISK CATEGORIZATION: Risks to the project be categorized by sources of risk, the area of the project affected, or other useful category. Grouping risks by Common root causes can lead to developing effective risk responses.

5- STRATEGIES FOR NEGATIVE RISKS OR THREATS:

- **Risk avoidance.** Involves changing the project management plan to eliminate the threats entirely.
- **Risk transfer.** Requires shifting some or all of the negative impact of a threat, along with ownership of the response, to a third party.

¹ Ibid., P. 292

- **Risk mitigation.** Implies a reduction in the probability and / or impact of an adverse risk event to be within acceptable threshold limits.
- **Risk acceptance.** Is to accept some threats (negative risks) and decide not to change the project management plan to deal with these threats.

6- STRATEGIES FOR POSITIVE RISKS OR OPPORTUNITIES:

- **Risk exploiting.** Seeks to eliminate the uncertainty associated with a particular upside risk by ensuring the opportunity definitely happens.
- **Risk sharing.** Involves allocating some or all of the ownership of the opportunity to a third party who is best able to capture the opportunity for the benefit of the project.
- **Risk enhancing.** Used to increase the probability and / or the positive impacts of an opportunity by identifying and maximizing key drivers of these positive-impact risks.
- **Risk acceptance.** Accepting an opportunity is being willing to take advantage of it if it comes along, but not actively pursuing it.

7- RISK REASSESSMENT: Should be regularly scheduled as a result of monitoring and controlling risks which lead to identifying any new risks and to reassess it.

8- RISK AUDITS: Examine and document the effectiveness of risk responses in dealing with identified risks and their root causes, as well as the effectiveness of the risk management process.

4.5.9 PROCUREMENT MANAGEMENT MAIN TOOLS ⁽¹⁾

1- MAKE-OR-BUY ANALYSIS: It is a general management technique used to determine whether particular work can best be accomplished by the project team or must be purchased from outside sources.

2- CONTRACT TYPES: The risk shared between the buyer and seller is determined by the contract type.

- **Fixed price contracts.** Involves setting a fixed total price for a defined product or service to be provided. It may also incorporate financial incentives for achieving or exceeding selected project objectives.
- **Firm Fixed price Contracts (FFP).** The most commonly used contract type. It is favored by most buying organizations because the price is

¹ Project Management Institute (2009). Practice standard for Project Risk Management. (Project Management Institute, Pennsylvania, USA), P.321, 322, 233, 331, 338

fixed and not subject to change unless the scope of work changes.

- **Fixed Price Incentive Fee Contracts (FPIF).** It gives the buyer and seller some flexibility in that it allows for deviation from performance, with financial incentives tied to achievements related to cost, schedule, or technical performance of the seller.
- **Fixed Price with Economic Price Adjustment Contracts (FP-EPA).** It is used whenever the seller's performance period spans a considerable period of years (long-term relationship), it is fixed-price contract, but with a special provision allowing for pre-defined final adjustments to the contract price due to changed conditions, such as inflation changes, or cost increase (or decreases) for specific commodities.
- **Cost-reimbursable contracts.** This category of contract involves payments (cost reimbursements) to the seller for all legitimate actual costs incurred for completed work, plus a fee representing seller profit.
- **Cost Plus Fixed Fee Contracts (CPFF).** The seller is reimbursed for all allowable costs for performing the contract work, and receives a fixed fee payment calculated as a percentage of the initial estimated project costs.
 - **Cost Plus Incentive Fee Contracts (CPIF).** The seller is reimbursed for all allowable costs for performing the contract work and receive a predetermined incentive fee based upon achieving certain performance objectives as set forth in the contract.
 - **Cost Plus Award Fee Contracts (CPAF).** The seller is reimbursed for all legitimate costs, but the majority of the, fee is only earned based on the satisfaction of certain broad subjective performance criteria defined and incorporated into the contract.
 - **Time and Material Contracts (T&M).** Time and material contracts are a hybrid type of contractual arrangement that contain aspects of both cost-reimbursable and fixed-price contracts. They are often used for staff augmentation, acquisition of experts, and any outside support when a precise statement of work cannot be quickly prescribed.

3- PROPOSAL EVALUATION TECHNIQUES: On complex procurements, where source selection will be made based, on seller responses to previously defined weighted criteria, a formal evaluation review process will be defined by the buyer's procurement policies.

4- CONTRACT CHANGE CONTROL SYSTEM: Defines the process by which the procurement can be modified. It includes the paperwork, tracking systems, dispute resolution procedures, and approval necessary for authorizing changes.

5- PROCUREMENT PERFORMANCE REVIEW: It is a structured review of the seller's progress to deliver project scope and quality, within cost and on schedule, as compared to the contract. It can include a review of seller-prepared documentation and buyer inspections, as well as quality audits conducted during seller's execution of the work.

4.5.10 PROGRAM FINANCIAL MANAGEMENT MAIN TOOLS ⁽¹⁾

1- FUNDING METHODS: Programs may be funded by a variety of methods, depending on the factors identified earlier. Some funding methods include:

- Being funded entirely internally through retained earnings or by the issuance of debt or the sale of stock.
- Being funded by government entities through tax monies collected or by the sale of government bonds.
- Being funded by external funding organizations such as a consortium of banks, financial institutions, or even venture capital funds.
- Obtaining mortgages for smaller construction programs.
- Receiving loans to bridge temporary shortfalls in funding.

2- COST ANALYSIS: A primary tool for developing the program budget is an analysis of each program component's cost structure: funding amounts, schedules, and constraints; contract amounts, payment schedules, and constraints; and program-associated overhead. The result of the cost analysis is a thorough understanding of the money flow through the program: how and when the funds are received from the funding organization and where and how payments are made to the contractors and to support the program management infrastructure.

4.5.11 PROGRAM STAKEHOLDER MANAGEMENT MAIN TOOLS ⁽²⁾

1- STAKEHOLDER ANALYSIS: In stakeholder analysis, the program team gains an understanding of the organization culture as well as the needs and expectations of program stakeholders. A detailed plan is developed to engage stakeholders through effective communications. Specific steps include:

- Gaining an understanding of organizational culture, stakeholder attitudes toward the program, and communications requirements. This is achieved through stakeholder interviews, focus groups, and surveys/questionnaires.

¹ Project Management Institute (2008). The standard for Program Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.212, 222

² Ibid., P.230, 234

- Determining the degree of support or opposition the stakeholder has for the objectives of the program.
- Evaluating the degree to which the stakeholder can influence the outcome of the program. This is done by evaluating the interest expressed by the stakeholder and the degree to which they can impact program outcomes.
- Prioritizing stakeholders according to their ability to influence the program outcomes, either positively or negatively.
- Developing a stakeholder communications strategy to define the methods and frequency of communication with stakeholders.
- Developing the stakeholder register to include a summary of stakeholder analysis results including the degree of stakeholder influence, the likely disposition towards the program and the impact of the program on the stakeholder.
- Updating the program stakeholder management plan, as required, to refine the strategies for managing stakeholders and program communications.
- Determining how receptive the stakeholder is to communications from the program.

2- FOCUS GROUPS: Focus groups may be used to solicit feedback from groups of stakeholders regarding their attitude towards the program and appropriate approaches for communications and impact mitigation. This approach presents open-ended questions, similar to those used in interviews, but allows groups of participants to interact with each other. This results in a deeper understanding of the program impacts than can be achieved through individual interviews or questionnaires/surveys.

3- PROGRAM IMPACT ANALYSIS: Using the stakeholder analysis as input, the program team develops a comprehensive summary of how each stakeholder and stakeholder group will be impacted by the program. Negative impacts are identified and mitigation plans are developed to minimize their effect.

4- STAKEHOLDER CHECKLISTS: A simple checklist or matrix listing typical roles and interests found in programs or projects of similar scope can also be used to identify stakeholders and their respective roles.

4.5.12 PORTFOLIO / PROGRAM GOVERNANCE MAIN TOOLS ⁽¹⁾

1- REVIEWS: Component and program plans, and the management and control of these plans, must be reviewed to verify that the delivery of benefits has not

1 Project Management Institute (2008). The standard for Program Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.264, 265

been compromised by decisions made during the execution of the program and its components. To facilitate effective review, benefits should be described in an effective manner, explaining how they add value. If benefits are not presented in a coherent fashion, then the value may not be understood. One objective of the benefits review is to reassure stakeholders that all is going well in the program components. This could also be verified by conducting periodic audits, and reviewing the audit results with key stakeholders.

2- BENEFITS REALIZATION ANALYSIS: The benefits review requires analysis of the planned versus actual benefits across a wide range of factors. In particular, some of the aspects that should be analyzed and assessed as part of the benefits management process include:

- **Strategic alignment.** It focuses on ensuring the linkage of enterprise and program plans on defining, maintaining, and validating the program value proposition, and on aligning program management with enterprise operations management. How will the realization of benefits affect the flow of operations of the organization as the benefit realization is introduced, and how negative effects may be minimized, How will the disruptiveness inherent in components be managed by the organization.

- **Value delivery.** It focuses on ensuring that the program delivers the promised benefits and that these benefits translate into value. A benefit, translates into value when it is used to benefit the enterprise in some manner. This may involve service level agreements or specific results that are achieved. Sometimes there is a window of opportunity for a benefit to be turned into value. One should determine whether the window was compromised by actual events in the program or constituent components (for example, a delay, a cost overrun, or feature reduction). Investments may also have time value, where shifts in component schedules can have additional financial impact.

- **Resource management.** It focuses on ensuring that the appropriate resources are made available to components at the appropriate time for optimal utilization. Those resources (applications, information, infrastructure, people, money, etc.) are identified and made available to the components at the right time and returned to the enterprise when their purpose has been served. Resource management also ensures there are appropriate resources to ensure benefit realization when these are ready to start.

- **Risk management.** It focuses on risk awareness by senior enterprise officers; understanding of enterprise risk tolerance; managing inter-component and enterprise-level risks; and monitoring and supporting effective risk management within components. It has to do more with the manner in which risk to benefit realization is managed in the enterprise than management of specific risks.

• **Performance measurement.** It focuses on tracking and monitoring strategy implementation, component completion, resource usage, process performance, and component delivery. Since programs long outlive components, it may be necessary to establish service level agreements, or influence operational service level agreements so that the program value proposition is maintained. The performance of components, especially their impact on other components (in the program and outside of it), is monitored to ensure that the ability to deliver benefits is not compromised.

3- WEIGHTED RANKING: It is the method of ranking components within each category based on value assigned. Components are ranked according to pre-established criteria. The single criterion approach - as illustrated in figure (4-13) ⁽¹⁾ - is usually a pair-wise comparison of each project to each of the others using the following steps:

	PROJECT A	PROJECT B	PROJECT C	PROJECT D	PROJECT E	PROJECT F	RANK	
PROJECT A		1	1	1	1	1	5	First Priority
PROJECT B	0		0	1	1	0	2	
PROJECT C	0	1		1	1	0	3	
PROJECT D	0	0	0		1	0	1	
PROJECT E	0	0	0	0		0	0	Last Priority
PROJECT F	0	1	1	1	1		4	

Figure (4-13) ⁽¹⁾ Single criterion prioritization model

- If project A has more value than project B, then the score will be “1”.
- If project B has less value than project C, then the score will be “0”.
- Scores to be added horizontally for each project.
- The project with the highest score becomes the first priority.

A multiple criterion model for weighted ranking, as illustrated in figure (4-14), can be designed and used effectively by using the following steps:

- Choosing a set of evaluation criteria.
- Measuring each project for each criterion.

PROJECTS	Criterion 1		Criterion 2 * Probability of Success		Criterion 3		Criterion 4		PRIORITY	
	Measure	Rank	Result	Rank	Level of Importance	Rank	Measure	Rank	Score	Priority
Project 1	16.0	2	8.8 (\$11M X 80%)	2	5 (++)	1	\$2M	1	1.50	1
Project 3	14.0	4	18.9 (\$21M X 90%)	1	4	2	\$2.5M	2	2.25	2
Project 4	15.5	3	8.45 (\$13M X 65%)	3	2	4	\$3M	3	3.25	3
Project 2	19.0	1	5.95 (\$7M X 85%)	4	1 (--)	6	\$4.3M	4	3.75	4
Project 5	10.0	6	5.4 (\$6M X 90%)	5	3	3	\$5.2M	6	5.00	5
Project 6	12.0	5	2.1 (\$3M X 70%)	6	1.5	5	\$4.6M	5	5.25	6

Figure (4-14) ⁽²⁾ Multiple-criteria weighted ranking

1 Project Management Institute (2008). The standard for Portfolio Management. Second Edition. (Project Management Institute, Pennsylvania, USA), P.64

2 Ibid., P. 65

- Ranking projects for each criterion.
- Adding the rank number for each project and divide by the number of criteria measured to produce the score.
- Determining the priority based on the score (the lowest score giving the highest priority).

4- SCORING TECHNIQUES: The numerical methods which are used to consolidate ranked components within each category are shown in figure (4-14).

4.6 EPILOGUE

- 3PM life cycle is a collection of sequential and sometimes overlapping phases in each management level which provides the basic framework for managing the project, program, and portfolio.
- Five main phases are identified in a project life cycle: initiation, planning, execution, monitoring & controlling, closing.
- Five main phases are identified in a program life cycle: pre-program preparations, program initiation, program setup, delivery of program benefits, program closure.
- Portfolio components pass through seven steps: identification, categorization, evaluation, selection, prioritization, balancing, and authorization.
- As per PMI standards, there are 42 standard project management processes which are categorized under nine areas of management knowledge (integration, scope, time, cost, quality, human resources, communication, risk, and procurement).
- As per PMI standards, the program management processes are categorized under twelve areas of management knowledge (integration, scope, time, cost, quality, human resources, communication, risk, procurement, financial, stakeholder, and governance).
- As per PMI standards, there are 14 standard portfolio management processes which are categorized under two areas of management knowledge (portfolio governance and portfolio risk management).
- There are set of 3PM management tools and techniques which are considered as management aids used for running 3PM processes. 3PM management tools and techniques are commonly used in running many processes within different management areas of knowledge.



PART TWO

GLOBAL EXPERIMENTS OF ACHIEVING LAND USE REUTILIZATION OBJECTIVES AND MANAGEMENT APPROACHES.

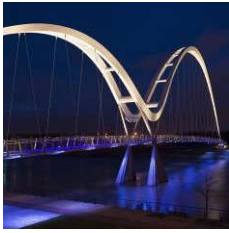
“... when transferring experience from one culture to another, even cultures that may seem superficially very similar, account has to be taken of the local habits, customs, regulatory regimes and development processes. As designers we have to be prepared to modify our values and even be prepared to abandon some of those we cherish most.”

Philippe Panerai⁽¹⁾, 2004, p.201

This part contains two chapters that present different case studies of global cities have examples of land-use reutilization projects, where chapter five presents two case studies in Europe and US, and chapter six presents two case studies in South East of Asia. For each example, the land-use reutilization objectives within its strategic urban development master plan will be discussed, the management approach to achieve those objectives will be investigated.

It takes into account that the selection of the case studies covers various cultures of either developed western cities or new developed cities in South East of Asia. However, all the selected case studies represent successful examples which operate at different scales with different levels of success. Although, in all case studies the outcomes represent the implementation of extensive portfolio, program, and project management processes and related tools and techniques in different levels, but each case study has its own level of organizational management maturity and different combination of 3PM processes.

1 Philippe Panerai, born in 1940, is professor at the architecture schools of Versailles and Paris-Villmin, and French institute of urbanism as well. He is co-author of "urban form: the death and life of the urban block (2004 - architectural press).



CHAPTER 5

LAND USE REUTILIZATION PROCESSES: MANAGEMENT APPROACH OF ACHIEVING OBJECTIVES – TWO WESTERN GLOBAL CITIES

“... A stair rail can be made from a straight piece of wood. It can also be made from a gently curved, turned birch rail, which is better suited to the physical and sensuous ergonomic needs of our bodies and hands and is therefore regarded as more pleasing. Just like this birch rail, the plans for the Bo01 area intend to lay the basis for a district that people find suitable, practical and stimulating and which affords great pleasure.”

Dr. Klas Tham, Professor of Urban Planning, Lund University, Sweden.

This chapter discusses the land-use reutilization processes of two western cities in Europe and United States. It looks into the land-use reutilization objectives within their strategic urban development master plan. Then, it tries to investigate the management approach to achieve the objectives.

5.1 ECOLOGICAL CITY OF TOMORROW – CITY OF MALMÖ, SWEDEN

The city of Malmö is the third largest in Sweden after Stockholm and Gothenburg. Malmö is thought to have been founded in the year 1275 as a fortified quay. It was ranked #4 in Grist Magazine's "15 Green Cities" list, in 2007.



Figure (5-1) Location of Malmö within Sweden

Malmö has its own distinctive experience to regenerate and reinvent itself by developing and managing its own strategic plan with associated thinking, pursued by local and national governments to achieve strategic planning goals.

5.1.1 URBAN DEVELOPMENT BACKGROUND OF MALMÖ

Malmö is the capital of Scania Province which covers an area of 156 Km², and situated in the southwestern corner of Scania (Scania is the southernmost administrative province of Sweden) – figure (5-1) shows Malmö location within Sweden. Though it has a population of only 290,000 (according to local statistics in 2010), it is a multicultural city, where there are around 20 different nationalities live in and about 30% of them are born abroad.



Figure (5-2) ⁽¹⁾ City of Malmö boundaries

Greater Malmö is one of Sweden's three officially recognized Metropolitan areas and since 2005 is defined by the municipality of Malmö, together with other municipalities in the southwestern corner of Scania. Its population was recorded to be 630,000 in 2010. The region covers an area of 2,536 km². Figure (5-2) shows Malmö boundaries⁽¹⁾.

Malmö was one of the earliest and most industrialized cities of Scandinavia with shipyards and textile industries; but until the turn of the millennium, it had been struggling with the adaptation to post-industrialism. Since then, Malmö is in the process of trying to transform itself into a high technology center through a process of sustained strategic planning. Malmö has become a new city with impressive architectural developments, attracting new biotech and IT companies, and particularly students through Malmö University College. The city contains many historic buildings and parks, and a commercial centre at the western part of Scania. During the last few years a

¹ <http://en.wikipedia.org/wiki/Malmo> (12/05/2010)

university college (Malmö University) has been established and the city is now trying to focus on education, arts and culture.

The form of strategic planning has not chosen that of top-down but rather bottom-up and it has modified itself on the approach of Bilbao in Spain but with its own different priorities. Its master plan is ambitious and attempts to encompass physical, economical, social, and ecological issues. Although the city is still in the process of evolving its planning approach, there are concerns that the right type of new housing should be available. Malmö was ready and enthusiastic to take advantage of the opportunity to host an international exhibition for European city district development.

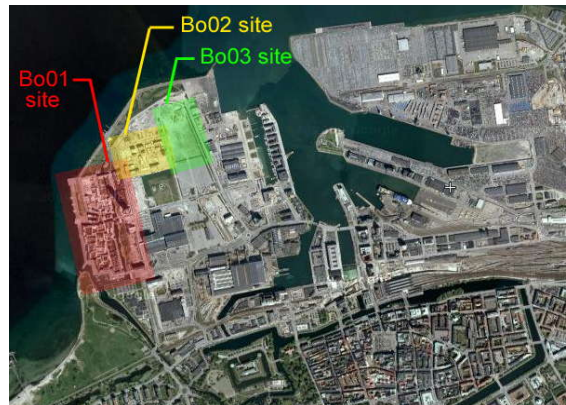


Figure (5-3) ⁽¹⁾ Malmö development projects

5.1.2 LAND USE REUTILIZATION WITHIN MALMÖ URBAN DEVELOPMENT PROGRAM

In 2001 the first international European Housing Exhibition, subtitled *The City of Tomorrow*, was held. The Bo01-area was completed for this exhibition to showcase not only the energy efficiency and environmentally sensitive design but also the latest ideas from a range of contemporary architects and developers of how people should live in the cities of the future. Buildings for the site were designed not only by a range of



Figure (5-4) ⁽²⁾ Real photo - Bo01 site 1970



Figure (5-5) ⁽³⁾ Real photo - Bo01 site 2007

1 City of Malmö, Environmental department – Environmental strategy unit, Sweden, (2007). Western Harbor “the Bo01 area from industrial site to a new sustainable city district”, (presentation report), P. 3

2 Ibid., P.4

3 Ibid., P.5

good Nordic architects but also by those with wider international reputations such as Ralph Erskine and Santiago Calatrava. The exhibition was supported by the Swedish Government, the city of Malmö, various developer and finance organizations, and the European Commission.

The new housing district (Bo01) was built at a waterfront area in Western Harbor district which has become an urbanized area focused on energy and environment, mixed-use urban planning and architectural diversification integrated with the larger city centre. The initial stage was completed in 2001, opening as the (Bo01 project) housing exhibition, featuring 500 private dwellings, offices and services, as well as parks and open spaces. Bo01 Project has been followed by the next step (Bo02 project) which focuses on mainstreaming sustainability. The area, consisting of 600 apartments with primarily rental flats, built at market value with a focus on affordability. The third stage of development (Bo03 project) consists also of 600 apartments and has incorporated the Building-Living Dialogue similar to Bo02 site. Figure (5-3) shows location of Malmö development projects (Bo01, Bo02, and Bo03) ⁽¹⁾.



¹ Ibid., P. 5:8

² Dalman E, (2007), Western Harbour – sustainable urban development in Malmö, City of Malmö Planning Department, (presentation report), P. 21

The 25 hectare Bo01 site is also within walking distance to Malmö city center as well as to local beaches. One hundred years ago the site had been below sea level, but upon a process of landfill it became used as an extension of the port facilities for shipbuilding, particularly in the period following the Second World War. In the 1970s the area was redeveloped into a car factory and exhibition fair halls though, due to the economic problems, the factory was closed down quite shortly afterwards. In the 1990s the site was chosen to host the City of Tomorrow Expo, which aimed to focus on ecologically sustainable living in the developing information and welfare society. Figures (5-4) and (5-5) show the site land use transformation from port facilities and shipbuilding to mixed use development. It was an attempt to marry ideas of ecological, social, technical and human sustainability in a high quality development. Figure (5-6) shows an aerial view of Bo01 site, and figure (5-7) shows the site plan⁽²⁾.

Bo01 has created a new residential area of 500 dwellings, together with commercial and social facilities, which are adjacent to the existing trade exhibition halls, office units and community buildings. There were two main areas of development, the first being the permanent new housing of which the Bo01 buildings were the first stage, and the second being a more transient exhibition area. The urban design framework of the development was set by the site location, which had to respect the westerly exposure to the sea and wind, though this also offers dramatic views over the water towards



Figure (5-8)⁽¹⁾ Turning Torso tower - Malmö

Figure (5-6) aerial view Bo01 site



Figure (5-9)⁽³⁾ Hardscape features in Malmö

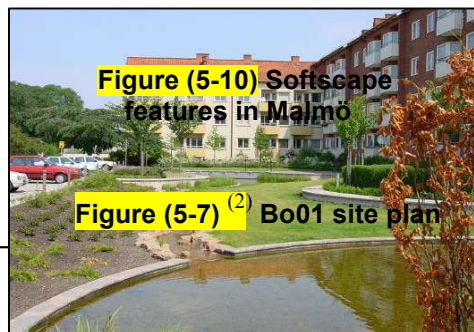


Figure (5-10) Softscape features in Malmö

Figure (5-7)⁽²⁾ Bo01 site plan

1 Ibid., P. 20

2 Ibid., P. 21

3 Ibid., P. 24

Copenhagen. As a result, the most westerly blocks were designed to be taller to provide more shelter for the other areas of the scheme. Buildings ranged in height from one and a half to six storeys, and within the new blocks 50 furnished show homes were presented to demonstrate the benefits of the more than 20 individual schemes.

The landmark building for the site is the Calatrava-designed Turning Torso largely completed during 2003, as shown in Figure (5-8). This building is a 45-floor tower reaching about 190 m in height, each floor level having an area of about 400 m². The tower is subdivided into segments of five floors, forming nine cubical units that gradually turn through 90 degrees as the tower rises from the centre of the Bo01 site. The tower contains approximately 135 high-quality apartments; their design is to be flexible in order to match occupant requirements. Intelligent control systems abound in order to match the aspirations of the exhibition for high-class design.



Figure (5-11) Roof gardens in Malmö

Malmö has recently opened a new university which has been also designed for the exhibition, was a novel concept for student living. Five meter-cube room compartments were proposed; five sides were made of concrete and one of glass and each contained all the necessary basic items for student life - lower level living/study area and an open mezzanine level for sleeping. The idea behind the proposal was to prefabricate these modules off-site and then assemble them into a block of more than 100 apartment modules together with associated communal facilities.

Landscape is an important issue for the Bo01 site, both to provide shelter for buildings in this exposed location and to provide pleasant and stimulating outdoor space for the inhabitants living at high density. The development contains two green park areas, a waterfront promenade, a marina and various sheltered areas within the site. There are also several residential courtyard areas or private spaces, which include ponds, water features, wild plants and green roofs – as shown in figures (5-9), (5-10), (5-11). A water course/canal runs through the site from north to south, and a wooded area called the Willow Forest was created on the north-east portion of the site in which ten secret or hidden gardens were located, together with other landscape features including outdoor sculptures. Private garden areas are relatively small or are communal

for each block or group of dwellings, but this is a consequence of the need for higher densities in urban development and evolving styles of city living⁽¹⁾.

The development plan has been governed by the magnificence of the site, as well as by its exposure to the sea, the open sky, the horizon, the sunset and the wind. Malmö's direct encounter with the sea has been re-established through the creation of a built-up area with a sheltered centre, in the way that cities by the sea have always been built.

Bo01 has become an attractive and verdant area, intersected by streets, alleys and urban parkways. Spatial order and intelligibility has been achieved in Western Harbor with its strict, wide-meshed grid of large avenues. Yet at the same time, in the centre of this grid, space has been allowed for a bustling, less orderly world with unexpected transitions, dramatic suspense between the grandiose and the intimate. It's not what may be called disorder; it's a more liberal type of order. This grid structure also helps link the Bo01 area to future housing in the Western Harbor district. That is how the plans have been developed.

The grid has been distorted, partly by the wind, like a fishing net hung out to dry, and might well have become more rational thanks to this, more worthwhile to build, live in and stroll around. The layout of the district has not grown slowly and steadily, but is a modern-day development.

It is an attempt to achieve the perfect balance amongst all the elements required by town architecture - sun, shelter, land development, security, peace and quiet, vehicular access, intelligibility, pleasurable to the senses, to mention but a few, Inspiration comes from antiquity, the Middle Ages, the Renaissance, Baroque, the 20th century and present-day⁽²⁾.

5.1.3 LAND USE REUTILIZATION OBJECTIVES OF MALMÖ⁽³⁾

The Bo01 housing district constitutes the first stage in the transformation of Western Harbor into a new, complete city district for housing, services, work, and education (mixed use development). It will have the character of the inner city (proposal to general plan, May 1998). The very

1 Pitts, Adrian (2004). Planning and design strategies for sustainability and profit. (Architectural press, An imprint of Elsevier), P.198-201

2 <http://www.malmo.se/English/Western-Harbour/Plans-and-on-going-projects/Bo01-expo-area/Detailed-development-plans-Bo01.html> (22/05/2010)

3 <http://www.malmo.se> (17/05/2010)

essence and justification of this city is the interplay between its people and cultures.

The design and development of this district contributes significantly to this interplay. At the same time, it will be sufficiently robust and general to be able to meet the unknown demands of tomorrow. Although the main objective of Bo01 project is to achieve a leading international example of environmental adaptation and ecological sustainability in a densely built-up area but there are many other targeted urban and socio-economical objectives could be mentioned in bullets as following:

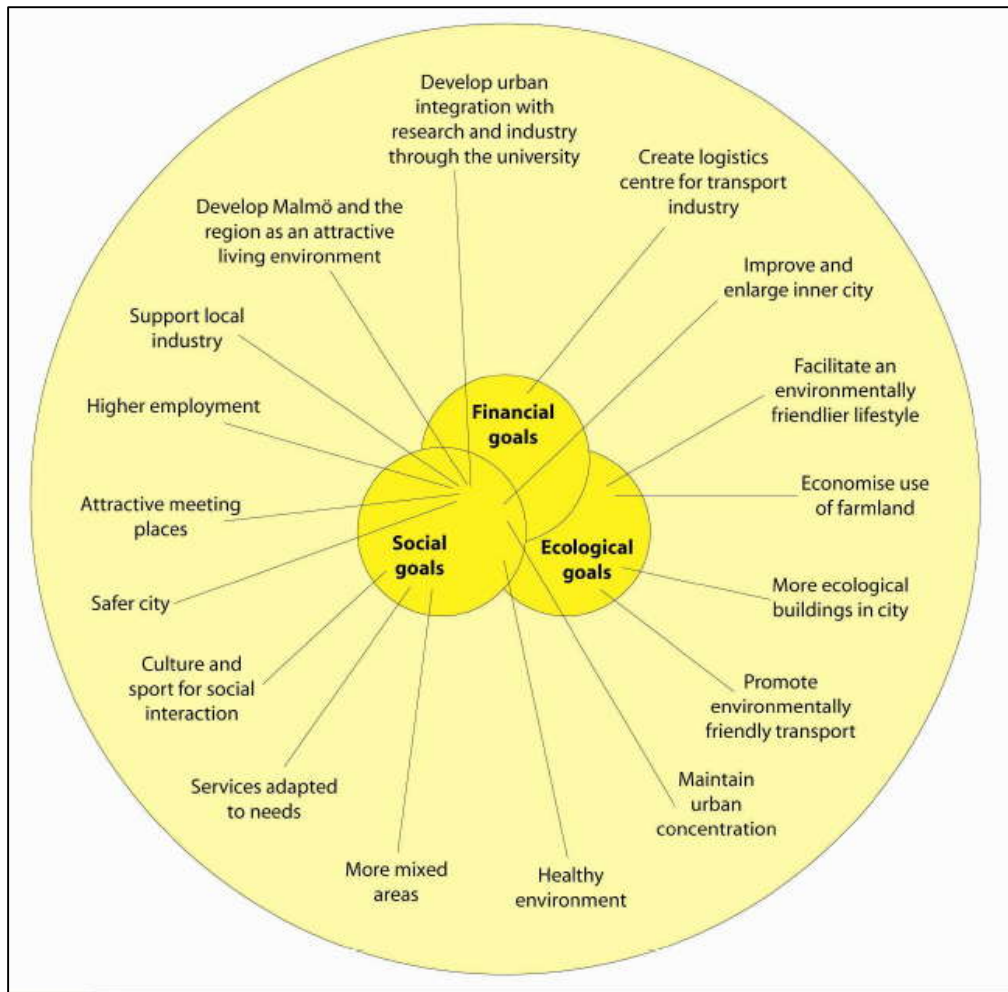


Figure (5-12) ⁽¹⁾ Main objectives of Malmö Land-use reutilization projects

5.1.3.1 URBAN OBJECTIVES

Bo01 has been drawn up with the following urban objectives:

- Provide more mixed use areas.
- Adapt the services to inhabitant needs.
- Create network structure for the neighborhood.
- Set clear dividing line between private and public.
- Create small-scale grouping of properties, with a selection of different types of housing environments and rental conditions.
- Develop buildings in which it is possible to establish businesses.
- Enhance Cars accesses and develop pedestrian walkways and give them the priority.

- Support the abundance of vegetation in all shapes and sizes, from individual gardens to the sheltered, lush parkways through the heart of the area.

5.1.3.2 SOCIOECONOMICAL OBJECTIVES

Bo01 has been drawn up with the following socio-economical objectives:

- Create a social environment conducive to dissolve cultural differences.
- Develop attractive living and working environments.
- Develop safer city.
- Develop healthier environments.
- Support the local industry.
- Create logistics center for transport industry.
- Develop urban integrator with research and industry through the university.

5.1.3.3 ECOLOGICAL OBJECTIVES

Bo01 has been drawn up with the following ecological objectives:

- Economize use of farmland.
- Facilitate an environmentally friendlier lifestyle.
- Develop more ecological buildings in the city.
- Promote environmentally friendly transport system.
- Achieve self-sufficiency in energy, to supply 85% of the city heating requirements by district heating system depending on geothermal power plants and the reminder 15% to be sourced from solar energy.
- Use of renewable sources of energy (wind and solar sources) for access to electricity.

Figure (5-12) shows the main objectives of Malmö Land use reutilization projects (Bo01, Bo02, and Bo03).

5.1.4 MANAGEMENT APPROACH FOR ACHIEVING BO01 OBJECTIVES ⁽¹⁾

Malmö's Bo01 project is considered as one of the most successful land use reutilization projects (within Swedish national sustainable development

1 Malmö municipality, Sweden, (1999). Quality Programme - Bo01 City of Tomorrow, P.198-201

program) not only in Europe but also around the whole world. This project has been widely notable due to its success to achieve urban, ecological, and socio-economical strategic planning goals and objectives.

This success resulted because of adhering with the detailed project management plan prepared by Malmö City Planning Office and its sub-management plans related to different project management area of knowledge as per PMBOK® Guide (Project Management Body of Knowledge Guide). In general, Bo01 project management approach could be categorized by using PMBOK® Guide management area of knowledge as explained below.

5.1.4.1 INTEGRATION MANAGEMENT APPROACH

Partnership and cooperation amongst local authorities, business, researchers, and citizen groups lay at the core of the Bo01 success. These include various municipal offices (The City Planning Office, the Environment Department, and the Real Estate Department) as well as cooperation with local area universities, research boards, and Boverket (the Swedish National Board of Housing). In terms of energy, E.ON Group of R&D activities in Bio-Energy developed a unique concept based on 100% locally renewable energy (over the course of a year), making Bo01 is the first Sweden's climate neutral-city district. Energy efficiency and reduced consumption are incorporated within the project's quality program.

Within project integration management area of knowledge, the Bo01 project charter and project management plan have been developed. The activities needed to identify, define, combine, unify, and coordinate the various processes and activities within the project management process groups have been implemented.

5.1.4.2 SCOPE MANAGEMENT APPROACH

Within Bo01 project scope management area of knowledge, the process of "Define Scope of Work" has been performed; the WBS has been created which subdivided the project deliverables into smaller and more manageable components. The process of "Verifying the Scope" has been performed during the monitoring and controlling phase by "The Quality Committee" which consists of members from Malmö's various municipal offices, developers, and citizens. This committee was responsible for the inspection tasks including activities such as measuring, examining, and verifying to determine whether work and deliverables meet requirements and project acceptance criteria.

5.1.4.3 TIME MANAGEMENT APPROACH

Within Bo01 time management area of knowledge, the process of “Define Activities” has been performed where both activity and milestone lists have been issued. The process of “Sequence Activities” has been performed that drove out the project schedule network diagrams. The processes of “Expert Judgment”, “Analogues Estimating”, and “Parametric Estimating” have been implemented to estimate the duration of the project activities which produced total project duration of 36 months.

Various tools and techniques have been used to develop project schedule (critical path method, critical chain method, and what-if scenario). the process of “Control Schedule” has been also performed by “The Quality Committee” which was responsible for approving any change requests and issuing any project management plan’s updates.

5.1.4.4 COST MANAGEMENT APPROACH

Cost management plan of BO01 project has formulated the criteria for planning, structuring, estimating, budgeting, and controlling project costs. The Cost Management Plan has established the rule of performance measurements by using Earned Value Management (EVM).

Based on estimate costs process, performed in 1998, the City of Malmö was allocated SEK 147 million (US\$ 18.7 million) in grants for seven different projects. The largest project in the local investment program 1998-2001 was Bo01. The City of Malmö has applied to the Swedish Ministry of the Environment for an additional grant for the local investment program. The application covered a number of measures aimed at reducing emissions of the greenhouse gas carbon dioxide. The projects included substantial investments in reducing energy consumption and expansion of renewable sources of energy.

Money allocated by the local investment program was marked for the Bo01 project, with the explicit requirement that a scientific evaluation be made through control costs process. The goal was to capitalize on the experience gathered on urban sustainable development, and to be able to use it in future projects, both locally and in other parts of the world. Apartment rentals were leased at a “reasonable price” comparing with the prevailing prices in European Union cities. (Approximately 1300 SEK (US\$ 165)/ square meter/ year 2008).

5.1.4.5 QUALITY MANAGEMENT APPROACH

Quality program with Quality Metrics and Quality Checklist have been launched in March 1999 as output of plan quality process. The targets of that program are:

- Give the developers a common basic standard which ensures the attractiveness and quality of the district.
- To be an operative instrument for achieving the aspirations of the City of Malmö, the developers and Bo01 for the new district.
- To ensure very high quality in the project execution according to the agreed design guidelines.
- To make the site an internationally leading example of the greening of dense urban development.
- To ensure a very high quality of technology and services for the information society.
- To ensure very high quality of architectural planning and design.

Work on the Quality Program was continuous processes which has continued during execution of the project within perform the processes of “Quality Assurance” and “Quality control”. That process enabled developers, their consultants, the City of Malmö and Bo01 to collaborate in such a way that the various sub-projects can be coordinated into a successful entity.

5.1.4.6 HUMAN RESOURCES MANAGEMENT APPROACH

Within Bo01 project human resources management area of knowledge, the process of “Developing Human Resources Plan” has been performed. The most applied tools and techniques as per PMBOK® Guide are “Organization Charts” and “Position Descriptions” including the Responsibility Assignment Matrix (RAM) that identifies project team members and their roles and responsibilities in the project. Table (5-1) illustrates a small part of the Bo01 project RAM.

5.1.4.7 COMMUNICATION MANAGEMENT APPROACH

Within communication management area of knowledge of BO01 project, the processes required to ensure timely and appropriate generating, collection, distribution, storage, retrieval, and ultimate disposition of project information have been formulated.

As part of Communication Management Plan, the City of Malmö, together with 13 developers, **urban planners**, architects and citizens launched a new communication process within Communication Management Plan referred to as “The Creative Dialogue”. This dialogue provided a platform bringing together various stakeholder groups to discuss common themes related to the built environment: architecture, planning, environmental aspects, as well as a focus on quality. The primary goal was that the process itself would result in a detailed plan incorporating sustainability as well as affordability for new homes built in Bo01 site. The goal was to build on the success of the Bo01 area, but take it to the next level: *Mainstreaming Sustainability*.

The intention of the dialogue was that both public and private actors – particularly private developers – would benefit from sharing knowledge, building upon their collective expertise. By working together, they developed new solutions focused on sustainability whilst simultaneously reducing their production costs. Three years after the launch of the Dialogue Process, the first tenants moved in.

ASSIGNMENT		RESPONSIBILITY
Co-ordination and implementation	Environmental, IT and design questions are to be managed in a coordinated development and quality operation. Aspirations, targets and guidelines shall be taken into account in all decisions and steering documents.	<ul style="list-style-type: none"> • Developers, City of Malmö • Bo01
Program status	Each player involved is responsible for ensuring that work proceeds in accordance with the Quality Program.	<ul style="list-style-type: none"> • Developers, City of Malmö • Bo01
Procurement	Developers and others responsible for the procurement of products or services shall pledge themselves to make every-procurement subject to requirements agreeing with the Quality Program.	<ul style="list-style-type: none"> • Developers
Development of the Program	The Quality Program shall be successively developed and supplemented in collaboration with the developers.	<ul style="list-style-type: none"> • Bo01 • City of Malmö • Developers
Information and popular education	Realization of the district will be combined with a broad-based scheme of information and popular education, aimed at improving the level of knowledge in the city concerning matters of sustainability.	<ul style="list-style-type: none"> • Bo01 • City of Malmö
Resident education	A special program of education, participation and involvement on a voluntary basis will be established for residents in the area.	<ul style="list-style-type: none"> • City of Malmö • Bo01

5.1.4.8 RISK MANAGEMENT APPROACH

BO01 risk management area of knowledge has included the processes of “Conducting Risk Management Planning”, “Identification Analysis”, “Response Planning”, and “Project Monitoring and Control”. The objectives of

Table (5-1) Responsibility Assignment Matrix (RAM) - Bo01 project

BO01 risk management were to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project.

As part of risk management plan of whole Western Harbor district land use reutilization program, the program has divided into three sequential projects Bo01, Bo02, and Bo03. These sub divisions helped in mitigating any anticipated risk impact and gave the chance to evaluate each project and set the lesson learned list to be used in coming projects.

Bi-weekly progress meeting among different project stakeholders has been performed during Bo01 project execution stage to monitor and control work progress, filling out risk assessment checklist, and perform SWOT analysis. Accordingly, recommendations for preventive / corrective actions have been confirmed and updated Project Risk Plan has been issued.

5.1.4.9 PROCUREMENT MANAGEMENT APPROACH

BO01 procurement management has included the processes necessary to purchase or acquire products, services, or results needed from outside the project team. BO01 Procurement Management Plan has formulated the rules for the processes of “Contract Management” and “Change Control” required to develop, administer contracts or purchase orders issued by authorized project team members.

As part of Bo01 procurement management plan, the developers’ contract statement of work has been prepared, bidders’ conferences have been hold, and qualified developers checklist has been issued. Accordingly, 13 developers have been selected.

The process of “Administering the Procurements” has been performed during project monitoring and controlling process group where the following tools and techniques have been used: Contract Change Control System, Procurement Performance Reviews, Inspections and Audits, Performance Reporting, Payment Systems, Claims Administration, and Records Management System.

5.2 THE MAIN SEAPORT OF THE UNITED STATES – CITY OF NEW ORLEANS, USA

The city of New Orleans is a major United States seaport and the largest city and metropolitan area in the state of Louisiana. It is located in southeastern Louisiana overlooks the Gulf of Mexico, straddling the Mississippi River, covers an area of 467 Km² with a population of 336,650 – figure (5-13) ⁽¹⁾ shows New Orleans location within United States. The New Orleans metropolitan area has a population of about 1,190,000 (as per US Census Bureau in 2010), the 46th largest in the USA. The region covers an area of 9,726 km². Figure (5-14) shows New Orleans urban block⁽²⁾.

New Orleans was catastrophically impacted by the failure of the Federal levee system during Hurricane Katrina in 2005. By the time the hurricane approached the city at the end of August 2005, most residents have been evacuated. As the hurricane passed through the Gulf Coast region, the city's federal flood protection system failed, resulting in the worst civil engineering disaster in American history.



Figure (5-13)
Location of New Orleans within United States

New Orleans has its own experience in disaster recovery and rebuilds itself by developing its unique strategic plan called BNOB “Bring New Orleans Back” which defined the main goals and objectives, accordingly an integrated set of portfolios, programs and projects have been managed to achieve the desired goals and objectives.

5.2.1 NEW ORLEANS URBAN DEVELOPMENT BACKGROUND

1 http://en.wikipedia.org/wiki/New_Orleans (24/07/2010)

2 <http://maps.google.com> (24/07/2010)

New Orleans (La Nouvelle-Orléans) was founded May 7, 1718 by the French Mississippi Company. It was named for Philippe d'Orléans, Duke of Orléans, who was Regent of France at the time.

As a principal port prior to war of 1812 between United States and Great Britain, New Orleans played a major role in the Atlantic slave trade. Its port handled huge quantities of commodities for export from the interior and imported goods from other countries, which were warehoused and then transferred in New Orleans to smaller vessels and distributed the length and breadth of the vast Mississippi River watershed. The population of the city doubled in the 1830s and by 1840, New Orleans had become the wealthiest and third-most populous city in the USA.

After the American civil war (1861-1865) where eleven southern slave states including Louisiana declared their secession from the United States, reconstruction has been started to fix the negative effects of destruction has happened to New Orleans.



Figure (5-14)
Satellite image shows New Orleans urban block

New Orleans reached its most consequential position as an economic and population center in relation to other American cities in the decades prior to 1860; as late as that year it was the nation's fifth-largest city and by far the largest in the American South ⁽¹⁾.

Though New Orleans continued to grow in size, from the mid-19th century onwards, first the emerging industrial and railroad hubs of the Midwest overtook the city in population. Then the rapidly growing metropolises of the Pacific coast in the decades before and after the turn of the 20th century, then other American cities in the South and West in the post-World War II period surpassed New Orleans in population. Consequently, New Orleans has

1 http://en.wikipedia.org/wiki/New_Orleans (24/07/2010)

periodically mounted attempts to regain its economic vigour and pre-eminence over the past 150 years, with varying degrees of success.

By the mid-20th century, New Orleans was observing with concern that the city was even ceding its traditional ranking as the leading urban area in the South of United States.

Like most of older American cities in the South and West in the post-World War II period, New Orleans' center city commenced losing inhabitants while the port remained one of the largest in the nation, automation and containerization resulted in significant job losses.

In the eighties and nineties of the twentieth century, New Orleans became increasingly dependent on tourism as an economic mainstay, high rates of household poverty and rising crime became increasingly problematic in the later decades of the century, with the negative effects of these socioeconomic conditions many urban problems have been arisen like Inappropriate land uses.

By the end of August 2005, the hurricane Katrina approached the city causing massive destruction that necessitated the need to develop a strategic plan to Bring New Orleans Back “BNOB” with certain goals and objectives achieved by applying comprehensive integrated portfolio management.

5.2.2 LAND USE REUTILIZATION WITHIN NEW ORLEANS URBAN DEVELOPMENT PORTFOLIO

In view of the general interest in the effort to recover from the hurricane Katrina's impacts in New Orleans, DAI ⁽¹⁾ (Development Association Inc.) has been selected by the newly created New Orleans community development district to manage the execution process of BNOB strategic plan and to serve as a prime integrator in rebuilding New Orleans. New Vision Inc. has been selected by DAI to serve as their prime, to redesign, redevelop New Orleans land uses that would resurrect the city to its pre-Katrina hurricane status or better. This is to develop an integrated community on a 42,900 acre (174 Sq KM) site made available by the city through the new development district created under special state legislation to manage the process ⁽²⁾.

By end of year 2005, the execution of BNOB strategic plan has been launched by management processes of three main portfolios:

- Portfolio management of districts' urban development and re-land use.

1 Barkley, Bruce, (2006). Integrated project management, P. 91

2 DAI (Development Association Inc.) is new town development corporation, has planned many community complexes throughout the world.

- Portfolio management of infrastructure restructuring.
- Portfolio management of transportation and traffic systems.

Figure (5-15) shows the main three BNOB portfolios, and their main sub programs and projects ⁽¹⁾.

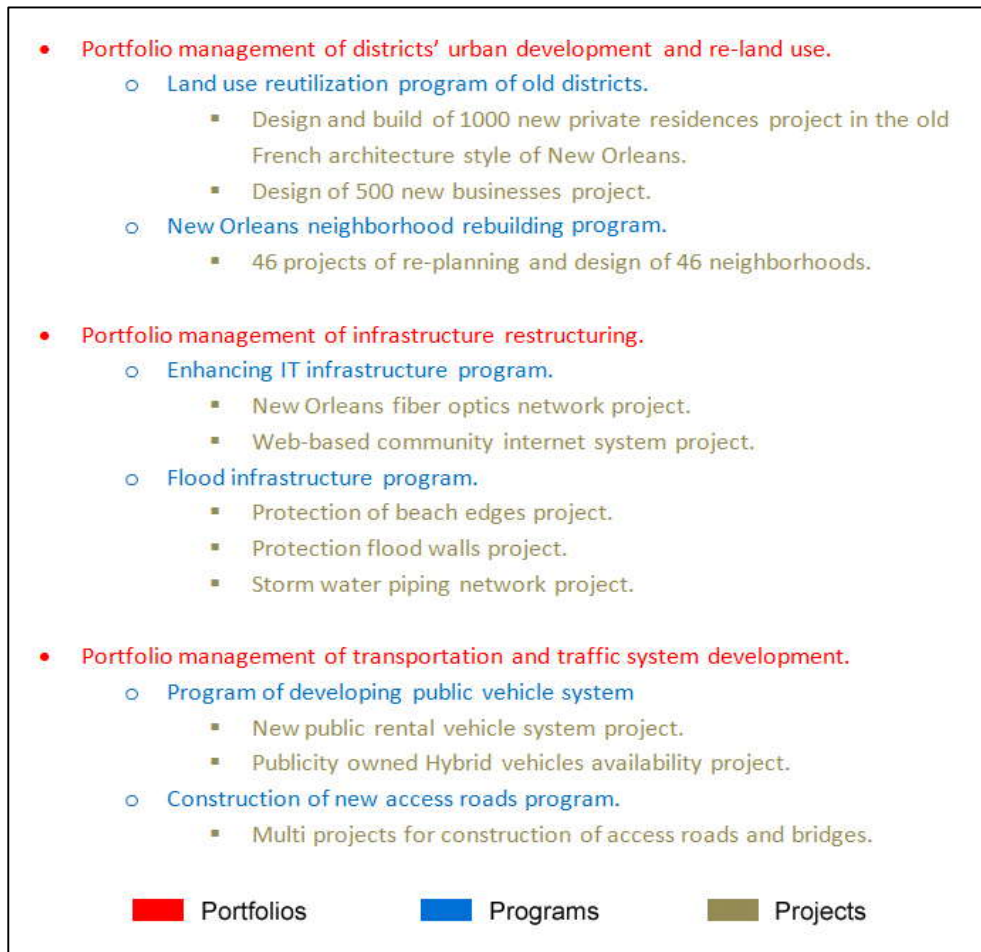


Figure (5-15) ⁽²⁾
BNOB portfolios. sub programs and projects

1 <http://www.project-neworleans.org/> (24/07/2010)

2 Ibid.

Lambert and Danzey assigned teams of architects and planners to multiple neighborhoods using the district boundaries established by the Bring New Orleans Back Commission. Most districts were assigned a single planning team (the exception being Planning District 4 where neighborhoods were divided between two teams). Hiring decisions were made with little public input, and the neighborhood boundaries used often did not line up with informal boundaries understood by active neighborhood associations, causing public skepticism from the outset. Despite continuing confusion about the process itself and whether it would be considered complete enough to satisfy funding requirements, 46 separate plans were drafted and finalized by September 23, 2006. The process involved 84 published meetings (including three in Houston, Atlanta, and Baton Rouge) and, according to Lambert, the participation of 7,500 residents city-wide.

One of the main ecological objectives have been put within BNOB portfolio of urban development and re-land use is to put an emphasis on pedestrian mobility in relation to the expansive pre-existing infrastructure – Figures (5-17), (5-18), and (5-19) illustrate some of the ideas presented in that regard.

The main concept of new community which districts' urban development and re-land use portfolio has build on adapts the idea of private leasing of community land that will be condemned by eminent domain because of hurricane destruction. In other words, the community will be owned by a public corporation enabled by state legislation, but populated by residents who lease land for private residences. The concept borrows from many communities on the USA coastline, such as Maryland's eastern shore. Individual residential plots will be purchased by the district at market



Figure (5-17) ⁽¹⁾ Public recreation space adjacent to industrial operations



Figure (5-18) ⁽²⁾ Elevated greenway sweeps through series of highway interchanges

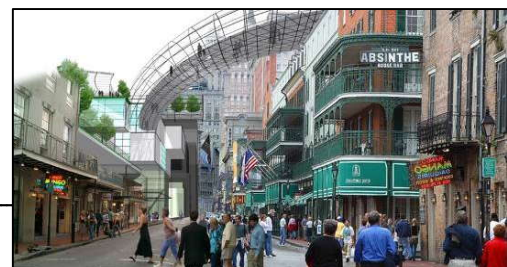


Figure (5-19) ⁽³⁾ Pedestrian network and rooftop public green spaces

1 <http://www.project-neworleans.org/> (24/07/2010)

2 Ibid.

3 Ibid.

value, the owners becoming shareholders in the new development district. Those residents will participate in the design and building of new residences, and then lease them back from the district.

This arrangement allows the public district to control the land in the event of a natural disaster such as another Katrina. This kind of control would allow evacuation to occur in a much more orderly fashion because the choice would not be left to individual residences.

The level of cooperation and integration of the public-private community is a political process. But its essence is choice, choice of funding source, choice of priority housing and community development programs, and choice of design and plan. The special district must make the different decisions on how to develop a portfolio of projects, how to rank them, and how to finance them in order to bring the private sector back to the New Orleans area. The integration process involves a horizontal sweep across current political jurisdictions and business and community leaders to establish a consensus on direction and purpose for the development.

5.2.3 LAND USE REUTILIZATION OBJECTIVES OF NEW ORLEANS

Although the main objective of BNOB Portfolios in general and districts' urban development and re-land use portfolio in particular is to recover from the hurricane Katrina's impacts in New Orleans but there are many other targeted urban, socioeconomic and ecological objectives could be mentioned in bullets as following.

5.2.3.1 URBAN OBJECTIVES

BNOB portfolios have drawn up the following urban objectives:

- Create network structure for the neighborhoods.
- Develop 1000 new private residences, designed and built in the old French architecture style of old New Orleans.
- Develop 1000 new private residences designed and built in a new Afro-American style design to be determined by the residents.
- Develop 500 new businesses, each to be designed by individual business owners and blended into the neighborhood fabric.
- Develop new public rental vehicle system for the community.
- Enhance Cars accesses by construction of new roads and bridges and develop pedestrian walkways and giving them the priority.
- Develop a comprehensive electronic, Web-based community Internet system.

- Develop a complete network of video and audio surveillance systems built into the infrastructure, and monitored centrally.

5.2.3.2 SOCIOECONOMICAL OBJECTIVES

BNOB portfolios have drawn up the following socio-economical objectives:

- Private leasing of public residences which will allow the district to control the land in the event of natural disaster, such as another Katrina.
- Encourage the private sector to have share in community development by providing financial incentives for contractors who finalized their projects ahead of the contract schedules.
- Adapt a strategy of employing local residents in the planning and development process.
- Using new construction systems that reduce construction costs while improving construction quality.
- Develop an attractive living and working environment.
- Develop healthier environment.
- Develop safer city.
- Develop intelligent city.

5.2.3.3 ECOLOGICAL OBJECTIVES

BNOB portfolios have drawn up the following ecological objectives:

- Develop more ecological buildings in the city.
- Provide hybrid vehicles (use electric power source beside the petrol) to be available to all citizens on demand for local trips.
- Promote environmentally friendly transport system.
- Emphasis on pedestrian mobility, recreation, and leisure in relation to the city's pre-existing infrastructure.
- Develop a system of public green spaces in accordance to the existing urban fabric.
- Develop the city with overall landscape schemes.

5.2.4 MANAGEMENT APPROACH OF ACHIEVING BNOB OBJECTIVES ⁽¹⁾

1 Barkley, Bruce, (2006). Integrated project management, P. 91:100

In general, the management approach of BNOB portfolio, sub programs, and projects could be categorized as per PMBOK® Guide (Project Management Body of Knowledge Guide) by project management area of knowledge as explained below.

5.2.4.1 INTEGRATION MANAGEMENT APPROACH

Projects' outcomes are integrated most effectively when the framework for integration is established, that means where integration has occurred first at the "top" of the program and portfolio levels. The challenge in returning New Orleans to a viable and safe community involves a complex arrangement of partnerships and interlocking contracts starting at the top, all integrated by a special purpose district established by the state legislation.

Integration has been occurred at five basic levels:

- Public-private community policy and portfolio integration.
- Contractor-community integration.
- Subcontractor business-to-business integration.
- Program integration.
- Project integration.

The level of integration at the public-private community is a political process; but its essence is the choice of the followings: funding sources, choice of priority housing, community development programs, and the choice of design and plan. The special district must make the difficult decisions on how to develop a portfolio of projects, how to rank them, and how to finance them in order to bring the private sector back to the New Orleans areas.

Within the integration management area of knowledge, programs and projects under BNOB strategic plan have been defined. For each project, a Charter and Project Management Plan have been developed. The activities needed to identify, define, combine, unify, and coordinate the various processes and activities within the project management process groups have been implemented.

5.2.4.2 SCOPE MANAGEMENT APPROACH

BNOB Portfolio of districts' urban development and re-land use has defined both the Scope Management Plan for sub-programs and each individual project. However, the following elements represented the main elements of each scope management plan:

- An executive overview.

- Program master schedule - develop a program schedule that outlines the contracted development.
- Schedule will be developed in MS project software and delivered in hardcopy form.
- The schedule will include the number of WBS elements, task description, percent complete, start, finish, actual start, actual finish, and predecessor.
- A detailed schedule indicating the status and earned value information to be submitted for the district management’s review.
- Schedule details that clearly provide a concise viewable plan of the project elements required for building and that provides visibility and a network to at least level 4 of the WBS.

Within the scope management plan of BNOB projects, the process of “Scope of Work Definition” has been performed; the process of “Creating WBS” which subdivided the project deliverables into smaller and more manageable components has been implemented. The process of “Scope Verification” has been performed during monitoring and controlling the process group.

5.2.4.3 TIME MANAGEMENT APPROACH

Within time management plan of BNOB projects, the process of “Activity Definition” has been performed where both the activity and milestone lists have been issued. The process of “Sequence of Activities” has been performed that drove out the project schedule network diagrams. Expert judgment, analogues estimating, and parametric estimating have been implemented to estimate the duration of the project activities which produced the total project duration of 36 months.

Various tools and techniques have been used to develop project schedule (critical path method, critical chain method, and what-if scenario). The process of “Control Schedule” has been also performed. Three types of integrated schedules will be used in BNOB portfolios, programs, and projects.

1- GANTT TYPE OF SCHEDULES:

Gantt chart is a type of bar-chart that illustrates a project schedule, it representing activities (from project Work Breakdown Structure “WBS”) by showing activities start and end dates, expected durations, and milestones (intermediate or final point in the schedule where significant deliverables are due or when a phase or stage is to be completed) – Figure (5-20) shows an

example of Gantt Chart which are relatively easy to read, and are frequently used in management presentations.

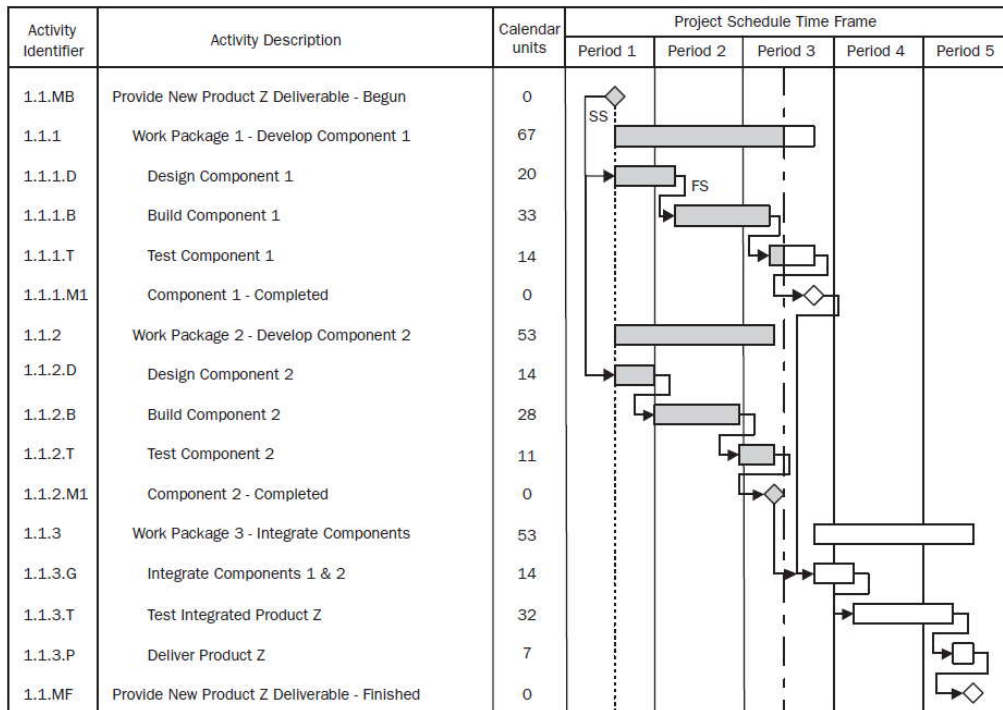


Figure (5-20) ⁽¹⁾ Gantt chart illustrating project schedule sample

2- NETWORK LOGIC DIAGRAMS:

The network logic diagram is an arrow diagram showing the basic independencies in the project. Having identified the basic tasks of this summary task, one builds both, a network diagram and time based network of this summary task,

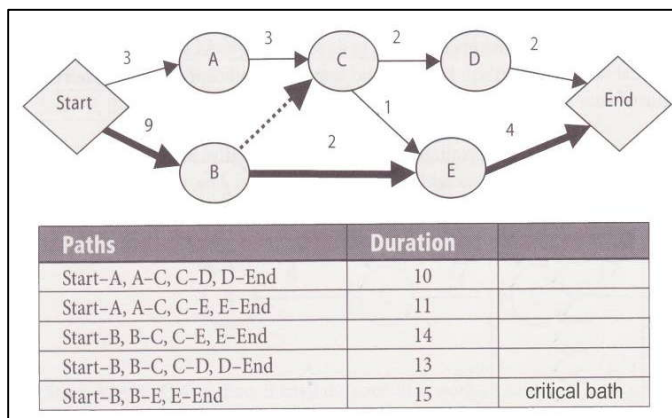


Figure (5-21) ⁽²⁾ Network Logic Diagram

1 Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition. (Project Management Institute, Pennsylvania, USA), P. 158

2 Ibid., 139

which are later integrated with other summary task diagrams to create the whole project network, as shown in Figure (5-21).

2- LINE OF BALANCE:

Line of balance is a method of showing the repetitive work that may exist in a project program as a single line on a graph rather than a series of individual activities on a bar chart. A line of balance can be used for any project where there are a number of separate but common activities to undertake or an activity with a long duration. They are not well suited to individual activities which have a short duration which are undertaken in isolation to similar activities in a project - (5-22) showing line of balance example.

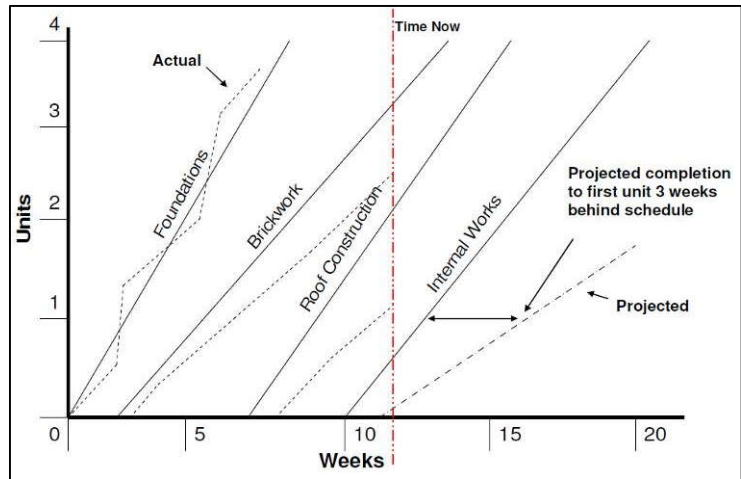


Figure (5-22) Line of Balance

5.2.4.4 COST MANAGEMENT APPROACH

Within cost management plan of BNOB projects, the criteria for planning, structuring, estimating, budgeting, and controlling project costs have been formulated. The cost management plan has established the rule of performance measurements by using Earned Value Management (EVM).

Funding for the BNOB portfolio of districts' urban development and re-land use has come from an integral financial package, providing for 80% federal funding from the Department of Housing and Development, and the Department of Transportation, and 20% state funding from a special state tax assessment. Private funding from charitable organizations and service agencies such as Red Cross has been welcomed. Control of finances and strict accountability has been maintained by the special inspector, general function managed at the state level by the Governor's Office.

The determination of affordability of new property for residents has to do with the quality and sophistication of the financing arrangements for the lease of publicly owned land. New leasing arrangements will be designed to allow low income residents to lease their land and residences at a low interest loan. Therefore, the contractor will ensure the best value development that provides a sound internal rate of return and earliest break-even point for the district operation as possible. Income streams to be considered will be for a 25 year's period.

5.2.4.5 QUALITY MANAGEMENT APPROACH

Within quality management processes of all BNOB portfolios, projects have been managed by using PMBOK® Guide standards, providing for integrated plans and programs, and using earned value as the indicator of progress. Quality is maintained through building a commitment to the overall purpose of the program. Progress Reports in terms of project's percentage of completion and milestone achievement will be conditioned on an honest and straightforward assessment of the work status.

All projects will be managed using the stage-gate process. Projects will enter each phase after gate review and explicit authorization from the district management to proceed to the next phase. Gate reviews will consider an integrated set of measures of progress, including earned value, customer satisfaction, and cost effectiveness.

Accurate Performance Assessment is the cornerstone of an integrated project management system. This means that reports on tasks partially or wholly complete from task managers are accurate estimates from those who are doing the work. A culture of honesty and integrity in the organization and the district itself creates the standard for accurate reporting.

5.2.4.6 HUMAN RESOURCES MANAGEMENT APPROACH

Within the processes of "Human Resources Management" of all BNOB portfolios, Human Resource Management Plan has been performed. One of the main concepts will be implemented within Human Resource Management Plan is to employ local residents in the planning and development process, so that they can build their local values and visions into the work itself. Part of the implemented team development process was recognizing and rewarding the qualified and hardworking employees who will be motivated if they feel they are valued in the organization. On the other hand, an incentive award-fee system has been developed for the contractors in the event of a project's early

completion. Co-location concept has been implemented at strategically important times during the projects which involves placing all of the most active project team members in the same physical location to enhance their ability to perform as a team.

The process of “Manage Project Team” will be an integrated challenge since all activities will be in a “fish bowl” environment that will be of direct interest not only locally, but also nationally and internationally. The special district will employ a highly qualified career executive director to coordinate the process. The executive director will report to the special district board of directors (local, state, and federal officials). A partnership arrangement will be negotiated so that all contractors report to the special district executive director.

5.2.4.7 COMMUNICATION MANAGEMENT APPROACH

Within communication management plan of BNOB projects, the processes required to ensure timely and appropriate generating, collection, distribution, storage, retrieval, and ultimate disposition of the project information have been formulated.

The contractors enter the community of prospective residents and facilitate public hearings in neighborhoods to share designs and ideas and to solicit feedback from prospective residents. Integration of both residents and design team’s ideas occurs through the development of an interactive series of plans, which eventually become well-developed programs of projects. Planning and construction begins using baseline schedules and contractors’ arrangements that serve to coordinate the construction process.

5.2.4.8 RISK MANAGEMENT APPROACH

Within risk management processes, a design team is established to create ideas and proposals for consideration by the special district leaders. Plans are framed in terms of the project plan, schedule, and cost. Accordingly, all projects are analyzed using cash flow projections, discounted by net present value factors, a weighted scoring model that ranks projects according to the relative importance of several community objectives, and a risk assessment that identifies project risks, impacts, probabilities, severity, and contingency actions.

Corrective action is generated by risk assessment information and contingency plans prepared in the base-lining process. In other words, mitigation actions for most anticipated risks in the project are already available

to project managers because those corrective actions have been planned early in the project.

5.2.4.9 PROCUREMENT MANAGEMENT APPROACH

BNOB procurement management has included the processes necessary to purchase or acquire products, services, or results needed from outside the project team. BNOB procurement management plan has formulated the rules for contract management and changing the control processes required to develop and administer contracts or purchase orders issued by the authorized project team members.

The development of integrated portfolio involves ranking the projects by using differently weighted scoring models, and then generating a public-hearing process to raise community awareness of proposals and projects. Contractors are chosen through competitive bidding on segments of the community plan and are bonded to avoid misuse of funding or fraud and waste.

5.3 EPILOGUE

- The city of Malmö is the third largest in Sweden and has its own distinctive experience to regenerate and reinvent itself by developing and managing its own strategic plan to achieve strategic planning goals.
- The Bo01 housing district constitutes the first stage in the transformation of Western Harbor district into a new mixed use development.
- Urban, socioeconomic, and ecological objectives have been determined through the strategic plan and the OPM management approach has been used by Malmö City Planning Office to achieve these strategic objectives.
- Within Bo01 integration management approach, local authorities, business, researchers, and citizen groups cooperate in implementing the integration management processes.
- Within Bo01 scope management approach, a Quality Committee has been formulized to inspect tasks such as measuring, examining, and verifying project deliverables.
- Within Bo01 time management approach, the processes of time management have been implemented by using tools such as critical path method, critical chain method, as well as what-if scenario.

- Within Bo01 cost management approach, Cost Management Plan has been formulated to establish the rules of performance measurements by using Earned Value Management; hence the governmental grants have been allocated.
- Within Bo01 quality management approach, Quality Program with Quality Metrics and Quality Checklist has been determined. Both processes of “Quality Assurance” and “Quality Control” have been performed.
- Within Bo01 human resources management approach, the process of “Development of Human Recourses Plan” has been performed through a set of management tools.
- Within Bo01 communication management approach, the processes required to ensure timely and appropriate generating, collection, distribution, storage, retrieval, and ultimate disposition of the project information have been formulated.
- Within Bo01 risk management approach, the program of whole Western Harbor District’s land use reutilization has been divided into three sequential projects which help in mitigating any anticipated risk impact and give the chance to evaluate each project and set the lesson learned.
- Within Bo01 procurement management approach, the processes necessary to purchase or acquire products, services, or results needed from outside the project team have been performed. The developers’ contracts have been prepared, bidders conferences have been held, qualified developers’ checklist has been issued.
- The city of New Orleans is a major United States seaport and the largest city in the State of Louisiana. It has its own experience in disaster recovery and rebuilds itself by developing its unique strategic plan “BNOB” and managing an integrated set of portfolios, programs and projects to achieve the strategic objectives.
- Urban, socio-economical, and ecological objectives which have been determined through the strategic plan and OPM management approach have been used by the New Orleans Community Development District.
- BNOB integration management has been implemented at five basic levels: public-private community policy and portfolio integration, contractor-community integration, subcontractor business-to-business integration, program integration, and project integration
- Within BNOB scope management approach, the Scope Management Plan for both sub-programs and each individual project has been defined.

- Within BNOB time management approach, time management processes have been implemented by using tools such as critical path method, critical chain method, and what-if scenario. Three types of integrated schedules have been used such as Gantt Chart, Network Logic Diagrams, and Line of Balance.
- Within cost management plan of BNOB projects, the criteria for planning, structuring, estimating, budgeting, and controlling project costs have been formulated. Funding has come from an integral financial package providing for 80% federal funding from the Department of Housing and Development and the Department of Transportation, 20% state funding from a special state tax assessment. Private funding from both charitable organizations and service agencies have been welcomed.
- Within BNOB quality management approach, the quality was maintained through building a commitment to the overall purpose of the program. Performance assessment was the cornerstone of an integrated project management system.
- Within BNOB human resource management approach, Human Resource Management Plan has been performed. Employment of local residents and co-location concepts has been implemented. An incentive award-fee system has been developed for the contractors in the event of a project's early completion.
- Within BNOB communication management approach, the contractors enter the community of prospective residents and facilitate public hearings in neighbourhoods to share designs and ideas and to solicit feedback from prospective residents.
- Within BNOB risk management approach, risk assessment that identifies the project's risks, impacts, probabilities, severity and contingency plans, have been implemented. Corrective actions are generated accordingly.
- BNOB Procurement Management Plan has formulated the rules for contract management and change control processes required to develop and administer contracts or purchase orders issued by authorized project team members.



CHAPTER 6

LAND USE REUTILIZATION PROCESSES: MANAGEMENT APPROACH OF ACHIEVING OBJECTIVES – TWO SOUTHEAST ASIAN CITY-STATES

“The incredibly fast urban transformation of Singapore’s downtown is a good example for rethinking urbanism in an Asian urban context. This provides a different experience from European and North American urbanism in terms of urban form, driving forces and alternative future scenarios.”

Dr. Perry Pei-Ju Yang, Department of Architecture, National University of Singapore

This chapter discusses the land-use reutilization processes of two Southeast Asian city-states ⁽¹⁾. It looks into the land-use reutilization objectives within their strategic urban development master plan. Then, it tries to investigate the management approaches to achieve the objectives.

6.1 21st CENTURY GLOBAL BUSSINES CENTER – SINGAPORE CITY-STATE

Singapore is an island city-state in Southeast Asia. About 5 million people live and work within 700 square kilometres, making Singapore the 2nd-most-densely populated country in the world. The entire island functions as a single metropolitan area. The city centre in the south of the island is surrounded by satellite towns, parks, reservoirs and industrial estates, which are connected to the centre and each other by a dense network of roads, expressways and metro-railway lines.

¹ A city-state is a country with political system consisting of an independent city with sovereignty over a fixed surrounding area, (Britannica Encyclopaedia).

Singapore is known for its downtown skylines, high-quality public housing, green urban landscape and an efficient infrastructural system.

Its deepwater harbour, free port status, and position between the Indian Ocean and the South China Sea have helped the city to become the largest port of Southeast Asia and a commercial centre of world class. Major industries include shipping, shipbuilding, electronics, tin-smelting, rubber processing, fruit canning, and oil refining⁽¹⁾ as well as trading and banking – figure (6-1) shows Singapore’s location at extreme South-East of Asia.



Figure (6-1) Location of Singapore

Singapore has a highly developed market-based economy; along with Hong Kong, South Korea and Taiwan, Singapore is one of the Four Asian Tigers. Singapore's economy has been ranked amongst the world's ten most open, competitive and innovative one. It rated with its Central Business District (CBD) called “Golden Shoe” and its trunk road “Shenton Way” as the most business-friendly economy in the world – figure (6-2) shows location of the Downtown within Singapore.



Figure (6-2) Location of Downtown within Singapore

Singapore has started its own experience by developing a new downtown by late 1990s to be located adjacent to old CBD, on the reclaimed land of Marina South. The policy intention has been creating an environment combining work, leisure, and living in a single location. After defining the main goals and objectives, an integrated program called Singapore Downtown

¹ <http://en.wikipedia.org/wiki/Singapore> (21/08/2010)

Development Program (SDDP) has been implemented to achieve the desired goals and objectives.

6.1.1 SINGAPORE URBAN DEVELOPMENT BACKGROUND

Prior to the 19th century, Singapore was a minor part of various regional empires, including Srivijaya, Majapahit, Malacca, and Johor. From the year 1826 to the Battle of Singapore in 1942, Singapore was the capital of the Straits Settlements, a British colony which included the Settlements of Malacca and Penang along the Straits of Malacca. After the Second World War, Singapore was hived off as a separate colony while the other two Settlements joined the Malay States to form the Federation of Malaya. In 1963, Singapore merged with Malaya, Sabah and Sarawak to form Malaysia. However, because of a number of problems, Singapore left the federation in 1965, becoming an independent republic ⁽¹⁾.

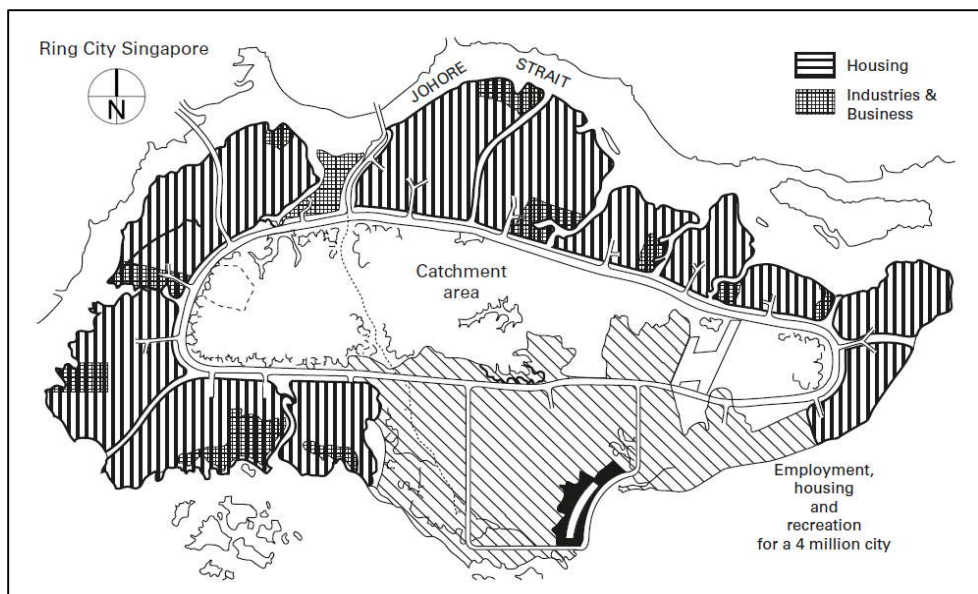


Figure (6-3) ⁽²⁾ The Singapore “ring development” plan in 1963

There are different urban concepts behind the planning and downtown urban design policy, which initiated and then constituted the radical urban transformation in Singapore over last 30 - 40 years. In 1959, Singapore established its own self-government. The 1958 Statutory Master Plan, a colonial product based on the concept of Singapore as a middle-size town

1 <http://en.wikipedia.org/wiki/Singapore> (21/08/2010)

2 Jenks, Mike and Dempsey, Nicola (2005). *Future Forms and Design for Sustainable Cities*. (Architectural press), P. 168

surrounded by countryside, was replaced in 1963 by a new vision of decentralized “ring development”, which was drafted by a UN team in a report “Growth and Urban Renewal” – As shown in (Figure 6-3). Although the spatial scale is much smaller, some believe that the “ring development” in the UN team's Singapore Master Plan gained their inspiration from the ring of cities and green heart concepts of Randstad metropolitan area in Holland.



Figure (6-4) ⁽¹⁾ Location of the Golden Shoe, Shenton Way and Marina South

The policy of decentralizing population growth through the ring pattern was clearly set in the island-wide concept plan in 1971. The ring pattern decisively influenced the geometry of the urban transport systems such as rapid transit and expressways, and the water resource planning through the protection of the central water catchment and green areas in the centre of the island. Under the ring development policy, the spatial effects of decentralization and centralized revitalization coexisted. The development of public housing and new towns along the ring corridors and at the outer fringes of the city paralleled the revitalization of the central city area and the relocation of existing inhabitants.

The government through its Housing Development Board (HDB), which is a public housing planning, design, construction and management entity, determined the urban landscape of decentralized new towns in Singapore. To date, more than 80% of the population inhabit the 20 decentralized new towns, which are 10-15 km away from the city centre and occupy more than 160 km² or a quarter of the land area of the whole island ⁽²⁾.

¹ Ibid., P. 170

² Ibid., P. 168-169

Simultaneously, business activities were highly centralized at the nodal centre of the ring city. From the late 1960s, the Singapore central business district (CBD) and financial centre 'Golden Shoe' are rapidly developed along the waterfront and Shenton Way, under the urban renewal program. The CBD became a financial centre where most of the headquarters' offices, major local and international banks, stock brokers' companies, law firms, accountants and management consultants are rooted, including the fourth largest foreign exchange market in the world. The incremental shaping of the towering urban skyline responds to the rising position of Singapore city in the expanding international economy, and its increasingly important role in regional finance, industry and port services.

The spatial consequences of the decentralized new towns all over the island, and the concentrated downtown development in the centre, resulted in an almost total functional divide between living and working. The boundaries of the city centre, fringe towns and restricted green areas are clearly demarcated, and spatially divide the way people work, live and play in the city. By late 1990s, Singapore Government started downtown redevelopment program that proposed the new development to be located on the reclaimed land of Marina South peninsula, planned as an extension of the existing Shenton Way CBD area – Figure (6-4) shows the location of the Golden Shoe, Shenton Way, and Marina south.

6.1.2 LAND USE REUTILIZATION WITHIN SINGAPORE URBAN DEVELOPMENT PROGRAM

In the past three decades, the Singapore urban skyline has changed rapidly in the downtown revitalization process. With its astonishing urban changes, clean environment and neat city images, Singapore, as a city-state, has influenced the ways the city has been shaped and managed. This is evident, for example, in the success of controlling traffic growth in the central city area through public transport and advanced management systems like electronic road pricing. Singapore's approach has become a unique model of urban management in East Asia, where governmental planning plays a fundamental role in the shaping of both economic growth and urban physical environment through long-term urban policies, nimble decision-making, delicate skills of urban design and efficient implementation of plans ⁽¹⁾.

¹ Ibid., P. 167

Since the achievements of the past may not guarantee the future success, Singapore Government in 1996 represented by Singapore Urban Redevelopment Authority (URA) proposed a 14 million m² downtown development on reclaimed land at Marina South which came to be known as “Marina Bay”, which

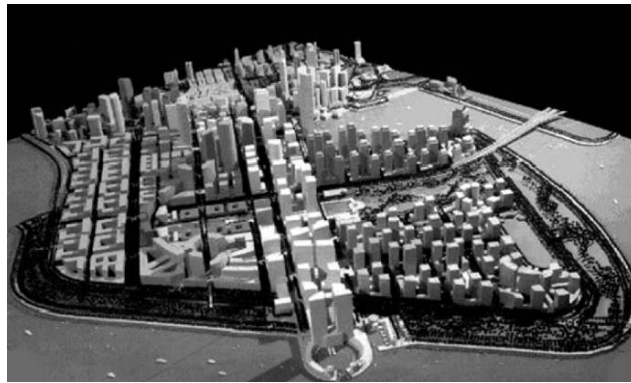


Figure (6-5) ⁽¹⁾ Urban design of Singapore New downtown 1996

represents a typical Singapore approach based on governmental initiation and planning. Singapore Downtown Redevelopment Program aimed at creating an environment combining work, leisure and living in a single location, planned as an extension of the existing Shenton Way CBD Area.

Initially, Marina Bay was planned to provide about 3 million m² of office space, which almost doubled the size of the old CBD. The design of the New Downtown “Marina Bay” applied the principle of ‘maximum pedestrian traffic, minimum vehicular congestion. All modes of transportation were planned next to, under or at the edge of the development. Vehicular traffic was stopped or restricted at the edge of the district by interceptor car parks, which were intended to encourage the district-wide pedestrian movements⁽²⁾.

The urban design principles behind the 1996 New Downtown proposal – as seen in figure (6-5) - went beyond the traditional form and function of office-oriented development of Shenton Way CBD in many aspects. First, the ‘live–work–play’ mixed-use development included 26,000 new homes with high accessibility to the workplaces and was evenly distributed across the overall area in the waterfront, downtown centre and the surrounding urban parks. Second, the injection of entertainment and recreational facilities was intended to change the nature of working environment. The live–work–play combination was meant to transform the daytime office downtown to a 24-hour ‘New Downtown’. Third, some emerging technologies were implemented in infrastructure planning and building design, such as a district cooling system,

¹ Ibid., P. 172

² <http://www.ura.gov.sg/>

(27/08/2010)

high-speed lifts with artificial intelligence control systems, central computer-based building automation systems and common services tunnels. These urban design principles aimed to achieve the new objective of the island to create a ‘global business hub’. The proposal represented another ‘non-stop’ government policy initiative to keep track of Singapore’s economic progress in the global marketplace ⁽¹⁾.

The transition of Singapore’s downtown design concepts from the 1970s Shenton Way to the 1990s New Downtown is significant but also problematic. The New Downtown proposal indicates an innovative form of corporate space intended to integrate living, working and recreational activities. The ideas seem ‘too good to be true’: the multi-level pedestrian and vehicular movements, parking systems and public transports provide an environment with almost ‘zero-friction’ circulation. Urban design formulae such as tree-lined boulevards, waterfront promenades, urban parks and plazas are ubiquitous across the whole area, and were illustrated through a few images of Western cities. Although western design formulae aspire to a certain quality of urban life, ironically, the New Downtown design transmits a strong sense of placelessness.

The 1996 New Downtown proposal in fact expresses the ultimate form of functional planning, surprisingly akin to the principles of Shenton Way’s downtown urban design of the 1970s. Unlike the mono-functional design of Shenton Way, the New Downtown is designed with multiple uses, but this is not only for corporate profitability, but also for tourism and consumption. Like many precedents in Singapore planning and urban design, the urban environment and experience cut across all boundaries of geography, culture and ideology, where urban form is built without reference to history and geography. It is hard to detect any social differences, cultural distinctions or confrontation points in this new urban vision because they seem to have disappeared or, as Marshall Berman’s comments on modernity and the experience of contemporary urban life, ‘melted into air’.

In 2003, Singapore URA announced a revised new downtown plan within Singapore Downtown Development Program (SDDP). Based on a similar development projection, 6 million m² of floor area, the propositions of the 1996 New Downtown plan were largely followed by the 2003 SDDP: a pedestrian friendly environment with at, above or below ground level

1 Thornley, Antony (1999). Urban planning and competitive advantage: London, Sydney and Singapore. (Unpublished paper, London school of economics and political science). P.11

connections, state-of-the-art infrastructure and multi-functional mixed-use design, which aimed for ‘a distinctive and global location for business and for living, working and leisure, around-the-clock’⁽¹⁾.

There were only minor differences between the two downtown plans in terms of physical design (Figure 6-6). A new 75-m wide and 700 m long linear urban park was created and oriented towards the Marina Bay. Within the 100 ha of the New Downtown core area, the open space ratio was increased from 6% to 12%. The average block size was reduced from 1.6 to less than 1 ha. A regular block system provided a spatial framework which would ‘allow room for expansion, subdivision and phasing of developments to suit changing market need’. The smaller block design and flexible grid system reflected the more conservative position adopted by the 2003 revised plan due to the difficulties faced by the government in attracting real estate investment to the new area⁽²⁾.

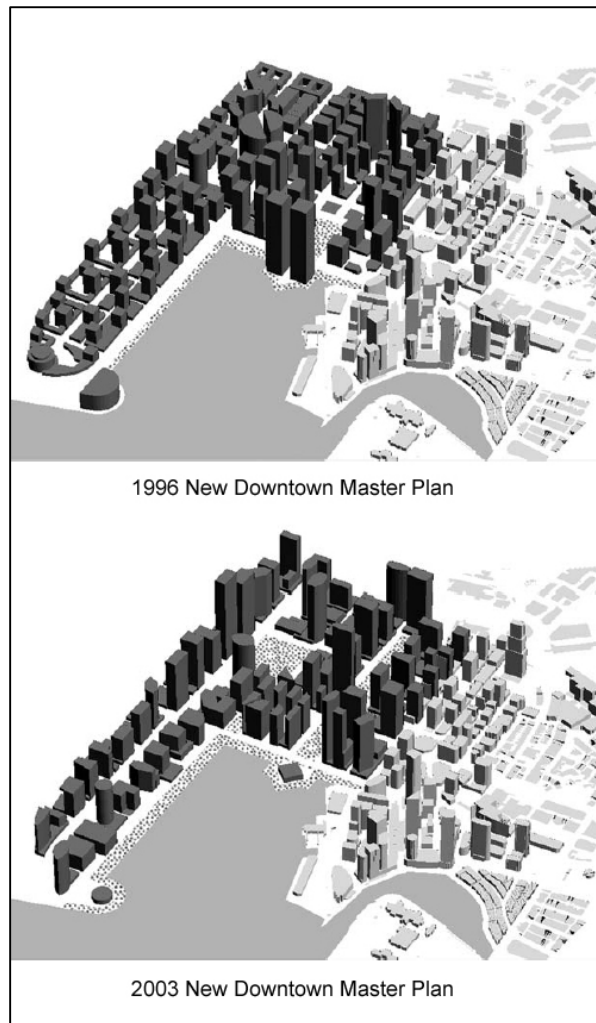


Figure (6-6)⁽³⁾ The comparison of 1996 and 2003 New downtown master plan

One of the main characteristics of Singapore case study is that the issue of ‘privatized public space’ in Western cities does not exist, because the whole city has, in almost all respects, privatized public space through government land acquisition, delicate planning and careful management, resulting in neat

1 Urban Redevelopment Authority, Singapore government, (2003). Annual report.

2 Jenks, Mike and Dempsey, Nicola (2005). Future Forms and Design for Sustainable Cities. (Architectural press), P. 173-174

3 Ibid., 174

and organized streets, parks, underground and open spaces in the city centre and at the fringes. As a consequence, the downtown urban space, even the whole city, has become a designable object.

The URA Master Plan of SSDP for Marina Bay aims to encourage a mix of uses for this area, including offices, commercial, residential, hotel and entertainment, to ensure that the area remains vibrant round the clock – figure (6-7) shows real view of current Marina Bay area. All developments in the area aim to promote the 3 premises of Explore, Exchange and Entertain:



Figure (6-7) ⁽¹⁾ Real view of current Marina Bay area

Explore – New living options. Numerous high-end residential developments are in the pipeline, including One Shenton and Marina Bay Residences which will complement The Sail at Marina Bay to provide a seamless work-live environment at the heart of the city.

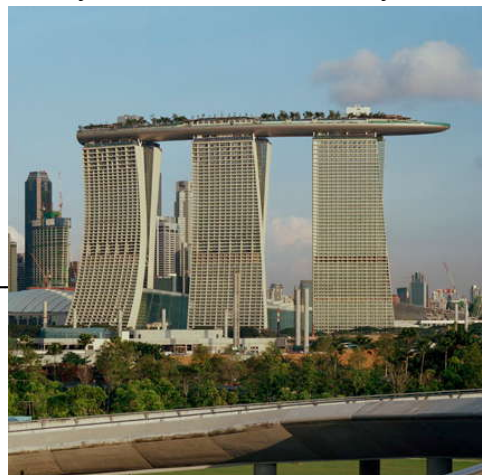
Exchange - Hub for global business. When completed, Marina Bay will double the size of the existing financial district; further cementing Singapore's position as one of Asia's leading financial centers. It will provide 2.82 million square meters of office space – figure (6-8) shows real photo of three Marina south financial center towers as of September 2009.

Entertain - Kaleidoscope of activities. In July 2010, the Marina Bay Sands



1,2, 3 <http://www.ura.gov.sg/> (27/08/2010)

Figure (6-8) ⁽²⁾ Marina Bay new



Integrated Resort - figure (6-9) - has started welcoming its visitors, provided more entertainment options to the area, the resort features a 2560 room hotel, 120000 Sq. m. convention and exhibition center, Shoppes Mall, an art & science museum, two theatres, six restaurants, two floating pavilions, and a casino. The complex is topped by 340 m. long Sky Park with a capacity of 3900 people and 150m long swimming pool, set on top of the world's largest public cantilevered platform, which overhangs the north tower by 67m.

The second entertainment item is constructions of 101 hectares three waterfront gardens are underway at Marina Bay. Phase 1 of the Gardens is scheduled to open in 2011 - Figure (6-10). it Involves climate-controlled conservatory showcasing plants from around the world, it will form the backdrop behind the high-rise developments along the Bay front area, and will link it to the Marina Barrage. It will also incorporate something the designers call Super Trees. The super trees will be artificial structures acting as hanging gardens, rainwater catches, night time lighting, bar and restaurant venues, and shade providers for the pathways below. Some will be connected by aerial walkways. They will be of differing heights between 25 and 50 meters.



6.1.3 LAND USE REUTILIZATION OBJECTIVES OF SINGAPORE ⁽²⁾

Although the main objective of SDDP in general is to develop the new downtown by creating an environment combining work, leisure, and living in a single location but there are many others targeted urban, socioeconomical and ecological objectives which could be mentioned in bullets as following.

Figure (6-10) ⁽¹⁾ Marina Bay Gardens, Super trees and landscape features

6.1.3.1 URBAN OBJECTIVES

1 Ibid.

2 Thornley, Antony (1999). Urban planning and competitive advantage: London, Sydney and Singapore. (Unpublished paper, London school of economics and political science), P. 10-11

SDDP has drawn up the following urban objectives:

- Provide more mixed use areas.
- Support the low density housing often in waterfront communities linked to beaches and recreational facilities.
- Develop the remaining open area as landscape features.
- Encourage land reclamation to create a whole new island devoted to leisure and luxury housing which will stretch from the central area to the airport.
- Create a new entertainment area in the centre of the city which they are promoting as ‘the city’s one-stop dynamic entertainment scene’.

6.1.3.2 SOCIOECONOMIC OBJECTIVES

SDDP has drawn up the following socioeconomical objectives:

- Develop more institutional structure needed to secure Singapore’s economical success.
- Develop land uses linked to the prime objective of attracting business, e.g. golf courses, recreation areas, and beaches.
- Give much attention to the concept of the 24-hour city and the café society.

6.1.3.3 ECOLOGICAL OBJECTIVES

SDDP has drawn up the following ecological objectives:

- Provide high quality residential development, a good environment, leisure facilities and exciting city life.
- Emphasize on the environmental policy which is concerned with the ‘greening’ of development - what is referred to as the ‘beautification’ of Singapore.
- Concentrate on public green zones to define the boundaries of settlements and along transport corridors.
- Encourage the concept of providing green spaces within housing areas.

6.1.4 MANAGEMENT APPROACH OF ACHIEVING SDDP OBJECTIVES ⁽¹⁾

1 Urban Redevelopment Authority, Singapore government, (2003). Annual report.

SDDP considers one of the most successful land use reutilization programs in Southeast Asia. This success is the result of adherence to detailed project management plan prepared by Urban Redevelopment Authority (URA) and its sub management plans related to different project management area of knowledge as per PMBOK® Guide (Project management Body of Knowledge Guide). In general, the management approach of SDDP could be categorized by project management area of knowledge as explained below.

6.1.4.1 INTEGRATION MANAGEMENT APPROACH

SDDP is closely linked to the centrally planned state economic strategy. The Economic Development Board have a key influence on the strategic land use plans of SDDP which are prepared by another board of government, the Urban Redevelopment Authority (URA). The private sector is also involved in the planning process as they are invited to give their opinions in the committees which are set up to advise these government boards.

Within project integration management area of knowledge, SDDP projects have been defined, project charter and project management plan have been developed, activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management process groups have been implemented.

6.1.4.2 SCOPE MANAGEMENT APPROACH

SDDP conceptual plan stressed the importance of taking into account the changing global trend in living and working patterns, sustainability and energy-saving strategies, variation in identity of urban neighborhood and the strong sense of islandness. The key proposals included a global business centre, high-rise city living, an extensive rail network and focus on identity. URA appointed an International Panel of Architects and Urban Planners, to review the draft of SDDP concept Plan and to issue SDDP detailed scope and management plan.

Within SDDP scope management area of knowledge, the process of “Define Scope of Work” has been performed, the process of “Create WBS”, which subdivided the project deliverables into smaller and more manageable components, has been implemented. The process of “Verify Scope” has been performed during monitoring and controlling process group.

6.1.4.3 TIME MANAGEMENT APPROACH

URA announced SDDP in 2003, which was planned to be finalized in 9 years, by 2012. Within SDDP time management area of knowledge, defined activities process has been performed where both, activity and milestone lists have been issued. The process of “Sequence Activities” has been performed which drove out the project schedule network diagrams. The process of “Develop Schedule” has been performed to analyze activity sequences, durations, resource requirements, and schedule constrain to create integrated schedule. Finally, controlled schedule performed to monitor the status of the SDDP projects and to update project progress and manage changes to the schedule baseline.

Various tools and techniques have been used within different time management processes. For the processes of “Define and Sequence Activities”, both rolling wave planning and precedence diagramming method (PDM) have been implemented. In the processes of “Develop and Control Schedule”, both schedule network analysis and what-if scenario have been implemented.

6.1.4.4 COST MANAGEMENT APPROACH

Within SDDP cost management area of knowledge, the process of “Estimate Costs” has been performed to develop the approximation of the monetary resources, needed to complete SDDP activities where basis of estimates have been determined and accordingly activity cost estimates have been issued. The process of “Determine Budget” has been performed where both, cost performance baselines and project funding requirements have been determined. The process of “Control Costs” has been performed to monitor the status of SDDP, updating the budget, and managing changes to the cost baseline.

Various tools and techniques have been used within different cost management processes; like Analogous Estimates, Expert Judgment, and Earned Value Management (EVM).

6.1.4.5 QUALITY MANAGEMENT APPROACH

SDDP quality management with both quality metrics and checklist have been developed as an output of the processes of “Plan Quality”. Urban design guidelines have been defined as a governmental tool for achieving expected performance and spatial quality of possible urban form. By looking at the more detailed block-scale massing study and designs, some aspects of urban design quality were achieved by developing a visibility analysis, a built form and streetscape study, connectivity consideration of vehicular and pedestrian access and the implementation strategies for development programs. The traditional

ways to deal with urban design guidelines such as design control plans and sections were applied. New techniques of describing three-dimensional (3D) urban quality, such as 3D mass rendering, were also tested for illustrating the criteria and guidelines of the design area.

The main targets of SDDP quality management are:

- Ensure high quality according to the defined project design guidelines.
- Make Marina Bay as an internationally leading example of the live, work, and play urban environment.
- Ensure a very high quality of applied technology and services.
- Ensure very high quality of architectural design and urban planning.

6.1.4.6 HUMAN RESOURCES MANAGEMENT APPROACH

Within SDDP human resources management area of knowledge, human resource management plan has been performed which identified the staffing management plan and organizational structure. The process of “Develop Project Team” has been performed, which one of its tools and techniques as per PMBOK® Guide is: Team Building Activities.

A technical committee, sponsored by URA, was established at the Department of Architecture of the National University of Singapore (NUS) between some URA planners and governmental officers and NUS staff. The URA-NUS committee aimed to assist decision makers of SDDP to explore the future form of Singapore downtown urban space in a broader urban context and to follow up the process of developing and execution of SDDP master plan.

6.1.4.7 COMMUNICATION MANAGEMENT APPROACH

Within quality management area of knowledge, the processes of “Identify Stakeholders”, “Plan Communication”, “Distribute Information”, Manage “Stakeholders Expectations”, and “Report Performance” have been implemented.

As part of Communication Management Plan, the URA-NUS committee has performed intensive urban design Workshops to provide a platform bringing together various stakeholder groups to discuss common themes related to the built environment: architecture, planning, environmental aspects, as well as a focus on quality. The primary goal is that the process itself would result in a detailed plan. The Private sector were also involved in the communication processes as they were invited to give their opinions in the sub-committees which are set up with URA-NUS committee to advise government

boards. Thus, in preparing its plans, the URA responds to the views of the various advisory committees and the boards and ministries of government.

6.1.4.8 RISK MANAGEMENT APPROACH

SDDP risk management has included the processes of conducting risk management planning, identification analysis, response planning, monitoring and controlling the project. The objectives of SDDP risk management were to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project. SWOT analysis has been performed and recommendations for preventive / corrective actions have been confirmed to updated project risk plan.

6.1.4.9 PROCUREMENT MANAGEMENT APPROACH

SDDP procurement management has included the processes necessary to purchase or acquire products, services, or results needed from outside the project team. SDDP Procurement Management Plan has formulated the rules for the processes of “Contract Management” and “Change Control” which are required to develop and administer contracts or purchase orders issued by authorized project team members.

As part of SDDP procurement management plan to develop Marina South urban design, landscape, and design of buildings; set of international design competition was announced to appoint the designers to SDDP projects (Marina Bay Sands Integrated Resort, Marina Bay Gardens, New Financial Center Towers, etc...). Panel of judges was formed of members from government agencies like the URA, the Public Utilities Board, the Singapore Tourism Board, Industrial Players like the Singapore Institute of Architects and Singapore Institute of Landscape Architects, as well as members from the community in Singapore. The winners were hired to undertake the design tasks and accordingly contractors were selected.

Administration of procurement process has been performed during the project monitoring and controlling process group where the following tools and techniques have been used: contract-change control system, procurement performance reviews, inspections and audits, performance reporting, payment systems, claims administration, and records management system.

6.2 CITY OF MULTIPLE AND INTENSIVE LAND USE: HONG KONG CITY-STATE

Hong Kong has been classified as non-sovereign city-state and considered to be one of the two special administrative regions of the People's Republic of China (PRC), the other being Macau. Situated on China's South Coast and enclosed by the Pearl River Delta and South China Sea ⁽¹⁾- figure (6-11) shows Hong Kong's location at South of China. It is renowned for its expansive skyline and deep natural harbour. With a land mass of 1,104 km² and a population of seven million people, Hong Kong is one of the most densely populated areas in the world.

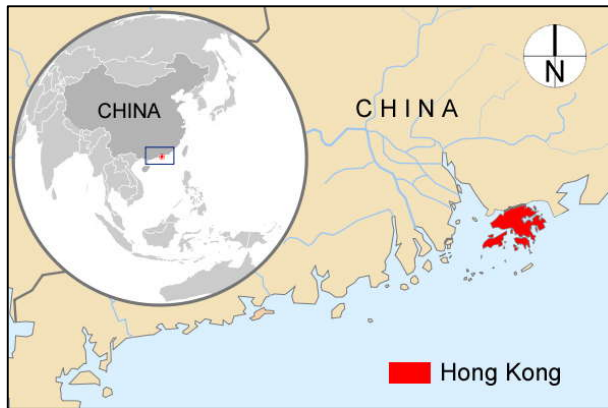


Figure (6-11) Location of Hong Kong

Under the principle of "one country, two systems", Hong Kong has different economic and political systems than those of mainland China. As one of the world's leading international financial centres; Hong Kong has a major capitalist service economy characterised by low taxation, free trade, and the currency, Hong Kong dollar, is the ninth most traded currency in the world. The lack of space caused demand for denser constructions, which developed the city to a centre for modern architecture and the world's most vertical city. The dense space also led to a highly developed transportation network with public transport travelling rate exceeding 90 percent, the highest in the world.

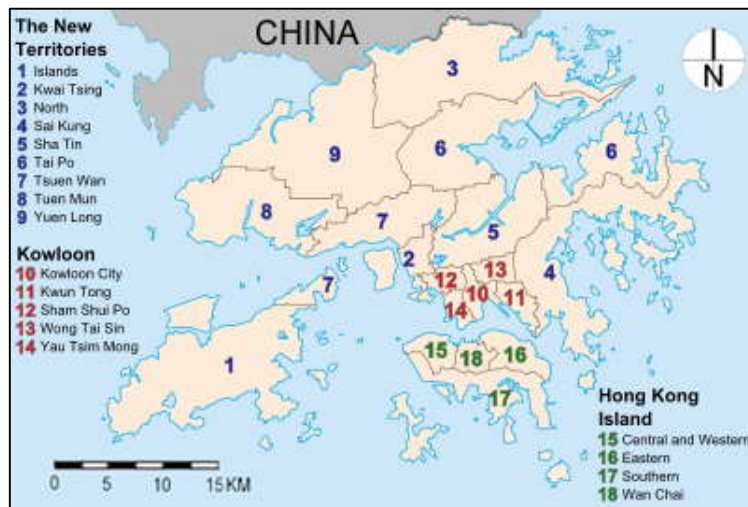


Figure (6-12) Hong Kong administrative districts

1 http://en.wikipedia.org/wiki/Hong_kong (13/10/2010)

Hong Kong is subdivided into 18 geographic districts – figure (6-12) shows its administrative districts, each represented by a district council which advises the government on local matters such as public facilities, community programmes, cultural activities, and environmental improvements.

Unlike other old urban areas of large western cities with low level of economic activities and High crime rates, Hong Kong's problems in the old areas lie mainly in the poor buildings and environmental conditions, and the lack of public open spaces and community facilities. Hong Kong has its own experience in adapting and managing urban renewal program dealing with those old areas through redevelopment, rehabilitation, revitalization, and preservation. After defined the main goals and objectives of the program in 2001, a series of projects called (Ex-LDC projects) have been managed to achieve desired goals and objectives ⁽¹⁾.

6.2.1 HONG KONG URBAN DEVELOPMENT BACKGROUND

Hong Kong became a colony of the British Empire after the First Anglo-Chinese War (first opium war 1839 - 42) between Great Britain and China. Originally confined to Hong Kong Island, the colony's boundaries were extended in stages to the Kowloon Peninsula and the New Territories by 1898. It was occupied by Japan during the Pacific War, after which the British resumed control until 1997, when China regained sovereignty. Hong Kong's independent judiciary functions under the common law framework. Its political system is governed by the Basic Law of Hong Kong, its constitutional document, which stipulates that Hong Kong shall have a "high degree of autonomy" in all matters except foreign relations and military defense.

Currently and according to international real estate data, there are 7,650 skyscrapers in Hong Kong, which puts the city at the top of world rankings. The high density and tall skyline of Hong Kong's urban area is due to a lack of available sprawl space, with the average distance from the harbor front to the steep hills of Hong Kong Island at 1.3 km, much of it reclaimed land. This lack of space causes demand for dense, high-rise offices and housing. Thirty-six of the world's 100 tallest residential buildings are in Hong Kong. More people in Hong Kong live or work above the 14th floor than anywhere else on Earth, making it the world's most vertical city.

As a result of the lack of space and demand for construction, the city is becoming a centre for modern architecture. There are many development

1 Tam, Iris (2007). Planning for varieties in urban renewal in Hong Kong, published paper, The Hong Kong Institute of Planners conference handbook "When Creative Industries Crossover with Cities", P.230

projects in place, including the construction of new government buildings, waterfront redevelopment and series of projects in central and western districts pertaining to redevelopment of old areas ⁽¹⁾.

6.2.2 LAND USE REUTILIZATION WITHIN HONG KONG URBAN DEVELOPMENT PROGRAM ⁽²⁾

Redevelopment in some cases is necessary, but it is not the only approach taken by Urban Renewal Authority (URA) in urban renewal. URA has adopted a 4-R strategy which includes Redevelopment, Rehabilitation, Revitalization and pReservation. Land Development Corporation (LDC), the former urban renewal agency, announced their intention to develop 25 sites in 1998. When Urban Renewal Authority Ordinance (URAO) was enacted in July 2000, the Land Development Corporation Ordinance was repealed and the LDC was dissolved. The URA was established on May 2001 under the URAO and it is expected to implement the Ex-LDC projects as a matter of priority.

The Urban Renewal Strategy (URS) which was formulated by the Government in 2001 to guide the operation of the URA has identified 200 sites, in addition to the 25 Ex-LDC projects, for redevelopment. They involve buildings mostly built in 1950s and 1960s. They are not serviced by lifts and some do not even have toilets. Due to poor concrete, lack of repair and numerous unauthorized structures, many of these building structures are beyond economic repair. Even if they are repaired, the maintenance cycle will be very short and will have to undergo major renovation again.

These sites are situated in the core urban areas with easy accessibility to public transport, the street shops or hawker stalls within these sites and their neighbourhoods are well patronized. This phenomenon is different from the old urban areas in other cities where economic activities are shrinking and security has become a major problem. Although these old urban areas enjoy convenient transport and shopping, they suffer, usually, from shortage of open space and community facilities. Only through more comprehensive redevelopments could land uses be restructured and new facilities be provided.

Redevelopments at Lee Tung Street and Graham Street / Peel Street are two recent Ex-LDC projects which have land use restructure projects. Indeed, they also include other components of the 4-R strategy such as preservations and revitalization.

1 Pitts, Adrian (2004). Planning and design strategies for sustainability and profit. (Architectural press, An imprint of Elsevier), P.210, 211

2 <http://www.ura.org.hk> (20/10/2010)

6.2.2.1 LAND USE REUTILIZATION IN LEE TUNG STREET

Lee Tung Street Project is one of the 25 Ex-LDC projects. It is located in the old Wan Chai Area (district no. 18 in figure 6-12). Existing tenement buildings along the street were built in the late 1950s as a form of mass private housing. They are not graded historical buildings as there is no significant architectural merit and the buildings are not associated with any significant historical events or persons. The recent two decades saw the agglomeration of wedding card shops along Lee Tung Street. The buildings may appear to be fair in condition from the outside, but the structural assessment show that major reinforcement works are required if the tenement buildings have to stay – Figure (6-13) shows the decadent urban status of Lee Tung street. The Wan Chai District Council, on behalf of the property owners, had made numerous requests to LDC and later to URA in 2001/2002 to expedite the redevelopment plan. URA announced its approval on the project in 2003 ⁽¹⁾.



Figure (6-13) ⁽²⁾ Urban Status in Lee Tung Street before URA redevelopment plan

With respect to heritage and character, although the tenement buildings are proposed to be demolished, the new development plans to keep the original urban fabric along a major portion of Lee Tung Street with the street retained (albeit pedestrianized and turned into part of the open space system) and new buildings built to the existing height with similar building morphology. Small street shops instead of a shopping mall are envisaged in order to attract local business or even the wedding card shops to return in future.



Figure (6-14) ⁽³⁾ Urban Status in Lee Tung Street after URA redevelopment plan

URA's scheme of Lee Tung Street puts a lot of emphasis on bringing

1 Tam, Iris (2007). Planning for varieties in urban renewal in Hong Kong, published paper, The Hong Kong Institute of Planners conference handbook, P.232

2, 3 <http://www.ura.org.hk/en/projects/redevelopment/wan-chai/>

(20/10/2010)

benefits to the wider Wan Chai community. It designs to provide better pedestrian connectivity which will help promote business in the district. High rise residential buildings are proposed on both ends of the Street minimizing the impact on the scale of the street. Wind corridors are added to facilitate better air ventilation. Some 3,000m² of ground level public open space is designed not only for greening and leisure, but also for promotion of public art, cultural activities and community interaction. Further public open spaces on roof tops of the low rise buildings provide additional greening opportunities for visual amenity and reducing heat island effect - Figure (6-14) shows the new URA's proposed concept design of Lee Tung Street.

6.2.2.1 LAND USE REUTILIZATION IN GRAHAM STREET / PEEL STREET

Graham Street/ Peel Street project shares similar planning history of Lee Tung Street project. It is located in the central western area (district no. 15 in figure 6-12). It is also one of the 25 Ex-LDC projects. The sub-standard buildings at Graham Street/ Peel Street are becoming extremely dilapidated. However, Graham Street and Peel Street with the hawker stalls have a much longer history of over 100 years. The neighbourhood has been the home for many famous old-brand-name local shops. Some have survived but some disappeared. both streets are narrow but allow two rows of stalls on its two sides. Fresh food like seafood, vegetables, meats and others can be found along the two streets - Figure (6-15) shows the decadent urban status of two streets.

It is clear from the public engagement activities that the historical activities should be conserved and pedestrian movements should precede vehicles. URA's theme driving the redevelopment proposal is therefore set as "Nostalgia in Vibrancy:



Figure (6-15)⁽³⁾ Urban Status in Graham/Peel Streets before URA redevelopment plan

¹ Ibid.

Bringing Back Old Charms and Streetscape’.



Figure (6-16)⁽¹⁾ **Graham / Peel streets Preliminary concept design of open market**

Graham Street and Peel Street which are indeed outside the redevelopment project boundary will remain as pedestrian streets and the hawker stalls will stay. However, as a revitalization effort, URA proposes to re-model the street profile for safer pedestrian movements and provide water and electricity for the hawker stalls and proper drainage to improve the street environment. Low rise buildings with small street shops are proposed along Graham Street with the intention to invite the old-brand names to operate here as a tribute to the heritage of Hong Kong. The buildings will be setback to allow an additional pedestrian way so that the shops can also be easily accessed.

New tower blocks will be set back to minimize impact on the streetscape. New corridors are planned to facilitate pedestrian movements, visual permeability and air ventilation. These public spaces will also provide opportunities for more greening, art and culture, and community activities. A multi-purpose activity venue will be provided to meet the demand from the community and space is also reserved for social enterprises which will help

¹ Ibid.

², Tam, Iris (2007). Planning for varieties in urban renewal in Hong Kong, published paper, The Hong Kong Institute of Planners conference handbook, P.233

promote social network in the district - Figure (6-16) shows the new URA's proposed concept design of Graham / Peel Streets ⁽¹⁾.

6.2.3 LAND USE REUTILIZATION OBJECTIVES OF HONG KONG ⁽²⁾

Although the main objective of land use reutilization that Ex-LDC projects provide in general is to redevelop the old areas located in some Hong Kong districts but there are many others targeted urban, socioeconomic and ecological objectives could be mentioned in bullets as following.

6.2.3.1 URBAN OBJECTIVES

Ex-LDC projects have drawn up the following urban objectives:

- Improvements to the urban environment and infrastructure by the provision of more open space, community and other facilities.
- Enhancements to urban layouts, road networks and other infrastructure.
- The substitution or overhaul of archaic buildings.
- Making accessible land to meet various uses such as housing, retail, offices and open spaces (mixed uses).
- Maintaining the local character after redevelopment.
- Heritage preservation should be part of the urban renewal program, and the URA should preserve heritage buildings if such preservation forms part of its urban renewal projects.

6.2.3.2 SOCIOECONOMICAL OBJECTIVES

Ex-LDC projects have drawn up the following socio-economical objectives:

- Offering opportunities for residents to improve their living conditions.
- Upgrading facilities for the benefit of the wider community.
- Better exploitation of land.
- Redeveloping a particular area in order to act as a catalyst for the redevelopment of neighboring areas by private developers, as enhanced property values make this more viable.

6.2.3.3 ECOLOGICAL OBJECTIVES

2 <http://www.ura.org.hk> (20/10/2010)

Ex-LDC projects have drawn up the following ecological objectives:

- Promoting sustainable development in the urban area
- Thinking out of development and population densities to reduce the strain on over-burdened transport and other infrastructure.
- Improving the environmental quality of the district.
- Preserving, as far as practicable, local characteristics
- Designing more effective and environmentally-friendly local transport and road networks.
- Increase the percentage of green spaces within urban areas.
- Developing public open spaces on roof tops of low rise buildings to provide additional greening opportunities for visual amenity and reducing heat island effect.

6.2.4 MANAGEMENT APPROACH OF ACHIEVING EX-LDC OBJECTIVES

Ex-LDC projects include - within URA's 4-R strategy - set of successful land use reutilization activities in Hong Kong particularly and Southeast Asia in general. This success is resulting from identifying URA Vision and Mission, its strategic plan framework and adherence to execute the detailed project management plan prepared by URA and its sub management plans related to different project management area of knowledge as per PMBOK® Guide (Project Management Body of Knowledge Guide).

URA vision concentrates on creating quality and vibrant urban living in Hong Kong - a better home in a world-class city, and its mission is to realise the Vision, act on its priorities with ingenuity and sensitivity, join forces with its partners and nurture its people.

The URA's strategic direction and work programme are embodied in its both, Five-year Corporate Plan and Annual Business Plan, respectively. As required by the URA Ordinance, the plans are formulated within the framework set out in the Government's Urban Renewal Strategy issued in 2001. This is a complex exercise in prioritising the competing claims between past commitments and future expansion, the urgent need for slum clearance and the gradual rejuvenation of old districts, compulsory redevelopment and voluntary rehabilitation, limited financial resources and high public expectations. In general, the management approach of Ex-LDC projects could be categorized by project management area of knowledge as explained below.

6.2.4.1 INTEGRATION MANAGEMENT APPROACH

Redevelopment will target urban areas with old, dilapidated buildings and poor living conditions. These sites will be re-planned and rebuilt to achieve clear environmental and social benefits such as open space and community facilities. Where possible, the URA will assemble larger areas of land for comprehensive planning. This will enable restructuring, for example, of the local road, transport network and open spaces, to achieve a better utilisation of land and improve the overall district environment.

The URA will pursue excellence in project planning, building design and construction standards, with particular emphasis on environmental friendliness, maintenance efficiency and durability.

Within project integration management area of knowledge, EX-LDC projects have been defined, project charter and project management plan have been developed, activities needed to identify, define, combine, unify, and coordinate the various processes and activities within the project management process groups have been implemented.

6.2.4.2 SCOPE MANAGEMENT APPROACH

To speed up the development planning process and put the 4Rs Strategy fully into practice, URA has adopted an area-based, rather than an individual project site based development approach by setting the sight, from the outset, on the overall planning and development of clearly delineated action areas. With this approach, URA will plan for each action area to include a cluster of redevelopment sites which will dovetail with a judicious mix of rehabilitation, preservation and revitalisation measures. Each action area provides for a focus of URA activities which together will achieve a synergistic impact, creating a positive image of run-down areas which will help leverage more investment from the private sector and elsewhere. This approach also helps the URA in setting priorities based upon a coherent framework for implementation.

In order to expedite the urban renewal program, specific procedures have been introduced for processing URA projects with identified scope of work per project. The URA implements a project by way of a development project or a development scheme. The public can lodge objections to the project scope under the Urban Renewal Authority Ordinance or to a development scheme under the Town Planning Ordinance. Procedures are in place to process such objections.

Under sections 21 and 22 of the Urban Renewal Authority Ordinance, the URA has to prepare a draft corporate plan setting out its proposed work plan of projects for the next five years and a draft business plan setting out the projects to be implemented in the next financial year. The URA is required to

submit its draft corporate plan and draft business plan to the Financial Secretary for approval each year. The urban renewal strategy will be reviewed and updated regularly (every two or three years). The public will be consulted on the revised urban renewal strategy before it is finalized for implementation.

Within each project of EX-LDC projects, scope management area of knowledge, the process of “Define Scope of Work” has been performed. The process of “Create WBS”, which subdivided the project deliverables into smaller and more manageable components, has been implemented. The process of “Verify Scope” has been performed during monitoring and controlling process group.

6.2.4.3 TIME MANAGEMENT APPROACH

The URA aims at completing the 25 EX-LDC projects within Six or Six and half years, which includes the procedures of planning, land resumption and clearance in 3 1/2 years. To meet this target, the URA will have to shorten the time on site assembly. The URA will acquire property interests through negotiations while, at the same time, submitting applications for land resumption as stipulated in the URA Ordinance.

Within EX-LDC projects’ time management area of knowledge, the process of “Define Activities” has been performed where both Activity and Milestone Lists have been issued. The process of “Sequence Activities” has been performed to drive out the project schedule network diagrams. The process of “Develop Schedule” has been performed to analyze activity sequences, durations, resource requirements, and schedule constrain to create an integrated schedule. Finally control schedule has been performed to monitor the status of each EX-LDC project and to update project progress and manage changes to the schedule baseline.

Various tools and techniques have been used within time management processes. For the processes of “Define and Sequence Activities”, both of Rolling Wave Planning and Precedence Diagramming Method (PDM) have been implemented. For the processes of “Develop and Control Schedule”, both Schedule Network Analysis and What-If Scenario have been implemented.

6.2.4.4 COST MANAGEMENT APPROACH⁽¹⁾

1 http://www.devb.gov.hk/en/issues_in_focus/urban_renewal_strategy/index.html

(22/10/2010)

Hong Kong Government is exploring two main financial tools to enhance the viability of the EX-LDC projects under its urban renewal program; Waiver of lands for redevelopment sites and provides loans to the URA.

The objectives are, both, to encourage private sector participation and a self-financing urban renewal program in the long run. Under section 10(4) of the Urban Renewal Authority Ordinance, the URA shall exercise due care and diligence in the handling of its finances.

When acquiring an owner-occupied domestic property, the URA will offer an owner-occupier the market value (valued on vacant possession basis) of the property plus Purchase Allowance (PA). The assessment of PA is based on the value of a notional property, situated in a similar locality in terms of characteristics and accessibility. An owner who does not reside in his property as his sole residence or leaves it vacant, will be offered the market value (valued on vacant possession basis) of his property plus Supplementary Allowance (SA). The amount of SA is normally 25% to 75% of the PA, depending on the number of properties an owner has and occupancy status of the properties.

When redevelopment projects commence, the URA sends letters to the affected owners and conducts site visits to see whether the properties are vacant, owner-occupied or tenanted. The URA will then issue offer letters to the owners for their consideration according to the occupancy status of the properties. If an owner accepts the offer, he should notify the URA in writing. Both parties will then appoint their own solicitors to handle the sales and purchase matters.

Within EX-LDC projects cost management area of knowledge, the process of “Estimate Costs” has been performed to develop the approximation of the monetary resources needed to complete project activities and accordingly Activity Cost Estimates has been issued. The process of “Determine budget” has been performed where, both, Cost Performance Baselines and Project Funding Requirements have been determined. The process of “Control Costs” has been performed to monitor the status of the project, update the budget, and managing changes to the cost baseline. Various tools and techniques have been used within different cost management processes; like analogous estimates, expert judgment, and Earned Value Management (EVM).

6.2.4.5 QUALITY MANAGEMENT APPROACH

Within quality management processes of EX-LDC projects, the URA established a district advisory committee in each of the target areas to give

advice and assistance to the URA with regard to the progress of its urban renewal projects. The district advisory committees have been appointed by the URA Board and representative of the local community. Representatives of owners, tenants, District Councils and local non-governmental organizations with an interest in urban renewal have been appointed to give advisory opinions.

The URA considers setting up an advisory committee under its Board to advise on preservation work. The URA also ensures proper interface with the relevant authorities such as the Culture and Heritage Commission, the Antiquities Advisory Board, the Home Affairs Bureau and the Leisure and Cultural Services Department. Work on the Quality Management processes were continuous processes which have continued during execution of the project within performing quality assurance and quality control processes.

6.2.4.6 HUMAN RESOURCES MANAGEMENT APPROACH

Under section 23 of the Urban Renewal Authority Ordinance, the URA is required to publish in the Government Gazette the commencement date of the implementation of a project and to exhibit general information about the project for public inspection, at the same time the URA sets up an urban renewal social service team in each of the target areas to provide assistance and advice to residents affected by URA's redevelopment projects. Such teams will hold public meetings to inform local residents of its projects and to gather public views on them. They also consult the concerned District Council on the project. Easy-to-understand pamphlets will also be printed for distribution to the persons affected. Within EX-LDC projects human resources management area of knowledge, Human Recourse Management Plan has been performed which identified the staffing management plan and organizational structure. The process of “Develop Project Team” has been performed. One of its tools and techniques is team building activities. District Advisory Committees have been established to assist URA to follow up the process of developing and execution of EX-LDC projects.

6.2.4.7 COMMUNICATION MANAGEMENT APPROACH

URA has conducted extensive public engagement activities in 2004/2005 which include community aspiration surveys, design competitions, consultation and workshops to ascertain the views of the community on a suitable form of development. A design theme is derived from the community's aspiration – “A Concerto of Heritage and Character, Old and New, Green and Space, People and Vibrancy”.

The URA places a high priority on balancing the interests and needs of all segments of the urban community who are affected by the process of urban renewal and its other areas of activities. The views of local people are sought through different means, such as direct communication with residents, professional bodies, academics, Legislative Councillors, District Councillors, property, businesses, and stakeholder representatives. District Advisory Committees, comprising of members from different walks of life, are established by the URA to reflect the views and aspirations of the local community and provide advice on urban renewal concerns at the district level. The URA also conducts social impact assessments to identify those people who are affected by redevelopment projects and carry out mitigation measures to help manage the process of change in the least disruptive manner. Within quality management area of knowledge, the processes of Identify Stakeholders, Plan Communication, Distribute Information, Manage Stakeholders Expectations, and Report Performance have been implemented.

6.2.4.8 RISK MANAGEMENT APPROACH

As part of the Risk Management Plan of the whole urban renewal program, the program has been divided into multi-projects. These sub divisions helped in mitigating any anticipated risk impact and will give the chance to evaluate each project and set the list of lesson learned, to be used in coming projects. EX-LDC projects risk management has included the processes of Conducting Risk Management Planning, Identification Analysis, Response Planning, and Monitoring and controlling the project. Progress meetings among different project stakeholders have been performed to monitor and control work progress, filling out risk assessment checklist, and performing SWOT analysis. Accordingly, recommendations for preventive / corrective actions have been confirmed and updated project risk plan has been issued. The objectives of EX-LDC risk management were to increase the probability and impact of positive events, and decrease the probability and impact of negative events in the project.

6.2.4.9 PROCUREMENT MANAGEMENT APPROACH

EX-LDC projects' procurement management has included the processes necessary to purchase or acquire products, services, or results needed from outside the project team. EX-LDC procurement management plan has formulated the rules for contract management and change control processes required to develop and administer either contracts or purchase orders which are issued by the authorized project team members. As part of EX-LDC Procurement Management Plan, a set of design competitions were announced and invitations have been sent to a qualified list of planner and architect

consultants. The winners were hired to undertake the design tasks. During the bidding process, bidders' conferences have been held; qualified developers and contractors' checklist has been issued. Accordingly, developers and contractors have been selected for the execution of activities.

Administration of procurements' process has been performed during the project monitoring and controlling process group where the following tools and techniques have been used: contract change control system, procurement performance reviews, inspections and audits, performance reporting, payment systems, claims administration, and records management system.

6.3 EPILOGUE

- Singapore is an island city-state in Southeast Asia and is the 2nd-most-densely populated country in the world. It has started its own experience in developing new downtown adjacent to old CBD on the reclaimed land through its integrated program “Singapore Downtown Development Program (SDDP)”.
- Although the main objective of SDDP is to develop the new downtown by creating an environment combining work, leisure, and living but there are many other targeted urban, socio-economical and ecological objectives which SDDP trying to achieve.
- The Urban Redevelopment Authority (URA) had defined SDDP projects within integration management approach and has developed the project charter and project management plan. Activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities have been implemented.
- URA has appointed an international panel of architects and urban planners to review the draft of SDDP concept plan and to issue SDDP detailed scope management plan.
- Within SDDP time management approach, URA determined the time frame by nine years and defined the time management plan including the lists of activities and milestones. By using the time management tools, a schedule has been developed to analyze activity sequences, durations, resource requirements, and schedule constraints.
- Within SDDP cost management approach, cost estimate has been performed to develop the approximation of the financial resources needed to complete SDDP activities. Analogous estimates, expert judgment, and

EVM are the main management tools which have been used in SDDP cost management processes.

- SDDP quality management with quality metrics and quality checklist has been developed. Urban design guidelines have been defined as a governmental tool for achieving expected performance.
- Within SDDP human resource management approach, a technical committee sponsored by URA, was established at NUS Department of Architecture aimed to assist decision makers to explore the future form of Singapore downtown urban space in a broader urban context and to follow up the process of developing and execution of SDDP Master Plan.
- As part of SDDP communication management plan, the URA-NUS committee has performed urban design workshops to provide a platform for stakeholder groups to discuss common themes. The Private sector is also invited to give advices to government boards.
- As part of SDDP risk management plan, SWOT analysis has been performed and recommendations for preventive / corrective actions have been confirmed to updated project risk plan.
- As part of SDDP procurement management plan, a design competition was announced to appoint both projects' designers and the panel of judges from government agencies, industrial players and community members. The winners were hired to undertake the design tasks, and accordingly the contractors were selected.
- Hong Kong is a non-sovereign city-state and considered as one of the two special administrative regions of China, and the most densely populated area in the world. It has its own experience in adapting and managing urban renewal program (Ex-LDC projects) dealing with old areas through redevelopment, rehabilitation, revitalization, and preservation.
- In addition to the main Ex-LDC objective of redeveloping the old areas in some of the Hong Kong districts, there are many other targeted urban, socio-economical and ecological objectives.
- URA's vision of Hong Kong concentrates on creating quality and vibrant urban living, a better home in a world-class city. Its mission is to realize the Vision, act on its priorities with ingenuity and sensitivity, join forces with its partners and nurture its people.
- Within integration management approach of EX-LDC projects, the projects have been defined, project charter and project management plan have been developed, activities needed to identify, define, combine, unify and coordinated have been implemented.

- Within scope management approach of EX-LDC and in order to expedite the urban renewal program, specific procedures have been introduced for processing projects with identified scope of work. The public can lodge objections to the project scope under the URA Ordinance or to a development scheme under the Town Planning Ordinance.
- As part of time management approach of EX-LDC projects, URA - to shorten the execution time – has acquired property interests through negotiations while at the same time submitting applications for land resumption as stipulated in the URA Ordinance.
- As part of cost management approach of EX-LDC projects, Hong Kong Government used two main financial tools; Waiver of land premia for redevelopment sites and provides loans to the URA. The URA offered to each owner-occupier the market value of his property plus purchase allowance or supplementary allowance.
- Within quality management approach of EX-LDC projects, the URA established an advisory committee including all stakeholders to ensure interface with the authorities.
- Within human resource management approach of EX-LDC projects, URA used different multimedia, including governmental newspapers to publish the date of the project implementation and exhibited general project information, at the same time setting up social service teams to hold meetings and provide assistance and advice to residents.
- As part of communication management approach of EX-LDC projects, URA has conducted public engagement activities including community aspiration surveys, design workshops to ascertain the views of the community. Social impact assessments have been conducted to identify affected people by the projects and to carry out mitigation measures.
- As part of risk management approach of EX-LDC projects, the whole program has divided into multi projects helped in mitigating any anticipated risk impact and give the chance to evaluate each project and set the lesson learned list to be used in coming projects.
- As part of the procurement management approach of EX-LDC projects, a set of design competitions were announced and invitations have been sent to a qualified list of consultants. The winners were hired to undertake the design tasks, during bidding process bidders' conferences have been held, qualified developers' and contractors' checklist has been issued. Accordingly, developers and contractors have been selected for execution activities.



PART THREE

LAND USE REUTILIZATION IN GCR – AN APPROACH TO THE MANAGEMENT METHODOLOGY

“Improving suburbs and creating pockets of charm may be a step in the right direction, but what about improving the whole thing?”

Richard Register, urban ecologist and founder of Ecocity builders.

The purpose of this part is to review the existing conditions of GCR and to identify the urgency for its land use reutilization projects and then to review the proposed GCR latest strategic urban development **master plan and to define the role of its land use reutilization projects and its management approach.**

This part comprises of two chapters, it starts in the chapter seven by reviewing and discussing GCR existing conditions covering its administrative divisions, its nature characteristics, physical characteristics, socio-economic characteristics, region strengths and weaknesses, and finally find out the land use reutilization urgency.

Chapter eight reviews the latest proposed GCR strategic urban development master plan, its Vision, Mission and organizational objectives and then discusses the role of land use reutilization in that master plan and the management approach of its different types of land use reutilization projects.



CHAPTER 7

GCR – EXISTING CONDITIONS AND LAND USE REUTILIZATION URGENCY

“...The city of Cairo has been more than twenty-five centuries in the making. It took the efforts of many unlikely characters over time to turn a small residential cluster on the west bank of the Nile into the mammoth metropolis we know today...”

Al Sayyad, Nezar, (2011). Cairo: histories of a city, p.1

This chapter is concerned with collected information on the Greater Cairo Region (GCR) to draw its profile which is a picture for the region, its strengths and weaknesses, accordingly to explore influences during managing its land use reutilization projects. The information covers its administrative divisions, its natural, physical, and socio-economical characteristics. Afterwards the chapter discusses the region's problems from different aspects pertaining to land use distribution, and then tries to investigate the urgency of some land use reutilization projects within the region's urban space.

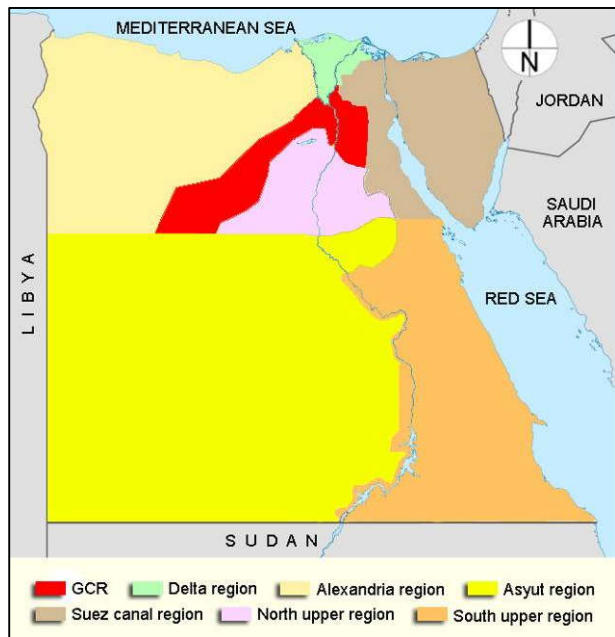


Figure (7-1) GCR location in Egypt

7.1 DEFINITION OF THE GREATER CAIRO REGION

Greater Cairo Region is located in the northern part of Egypt, almost between latitudes 27.5 at south and 30.5 at north, and it comprises of three governorates: Cairo, Giza, and Kalyoubiya ⁽¹⁾. GCR represents the conjunction point between Lower and Upper Egypt and between the governorates of the East and West. Measured from the River Nile, the limits of Cairo Governorate extend for a distance of about 65 km in the Eastern Desert, while the governorate of Giza extends in a strip shape with an average width of 85 Km in

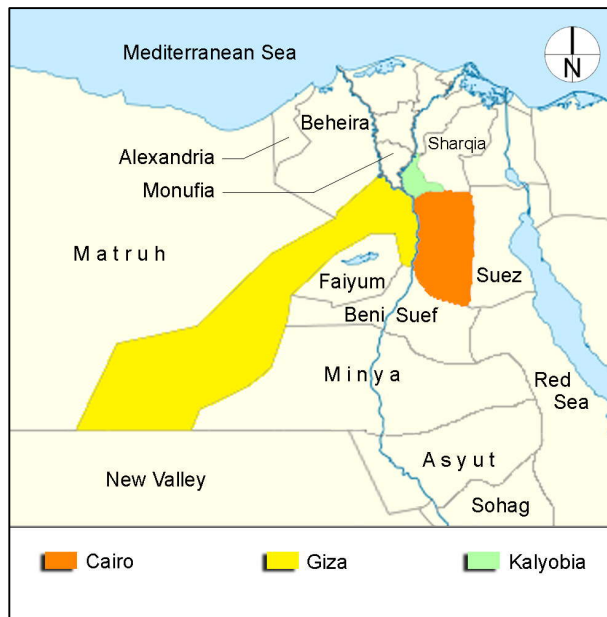


Figure (7-2) Governorates of GCR

Western Desert for a distance of 300 km in the direction of the Southwest, until Baharia Oasis area. This strip includes a railway line which is used primarily to transport the iron ore to steel plants in Helwan – Figure (7-1) illustrates GCR location in Egypt and Figure (7-2) illustrates governorates of GCR ⁽²⁾.

1 In 17 April 2008 presidential decree no. (114) issued to re-draw Egypt governorates' borders and to add two new governorates to GCR (Helwan and 6th of October). In 14 April 2011 Council of Ministers issued a decree to re-divided GCR into the original three governorates (Cairo, Giza, Kalyoubiya) by merge Helwan with Cairo and merge 6th of October with Giza , however all the information exists in this chapter is based on the available governmental statistics of the five governorates.

2 Egypt had been divided into eight planning regions in 1977 according to decree no (495), that decree followed in 1986 by decree no. (181) modifying the number to seven regions (where Matrouh region merged to Alexandria region). The seven planning regions include governorates as follows:

- 1- **Greater Cairo Region** includes: Cairo, Giza, and Kalyobiya.
- 2- **Alexandria Region** includes: Alexandria, Beheira, and Matrouh.
- 3- **Delta Region** includes: Kafr el-Sheikh, Gharbia, Monufia, Damietta, and Dakahlia.
- 4- **Suez Canal Region** includes: North Sinai, South Sinai, Port Said, Suez, Ismailia, Sharqia, and Northern part of Red Sea.
- 5- **North Upper Region** includes: Beni Suef, Faiyum, and Minya.
- 6- **South Upper Region** includes: Sohag, Qena, Aswan, Southern part of Red Sea, and Luxor (In December 2009 presidential decree no. (378) issued to establish governorate of Luxor).
- 7- **Asyut Region** includes: Asyut and new Valley.

The total area of GCR is about 37000 km² with urban agglomeration of about 650 km² and Total population of about 20 million inhabitants represent 25% of the total population in Egypt (as per 2010 CAPMAS estimates). Giza Governorate represents about 8. % of GCR area, since it includes vast tracts of desert lands. Agricultural areas of great economic importance located in Governorate of Kalyobia and utmost northern part of Giza.

7.1.1 REASONS OF SELECTING GCR

There are many reasons led to select GCR to be the case study of testing the methodology of land use reutilization management which could be categorized under the following two groups.

7.1.1.1 ECONOMIC AND CULTURAL IMPORTANCE OF GCR

GCR is the prime engine of economic growth and the main center of the concentration of population in Egypt where it accommodates about 25% of the total Egyptian population, mostly comprised of the central government services with all of their major types and bureaucrats. GCR also accommodates the main centers of industrial entities and a large business, as well as services and commercial activities, which earn the region of its great importance.

The focus of the economic and cultural developments in the region is clear. The magnitude of the cultural activities makes it the backbone of intellectual, scientific and technical life in Egypt as a whole. GCR accomodates the National Culture Center (Opera House), most of the large museums and the vast majority of scientific research centers, as well as the major universities: Cairo University, Ain Shams, Helwan, Al-Azhar, the American University and most of the new private sector universities. The region also accommodates the largest international airport in Egypt and one of the most important in the Middle East and North Africa.

7.1.1.2 GCR LAND USE TRANSFORMATION PROCESSES

From urban planning point of view, GCR can not be considered homogeneous region but it represents a comprehensive picture of the economic and social diversity. GCR could be divided into several planning units in many ways depending on the purpose of division. In terms of the administrative divisions, the main ones are the three governorates. In terms of the land use, the divisions are the main urban blocks with different uses in the center of the region, surrounded by agricultural lands in the form of a crescent, opened in

the southeast, and then surrounded by vast areas of desert land. But, if the goal is to study the urban clusters, it is possible to divide the region into sections of rapid and slow growth, or sections of planned areas and slum areas and so on.

What distinguishes GCR from other regions of Egypt beside its economic importance is its largest urban block which may be found in all countries of both the Middle East and Africa. This is linked to its both rapid urban sprawl and urban transformation processes which led to much inappropriate land uses calling for urgent and sometimes complicated land use reutilization projects at different levels. That is why GCR has been considered as the ideal region in Egypt to examine the methodology of managing land use reutilization.

7.2 NATURAL CHARACTERISTICS OF GCR

Natural characteristics of GCR comprises of the study of the followings:

7.2.1 GEOLOGICAL CHARACTERISTICS ⁽¹⁾

The sedimentary soil of Nile covers large areas of the agricultural lands of GCR, the area of the Nile basin in various widths and depths starting from 12 km at Cairo Governorate area and it increases at the areas of Giza and Kalyobia Governorates.

The rocks which occur in GCR at different locations are as follows:

- Layers of sandstone, limestone and clay, localized around both sides of the Nile Valley, in the form of longitudinal strips at the eastern side of the Nile Valley and adjacent to the agricultural lands from Khanka at the North up to Al-Koraimat at the South, with widths average 5 km to 15 km. Small areas of these rocks exist intermittently in the Eastern GCR at Wadi Al Jufrah North of the Suez Road. At the Western side of the Nile Valley it covers large areas between Giza - Oases Road and Cairo - Alexandria desert Road. It also exists in the form of strips between the north-east of Lake Qarun and Giza.
- Sandy Limestone, sand and gravel localized in the East extended from Katameya Heights up to 10th of Ramadan City and beyond GCR's Eastern

1 Ministry of planning, Egypt, (1997). The National Project for the development of GCR, P. 5

borders. Both Cairo – Suez and Cairo – Ismaelia Roads are passing through this configuration.

- White sandy limestone and clay are localized in the West, where they extend for more than 200 km with about 40 km width. Most of it is localized between Giza – Oasis Road and the Northern GCR borders.
- Basalt is localized at the East of GCR at Mount of Al Jufrah, at the 32nd Km of the Cairo - Suez Road, South of 10th of Ramadan City and in Abu Zaabal to the Northeast of Cairo, where the main basalt quarries exist. In the West, It is found in the form of an arc expanded from north of Fayoum up to Abu Rawash to the west of Giza and Imbaba, near Cairo - Alexandria desert road. It also exists near Bahariya Oasis. The basalt exists at those areas in the form of thick mattresses up to more than 50 meters.
- Composition of Red Mountain rocks consists of gravel, coarse grained sand and sandstone containing iron filaments. One of the main areas of this configuration is localized in Red Mountain area at the East of Cairo (now known as the Green Mountain), and in the Petrified Forest at Maadi – Katameya road.
- Rocks of Eocene Age exist in the Eastern part of GCR, in a strip shape, from Eastern Border up to the Nile Valley bounded by Maadi – Sokhna Road from the Northern side. This strip includes Katameya Mount, Wadi Degla, Mokatam Mountain, Torah, and Helwan. In the Western area there is in the western plateau of the Nile Valley in Al-Ahram and Al-Ayat. The bulk of these rocks exist in the Bahariya Oasis forming the plateau around the oases.

Seismic zones: There are two seismic belts crossing GCR, the first one starts from Northeast to Southwest up to Bahariya oasis. The second one (red sea Built) starts from Northwest and to Southeast. There is a third belt that may affect the GCR which is Gulf of Aqaba belt.

Many Basalt and Limestone Quarries are located in different places at GCR; some of them occurred during urban sprawl and urban transformation processes, along with some basic industrials areas which located in inappropriate locations and causing urban problems which call for land use reutilization projects.

7.2.2 TOPOGRAPHIC CHARACTERISTICS ⁽¹⁾

1 Ministry of planning, Egypt, (1997). The National Project for the development of GCR, P. 3

Topography of GCR terrain is characterized by its variations in heights. In the river valley, the height rate is not exceeding 20 meters above sea level, while in the Eastern periphery is approaching 500 meters above sea level. In the West side, the height exceeds 200 meters above sea level at Abu Rawash Plateau, which overlooks the river valley from the West. The Plateau of the Bahariya Oasis has levels more than 200 meters. Plains extend between those hills and plateaus, where the elevation is less than 200 meters. GCR Topographic terrain could be classified into two morphological units as follows:

Alluvial Plains and Water-Bodies:

Alluvial plains represent an area of about 1560 km² (less than 5% of GCR), which include the recent alluvial plains where floodplain of the River Nile exists. These areas include the agricultural lands, hence the rural activities and some scattered urbanization which are causing the erosion of the agricultural land.

The River Nile crosses the floodplain from the South to the North which is characterized by its islands and structures like bridges, locks and dams. In some parts of this floodplain, especially in the area of Cairo City, there are sedimentations of the ancient civilization's land layers, which exceed a thickness of ten meters. In addition to the recent alluvial plains, there are the ancient ones which are comprised of gravel and sand and border the floodplain from both, the East and West and rises gradually for more than 50 meters. In general, these alluvial plains represent both, the agricultural expansion and urban sprawl.

Hills and Plateaus:

Hills and Plateaus occur at the Eastern part of the Governorate of Giza, south of Cairo and also marked the areas around the Bahariya Oasis in the far Southwest. The surfaces of these hills and plateaus are relatively plain and have the elevations of more than 300 meters above sea level, in some locations. Many of those hills and Plateaus have deep cliffs faces, such as Mokattam Hill, Plateau of Pyramids, Plateau of Abu Rawash and at Bahariya Oasis.

Most of the urbanized areas in GCR are concentrated near the river Nile, which cause the erosion of the agricultural land and at the same time makes GCR a more urbanized area with one of the highest population densities all over the world. This causes many urban problems which call for land use reutilization projects.

7.2.3 HYDRO-GEOLOGICAL CHARACTERISTICS ⁽¹⁾

One of the largest and highest hills in Egypt is located at the Southern side of GCR; with its height more than 600 meters above sea level. Main storm water drainage line, separating the basins of the Red Sea and the River Nile, passes through these hills from South to North. During rainstorms, the hill receive water with an amount of up to 10 mm per day (or 35 million m³ / day) which may continue for more than one day and may be repeated once every four or five years. Floods occur during rainstorms and run through storm water drains; like Wadi Degla and Wadi Houf which causes threats for some GCR areas. Minor storm water drains exist near Giza Pyramids.

Within land use reutilization projects when settling new land uses, storm water drainage should be considered either by landscape treatment or by avoiding.

7.2.4 CLIMATIC CHARACTERISTICS ⁽²⁾

GCR climatic conditions are homogeneous to a large extent. It represents a compromise between the North Coast and the Delta Climate on one side and the Nile Valley Climate on the other. The lowest winter daily mean temperature in GCR is (13.6°C) in January, while the maximum daily mean temperature is (28.4°C) in July. The most stable season is the summer, particularly the month of August and September. The maximum feeling of high temperature is in May, concurrent with the hot and dusty local winds of Khamaseen.

The maximum relative humidity occurs in December and January, while falling to the lowest in May, linked with the wind of Khamaseen. The prevailing wind in GCR blowS from North direction. It turns to the North-West in the months of July and August, and turns to the North-East in the fall and winter. The amount of annual rainfall in GCR is averaged between 22 mm and 25 mm, where the rainy season starts in October, and reaches the maximum in the month of December. Then it starts to decline until the month of May, and rainfall disappears completely during the summer four months from June to September.

7.3 INFRASTRUCTURAL CHARACTERISTICS OF GCR

1 Ministry of Planning, Egypt, (1997). The National Project for the Development of GCR, P. 9

2 Ministry of Planning, Egypt, (1997). The National Project for the development of GCR, P. 10

The infrastructural characteristics include different types of constructions which represent the backbone of the region.

7.3.1 ROADS AND TRANSPORTATION

○ Roads Network

The main axes of road networks at the GCR national level could be listed as follows:

- Axis of Cairo - Alexandria desert Road.
- Axis of Qanater and Khatatba and Tawfeqia Road.
- Axis of Cairo - Alexandria Agricultural Road.
- Axis of Cairo - Ismailia Agricultural Road.
- Axis of Hykestep – Belbeis Road.
- Axis of Cairo - Ismailia Desert Road.
- Axis of Cairo - Suez Road.
- Axis of Maadi - Katameya - Ain Sokhna.
- Axis of the Upper Egypt Road East of the Nile.
- Axis of the Upper Egypt Road West of the Nile.
- Axis of Cairo – Fayoum Road.
- Axis of Cairo - Assiut Desert Road.

GCR has a large group of regional roads which link its different areas. Most important of these regional roads could be described as follows:

- Ring Road which surrounds GCR main agglomeration area and crosses the Nile at Munib and Maadi in the South and at Warraq in the North.
- Axis of the Nile Corniche Road, which runs through the region from North to South, and considered the Northern Entrance from Alexandria Agricultural Road and extends until the beginning of Upper Egypt Road in the South.
- Axis of 26 July, Freeway linking Lebanon Square at Mohandiseen District with Cairo - Alexandria Desert Road with a length of 15 km. It has 3 lanes in each direction and 30 bridges across the canals and secondary roads.
- Axis of Al-Haram (Pyramid) Road and Faisal Road at Giza which link the West of the region at the entrances of Alexandria Desert Road, Fayoum Road and Assiut Desert Road with the East of Region through Salah Salem and Al Orouba Roads up to Cairo International Airport ending by Ismailia Desert Road.
- Axis of Autostrad Road which connects the South and North of the region, starting at the city of May 15 May through Maadi, Basateen, Nasr City, intersecting with Suez Desert Road, intersecting with Al Orouba Road then Gisir Al Suez and finally Ismaelia Desert Road.

- Axis of West of Nile which extends from Al-Khatatba on the borders of the region with Beheira Governorate in the North down to South at Upper Egypt Road through Imbaba and whole Giza.

In addition to the national and regional trunk roads, there are many local roads connecting the different zones and districts in the region. Many Bridges are connecting GCR governorates together, across the river Nile which had been constructed at different times and have different specifications and conditions. Most important of these bridges are; Giza Bridge - Bridge El Malek Al Saleh - University Bridge - Bridge of Kasr El Nil - 6 of October Bridge – 15 May Bridge - Imbaba Bridge - Marazek Bridge - Qanater Bridge – Roud Al Farag Bridge.

Figure (7-3) illustrates Greater Cairo Metropolitan Area (GCMA), showing its main road-networks.

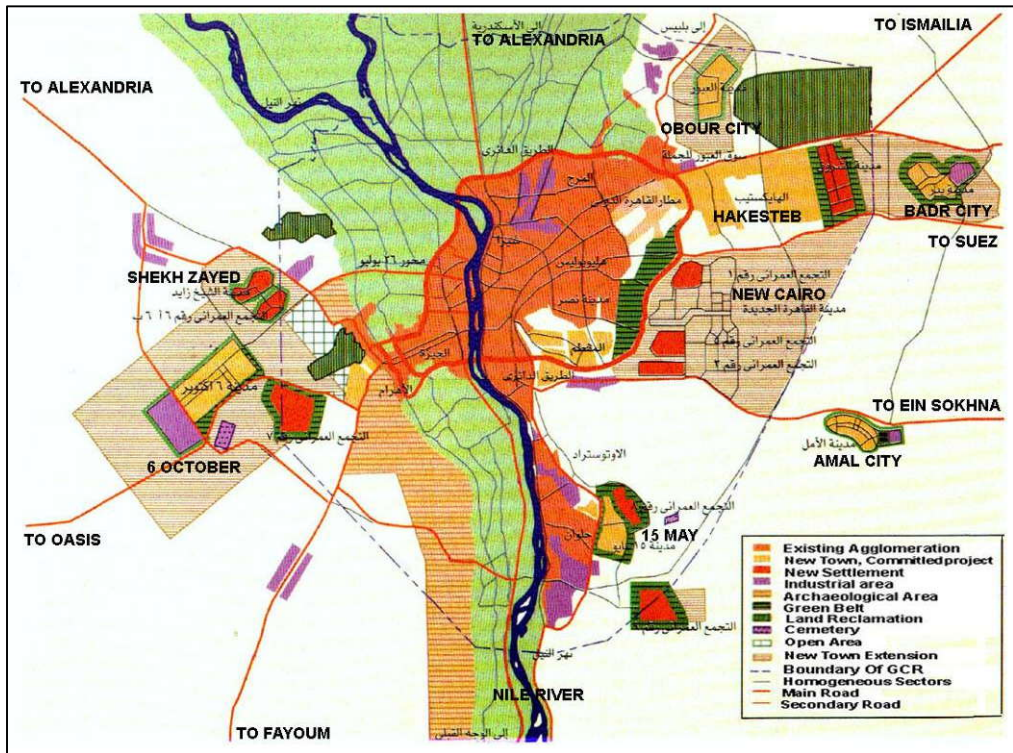


Figure (7-3) Greater Cairo Metropolitan Area

○ **Railway lines**

GCR is linked to the national railways network through the main station of Ramsis, which Links GCR with Delta, Suez Canal region and Matrouh. Other

links with different locations of Upper Egypt are available by Giza Railway Station. Both Ramsis and Giza Railway Stations are linked together by railway line across the Nile through Imbaba Bridge.

In addition to the previous lines, there are other lines which are located to the west of the Nile (Imbaba - Itai Al-Baroud and Ithad – Mirgham) which has been constructed to reach Alexandria without crossing the Nile.

There is also a commercial railway-line with a length of about 300 Km which is used primarily to transport iron ore from Oasis to steel plants in Helwan, this line is crossing the Nile through Al-Marazeek

○ **Underground Metro Lines**

Currently, there are two underground working lines; the regional line and the urban one. Another two lines are in construction stage and engineering studies.

- Line “1” - Regional line - (Helwan - El Marg) is the First line of the metro, its first stage was opened to the public in 1987 and it was fully completed in 1989 connecting Helwan with El Marg and consisting of 33 stations with a total length of 43 km, of which 4.5 km are underground. The line witnessed few developments since 1989, New El Marg station was added in 1999 to the Northern end of the line, bringing its total length to 44.3 km. Helwan University Station was built between Wadi Houf and Ain Helwan Stations. The line now consists of 35 stations. This line carries trains with 3 Units (9 wagons), which have a time difference of 2.5 minutes

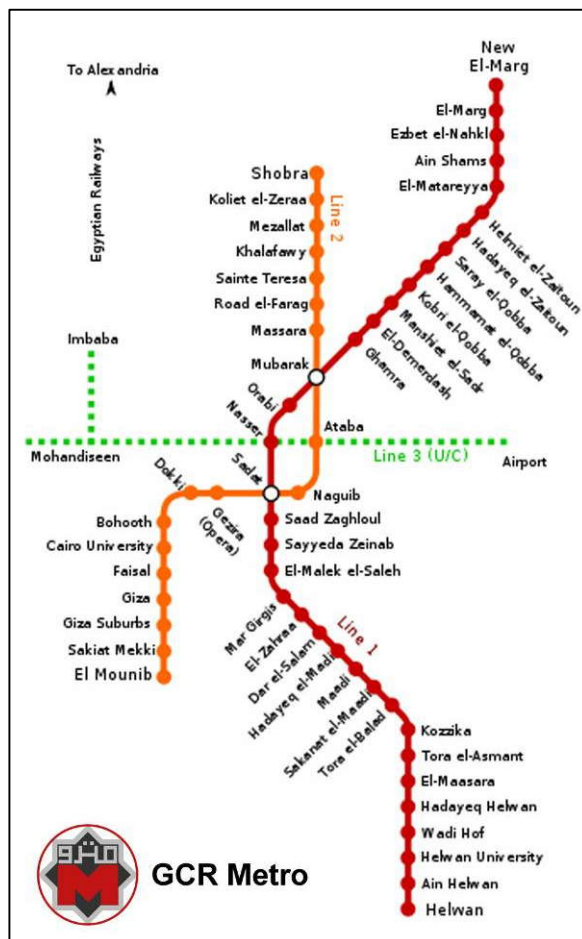


Figure (7-4) GCR Metro

and a maximum speed of 100 km/h. The line can carry 60,000 Passengers per hour in each direction.

- Line “2” - Urban line - (Shobra El Kheima - El Mounib) is the second line of the metro connecting Shoubra El Kheima with Cairo University, with an extension to Giza. It is the first line in history to have a tunnel going under the Nile. The tunnel under the Nile is 8.35 m in internal diameter Extending 21.5 kilometres with 20 stations. The main difference between Lines 1 and 2 is that Line 1 uses an overhead line while Line 2 uses the third-rail system. The construction of the line was finished in October 2000 and was later extended to El Mounib.
- Line “3” (Imbaba / Mohandiseen - Cairo Int'l Airport) is currently under construction and extends from the northwest of GCR at Imbaba to the northeast at Heliopolis and will eventually also serve Cairo International Airport. The line crosses under the two branches of the River Nile, as does Line 2. The total length of the line is approximately 33 kilometres most of which is in bored tunnel and will be implemented in four phases. The implementation of Line No. 3 will start with Attaba to Abbasia section, the first phase has a completion date set at October 2011, followed by the second phase from Abbasia to Heliopolis which are the most urgent sections for the transportation needs and planned to be finished in October 2013. Third phase will connect Attaba Square with Sphinx Square and has the finishing date of October 2015. The fourth phase will connect Sphinx Square with Lebanon Square and has the finishing date of October 2017.
- Line “4” (October-Oasis Highway - Mubarak Police Academy) is under preparing its engineering studies, it is planned to run from Haram District reaching the New Cairo District literally connecting GCMA from West to East.

Figure (7-4) illustrates GCR metro network ⁽¹⁾.

○ **River Transportation**

The River Nile Runs through GCR from the south to the north, it has had a major role in the past and still plays a role in the transport of goods to Cairo. It is currently being used also by river bus network paths to transport passengers, in addition to the use of the cruise. Some ports like Ain Al-Sira and Helwan play a role in the carriage of raw materials and products, especially from Upper Egypt.

1 http://en.wikipedia.org/wiki/Cairo_metro

○ **Air Transportation**

GCR include Cairo International Airport located to the North-East of Cairo City around 15 km from the business area of the city. It is the second busiest airport in Africa after OR Tambo International Airport in South Africa. Over 65 airlines use Cairo airport (including charter airlines) and 9 cargo airlines. It has the potential to be a major hub with its positioning between Africa, the Middle East and Europe (especially with facilities for the Airbus A380, the largest passenger airliner in the world). In 2009, the airport served about 15 million passengers. The airport has three terminals, with the third (and largest) opened in 2009, a third parallel runway is currently under construction and will replace the current crossing runway once it goes into operation.

7.3.2 ELECTRICITY AND ENERGY

GCR is fed with electricity through a number of power stations distributed in different regional locations which are linked to the national electricity unified network. Each station has a number of generating units, varying between one to four units, and the nominal capacity for each unit varies between 10 – 330 Mega – Watt / each. Most of the generating units are working with steam; however a number of them are gas based. Total actual capacity of all GCR power stations are 6376.50 Mega- watts representing about 32% from total capacity of Egypt’s power stations, whereas the net electric power generated from GCR power stations is 36128.20 million Kilowatt –

ELECTRIC POWER STATIONS						
GOVERNORATES	NO. OF STATIONS	Compound Capacity (Mega-Watt)		Generated Electric Power In Million K.W.H		
		NOMINAL	ACTUAL	TOTAL	SELF-CONSUMED	NET
CAIRO	1	1500.00	1500.00	8511.00	173.90	8337.10
GIZA	1	1010.00	980.00	4889.70	181.40	4708.30
KALYOUBIA	1	1296.00	1296.00	7394.70	367.80	7026.90
HELWAN	5	2649.20	2600.50	16386.10	330.20	16055.90
6 OCTOBER	0	0	0	0	0	0
TOTAL (GCR)	8	6455.20	6376.50	37181.50	1053.30	36128.20
TOTAL (EGYPT)	75	21311.70	20206.90	125348.30	3930.20	121418.10
% (GCR/EGY)	11%	30%	32%	30%	27%	30%

Table (7-1) Number of power stations, capacity and generated energy in GCR (2008)

	Industry	Agriculture, Irrigation and Drainage	Transportation	Houses, Trade and Service Establishments	Governmental Authorities	Other Public Purposes	Total
GCR	9307	320	59	16411	2560	2582	31237
EGY	37506	4228	825	42562	5874	15749	106744
% (G/E)	25%	8%	7%	39%	44%	16%	29%

Table (7-2) ⁽¹⁾ Electric capacity (Million K.W.H) in GCR distributed by kinds of usage (2008)

hours representing about 30% from the total net electric power generated at the level of whole Egypt. Table (7-1) illustrate the number of power stations, their capacities and generated energy in GCR in 2008, whereas Table (7-2) and Figure (7-5) illustrate the electric capacity in GCR distributed by kinds of usage in 2008 ⁽¹⁾.

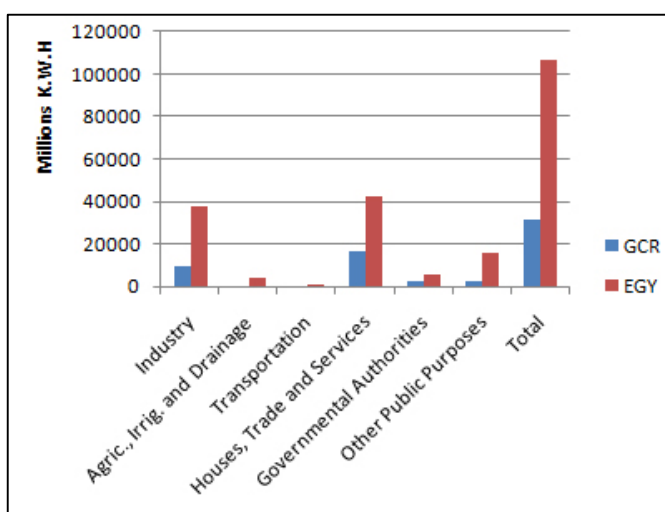


Figure (7-5) ⁽¹⁾ Electric capacity in GCR / Egypt

	Industry		Houses		Trade And Service Establishments		Hotel Service – Private Hospitals		Other		Total	
	N. Gas	L. Gas	N. Gas	L. Gas	N. Gas	L. Gas	N. Gas	L. Gas	N. Gas	L. Gas	N. Gas	L. Gas
GCR	598867	6708	650453	762349	0	159372	0	432	7815029	2846	9077363	931707
EGY	1796955	10439	841581	3421328	0	452461	0	6586	25994851	2906	28633387	3893720
%	33%	64%	77%	22%	0%	35%	0%	7%	30%	98%	32%	24%

Table (7-3) ⁽¹⁾ Amount of sold gas (by ton) and its usage in GCR and Egypt

Natural and liquid gases represent two of the most used types of energy for different purposes in GCR in particular and Egypt in general. The amount of natural gas used for different purposes in GCR represent about 32% from total amount used in whole Egypt, whereas the used liquid gas in GCR represent about 24% from total amount used in whole Egypt. These figures are clear indicators of the level of services provided in GCR, comparing with the rest of Egypt's regions – Table (7-3) illustrates the amount of sold gas and its usage in GCR and Egypt.

7.3.3 POTABLE WATER AND SEWAGE

There are 105 water plants in GCR having nominal capacity of 734700 M³/hour. They produce about 36% of the potable water which are produced in the whole Egypt and consumed totally inside GCR. Table (7-4) and figure (7-6) illustrates the amount of clean potable water produced and consumed in

	The amount of water consumed							Loss net-works	Total water produced	
	Housing units	non-residential units					total			
		Government agencies	Shops	Work-shops and small factories	Large Plants	Investment Companies				Other
GCR	1290219	263309	173077	36615	69488	46247	103152	1982107	1092917	3075024
Egypt	4163346	956720	318922	109277	248273	200101	297914	6294553	2234237	8528790
%	31%	28%	54%	34%	28%	23%	35%	31%	49%	36%

Table (7-4) ⁽¹⁾ amount of clean water produced and consumed in GCR and Egypt (by 1000M³)

GCR, comparing with the total amount of potable water produced and consumed in the whole Egypt. It could be noticed that the amount of the lost water through GCR network is about 36% and represent about half of total lost water in the whole Egypt. ⁽¹⁾

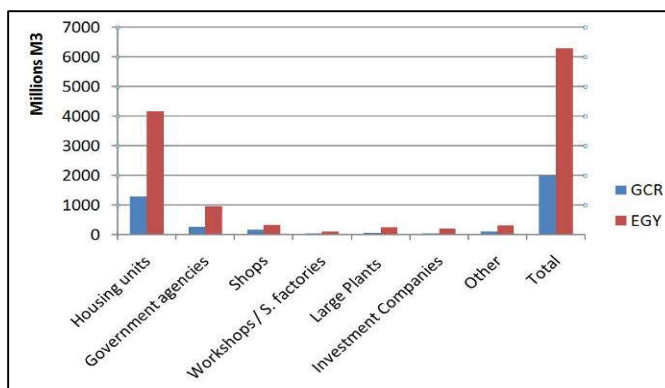


Figure (7-6) ⁽¹⁾ amount of clean water in GCR / Egypt

1 Ibid.

GCR accounts for almost one third of the capacity of sewage treatment plants at the level of whole Egypt – table (7-5) illustrates the capacities and discharge of sewage treatment plants in GCR (by governorate) in relation with total capacities and discharge in Egypt.

Governorates	No. of stations	Designed capacity (100 M3/ Hour)	Actual capacity	Actual discharge (1000m3)
CAIRO	126	40776	25167	2152972
GIZA	26	9238	5731	453132
KALYOUBIA	55	12473	9305	324725
HELWAN	4	6560	3585	98787
6-Oct	17	3410	1176	100800
GCR	228	72457	44964	3130416
Egypt	949	204997	125306	9781034
% (GCR/EGY)	24%	35%	36%	32%

Table (7-5) Capacities / discharge of Sewage treatment plants in GCR and Egypt (by 1000M³)

7.3.4 COMMUNICATION TECHNOLOGIES

Egypt has long been the cultural and informational centre of the Arab World; GCR is the largest centre of publishing and broadcasting in Egypt, Middle East and North Africa. In addition to the traditional communication technologies like press, mail, landline telephones, radio and TV, GCR is the national center of introducing the new communication technologies in Egypt which could be summarized as follows:

- **Cellular Communications** have been launched in Egypt initially through public sector in 1997. In 1998, it has been transferred to a new founded private sector company, as the first private cellular communication provider. Currently, based in GCR, there are three providers allowing for several communication services such as 3.5G and 3.75G services.
- **Broadband Internet Access** was introduced commercially in 2000 as ADSL. The service was initially offered in big cities such as Cairo, Giza and gradually spread to cover more Governorates of Egypt. In 2007, WiMax (Worldwide Interoperability for Microwave Access) technology has been followed by cellular communication providers who provide fixed and fully mobile Internet access technology.
- **Broadcast Satellite Technologies** are introduced by the Egyptian Satellite Company “Nilesat” established in 1996 through series of Egyptian

communications satellites and their associated ground control stations and up linking facilities. The company has two ground stations, a primary one in 6th of October City and a secondary one in Alexandria.

- **Intelligent Buildings and Smart Homes** are recently exist in some GCR new communities through distinguished business and residential complexes owned and operated by private sector investors who construct stand alone ICT (information and communications technology) infrastructure for each complex to provide computerized control system and intelligent network of electronic devices, to monitor, control and integrate the mechanical and lighting systems in both building level and whole complex level.

7.4 SOCIO-ECONOMICAL CHARACTERISTICS OF GCR

Management of land use reutilization projects require deep understanding of the socio-economical characteristics pertaining to all stakeholders may affect on or affected by these types of projects, as many of these characteristics are governing elements in several 3PM processes. This section studies and analyzes the socio-economical characteristics of GCR.

7.4.1 POPULATION CHARACTERISTICS

GCR population is 18,448,076 as per 2006 census (the estimated population in January 2010 according to the natural increase and the final results of 2006 as per CAPMAS is 19,622,652), it represents about 25% of the total population of Egypt– table (7-6) illustrate the population of GCR, its current and former governorates and percentage from Egypt’s whole population.

	EGYPT	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
Population (2006 census)	72,798,031	18,448,076	6,758,581	3,143,486	4,251,672	1,713,278	2,581,059
Population (Jan. 2010 Estimates)	77,775,247	19,622,652	7,137,218	3,326,444	4,546,564	1,831,505	2,780,921
% (population 2010 / Egypt population 2010)	-	25.2%	9.2%	4.3%	5.8%	2.4%	3.6%

Table (7-6) population of GCR and its governorates in 2006 and 2010

7.4.1.1 URBAN AND RURAL POPULATION DISTRIBUTION

As per 2006 census, the urban population percentage in Egypt is 43.1%; this percentage is extremely increased in the level of GCR to reach 73.2% compared with 26.8% of the rural population in the region. This is an indicator of improved socio-economic level in the region and indicates that most of the GCR population involved in industrial, trade and services activities – table (7-

	EGYPT	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
population (Urban)	31,370,925	13,497,480	6,758,581	2,891,275	1,899,354	1,202,395	745,875
population (Rural)	41,427,106	4,950,596	0	252,211	2,352,318	510,883	1,835,184
Total	72,798,031	18,448,076	6,758,581	3,143,486	4,251,672	1,713,278	2,581,059
% (Urban Pop. / total Pop.)	43.1%	73.2%	100.0%	92.0%	44.7%	70.2%	28.9%

Table (7-7) population distribution of GCR and its governorates by urban and rural as per 2006 census

7) illustrate the population distribution of GCR and its governorates by urban and rural, compared with the whole Egypt as per 2006 census.

7.4.1.2 POPULATION DISTRIBUTION BY SEX

As per 2006 census, the average sex ratio in Egypt was 105 (105 male for each 100 female), this ratio was 103 in Cairo, 104 in Giza, 106 in both Kalyobia and former governorates of Helwan and increased in 6th of October up to 109 due to dense industrial activities in which the males are involved - table (7-8) illustrate the population distribution of GCR and its current and former governorates by sex compared with the whole Egypt (2006 census).

	EGYPT	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
population (male)	37,219,056	9,451,218	3,433,198	1,603,524	2,187,288	880,692	1,346,516
population (Female)	35,578,975	8,996,858	3,325,383	1,539,962	2,064,384	832,586	1,234,543
Total	72,798,031	18,448,076	6,758,581	3,143,486	4,251,672	1,713,278	2,581,059
Sex ratio	105	105	103	104	106	106	109

Table (7-8) population distribution of GCR and its governorates by sex as per 2006 census

7.4.1.3 POPULATION DISTRIBUTION BY AGE GROUPS

As per 2006 census, the percentage of the young age category (less than 15 years) in GCR is 20.9% from total GCR population comparing with 31.7% in the level of whole Egypt; this low percentage is referring to the high

percentage of urban population in GCR and their awareness of birth control. The percentage of middle age category (workforce from 15 years up to less than 60 years) in GCR is 62.6% from total GCR population which is almost the same of Egypt. The percentage of older people category in GCR is 6.1% which is also the same for Egypt - figure (7-7) illustrate the age structure diagram per 10 years (population pyramid) for GCR population as per 2006 census.

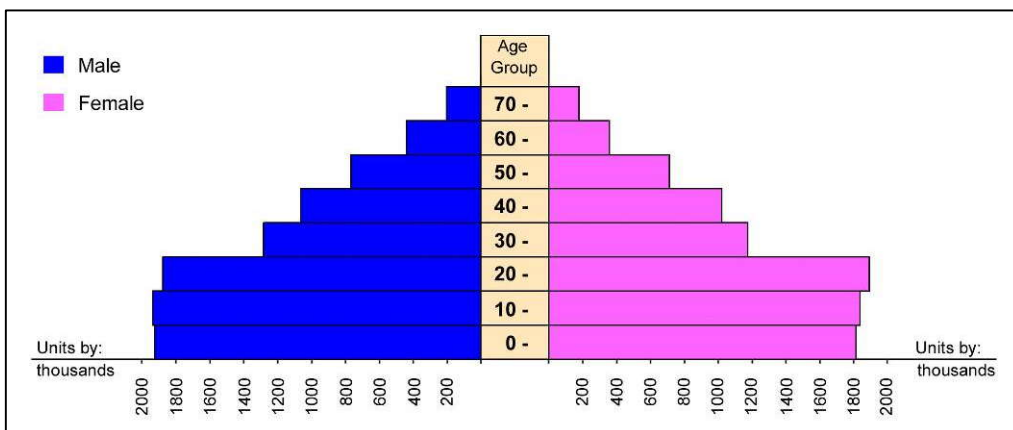
7.4.1.4 POPULATION ANNUAL GROWTH AND POPULATION DENSITY

As per CAPMAS estimates, the rate of annual population growth in Egypt (2009 – 2010) was 2.21%, where it was less for GCR (1.98%) which was differing from governorate to another; 1.41% for Cairo, 1.50% for Giza, 2.15% for Kalyobiya, 2.27% for Helwan, and 3.53% for 6th of October. GCR gross population density was 504 People / Km² (as per 2006 census), where the net

population

Figure (7-7) Population Pyramid of GCR in 2006

density



(by counting only GCR urban block area) was about 42000 people / Km² which is considered as one of the highest, all over the world.

7.4.1.5 INTERNAL IMMIGRATION

GCR is the most attractive region for internal immigration, whereas (as per 2010 CAPMAS estimates) its population's annual growth rate was 1.98% and its natural population increase rate (percentage of births minus deaths) was 1.92%, which means that the net immigration rate was 0.06%. In 2010 and at the level of internal immigration among GCR governorates, Cairo governorate became population exporter mainly to the former governorates of Helwan and 6th of October, where Cairo's population annual growth rate in 2010 was 1.41% and its natural population increase rate was 1.89% which means that Cairo average of net immigration rate was (- 0.48%). The main reasons for that

are the available facilities and labour force in the former two governorates represented in existing of modern mixed use communities and existing of several job vacancies in both production and service sectors.

7.4.2 HUMAN DEVELOPMENT SERVICES

Studies and analysis of human development services are completing the whole picture of the Socio-economic characteristics of the region and its residents. Usually the main significant two items are education and health-care.

7.4.2.1 EDUCATION SERVICES

Education service studies include the education indicators for number of schools, classrooms, classroom density, and its sufficiency comparing with the common planning rates ⁽¹⁾. In the level of region, studies include the number of universities, number of academic staff and enrolled students – Tables (7-9), (7-10) ⁽²⁾ illustrate some important figures and rates related to education services.

	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
No. of Schools	8,412	3,238	1,187	1,745	1,045	1,197

Table (7-9) No. of schools, classes, students and class density in GCR (2008-2009)

No. of Classes	96,859	36,584	15,464	21,414	10,733	12,664
No. of students	4,035,858	1,386,385	686,822	944,855	422,592	595,204
Class density	42	38	44	44	39	47
	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
	Governmental universities					
No. of Universities	6	2	1	1	2	0
No. of Staff	36,452	18,595	10,608	3,002	4,247	0
No. of students	993,317	535,608	293,425	59,428	104,856	0
	Private sector universities					
No. of Universities	10	1	0	0	5	4
No. of Staff	3,524	137	0	0	1,108	2,279
No. of students	48,552	1,130	0	0	13,523	33,899

1 Common rates of education services in USA and European countries are averaging between 16 to 25 student / class for schools and between 700 to 4000 student / 100,000 people for universities.

2 Governmental universities include Al-Azhar university and Mubarak Police Academy.

private universities include: The modern university for technology & information (Cairo) - American university, Misr international university, British university, French university, The Egyptian-Russian university (Helwan) - 6 October University, October Modern Science & Arts University, Misr Technology & Science University, El-Ahram Canadian University (6th of October) – CAPMAS (2009)

H. education Rate	5400 college student / 100,000 people (for GCR)
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Generally, the followings could be noted from previous tables:

Most of the GCR governmental classes of pre-university education suffering from high density comparing with the common rates used in USA and European countries (almost double), which shows the need to provide more classes and to be considered within re-land use projects. The rate of higher education students to GCR total population is actually higher than the rate of USA and Europe; this may refer to the centralization of the large number of governmental universities and most of the private universities in GCR, however this rate should be seen with the level of education quality, university facilities and researches offered by each university.

7.4.2.2 HEALTH-CARE SERVICES

Health care service studies include figures and indicators for a number of hospitals, beds and number of medical staff (mainly doctors and nursing staff). These figures should be both, compared with the common planning rates ⁽¹⁾ and be linked with the technical level of services provided by hospitals and medical staff which is usually not measured in Egyptian government statistics. Table (7-11) ⁽²⁾ illustrates some important figures and rates related to health care services for GCR medical governmental facilities in 2009, where could be noticed that there is enormous shortage in required hospital beds which should be considered within re-land use projects.

7.4.3 LABOUR FORCE AND UNEMPLOYMENT RATE

GCR has an effective labour force of about 5,744,000 people (15 years old and over) represents about 23% of the total labour force in Egypt as of 2008 statistics done by CAPMAS. GCR unemployment rate is equal to 9.14% which is not far from the national rate of 8.69%. This large unemployment rate should be seen and dealt with during several processes of re-land use projects

Table (7-10) No. of GCR universities, Staff and students - governmental and private (2008-2009)

	GCR	Cairo	Giza	Kalyobiya	Helwan	6-Oct
No. of governmental hospitals	165	67	20	50	12	16
No. of Doctors (governmental hospitals)	1,612	11,013	3,297	2,669	709	438
Population / Doctor	100 people/doctor	639	994	2,673	2,525	6,125
No. of nursing staff (governmental hospitals)	26,059	17,126	3,256	3,461	1,246	970
No. of beds	13,493	4,393	1,778	5,023	1,419	880
Population / Bed	1,426	1,602	1,843	886	1,261	3,049

Table (7-11) ⁽²⁾ Figures and rates of health care services in GCR and its governorates (2009)
Services in USA and European countries are averaging between 80 to 150

by providing job opportunities either during planning or execution stages.

7.4.4 GCR BUILDING TYPES AND DISTRIBUTION

Study of GCR building types and distribution on the level of governorates gives an overall image of the socio-economic characteristics of the region and its population. Detailed studies on level of districts give an idea of the districts or areas need land use reutilization projects.

		Current use of regular buildings					
		Housing	Work	Work & Housing	Unoccupied	Other	Total
Cairo	Urban	297,025	30,230	63,047	26,434	2,103	418,839
	Rural	0	0	0	0	0	0
	Total	297,025	30,230	63,047	26,434	2,103	418,839
Giza	Urban	164,304	6,195	22,608	14,563	619	208,289
	Rural	19,507	399	1,999	2,897	46	24,848
	Total	183,811	6,594	24,607	17,460	665	105,751
Kalyobiya	Urban	137,962	7,625	13,506	18,121	1,752	178,966
	Rural	308,777	14,085	15,759	59,479	2,187	400,287
	Total	446,739	21,710	29,265	77,600	3,939	579,253
Helwan	Urban	82,695	6,622	11,524	20,344	1,409	122,594
	Rural	79,396	3,106	1,140	11,439	945	96,026
	Total	162,091	9,728	12,664	31,783	2,354	218,620
6-Oct	Urban	77,843	4,823	4,268	17,801	1,016	105,751
	Rural	233,839	8,740	8,492	32,823	996	284,890
	Total	311,682	13,563	12,760	50,624	2,012	390,641
GCR	Urban	759,829	55,495	114,953	97,263	6,899	1,034,439
	Rural	641,519	26,330	27,390	106,638	4,174	806,051
	Total	1,401,348	81,825	142,343	203,901	11,073	1,840,490
EGY	Urban	2,485,838	189,014	254,246	401,610	25,107	3,355,815
	Rural	6,121,145	290,931	181,710	1,004,898	42,761	7,641,445
	Total	8,606,983	479,945	435,956	1,406,508	67,868	10,997,260
% (GCR/EGY)	Urban	30.6%	29.4%	45.2%	24.2%	27.5%	30.8%
	Rural	10.5%	9.1%	15.1%	10.6%	9.8%	10.5%
	Total	16.3%	17.0%	32.7%	14.5%	16.3%	16.7%

Table (7-12) illustrates some important figures and rates related to building types and distribution at GCR as per 2006 census by CAPMAS. Some facts could be extracted from that table as follows:

- GCR residential buildings represent 76% of total GCR buildings.
- GCR urban buildings represent 30% of total urban buildings in Egypt.

Table (7-12) GCR Regular Buildings - Types and Distribution (2006)

- GCR urban residential buildings represent 31% of total urban residential buildings in Egypt.
- GCR urban business buildings represent 30% of total urban business buildings in Egypt.
- GCR urban mixed use buildings represent 45% of total urban mixed use buildings in Egypt.

7.5 ADMINISTRATIVE SYSTEMS AND LEGISLATIONS RELEVANT TO LAND USE REUTILIZATION PROJECTS

There are a set of laws and regulations which may, by different levels of affect on the land-use reutilization processes and their management approach in GCR. The most significant laws and regulations which should be considered during the land-use reutilization management are:

- Law of Building No. 119 of 2008 and its regulations, especially its first part of urban planning and its articles related to planning and urban development at different levels (national – regional – local), founding of Supreme Council for Planning and Urban Development, preparing the strategic master plan and detailed master plan, dealing with unplanned areas and re-planning areas.
- Law of local administration system no. 43 of 1979; in respect of organizational structure of local administration entities, its units, duties, financial resources and budget.
- Law of expropriation of property for public interest no. 10 of 1990; in respect of identifying public interest projects, compensation estimates and procedures during land use reutilization projects.
- Law of cemeteries no. 5 of 1966 and its regulations regarding the procedures of stop-using cemeteries, relocation of human remains, and reuse of cemetery lands. Especially that GCR includes many inhabited cemetery lands inside the urban space and causing several urban problems.
- Law of the protection of monuments no. 117 of 1983; especially regarding identification of historic buildings, dealing with them, and protection / maintenance procedures.

7.6 MAIN CHALLENGES OF THE GREATER CAIRO REGION

The main challenges facing GCR in general and its metropolitan area (Greater Cairo Metropolitan Area “GCMA”) in particular could be concluded from the preceding discussion in this chapter, are the followings:

- The inefficiency of some of its physical elements, especially infrastructure and public services in some areas, compared with the region's vast agglomeration and rapid population growth.
- Mismatching between housing supply and demand, causing the problem of informal settlements which are currently one of the defining characteristics of GCR urban environment.
- Lack of employment opportunities.
- Environmental pollution, including air, noise and visual pollutions.
- Severe traffic congestions.
- Complexity of the institutional arrangements which fragment the responsibilities and constrain of efficient service delivery mechanism.

7.7 URGENCY OF LAND USE REUTILIZATION MANAGEMENT IN GCR

A large number of GCR problems are related to the inappropriate land uses which become existed in different areas of the region, as there are many urban land-uses not matching with any proposed development approach for the region. Many planned urban land uses had been located at certain times outside the region's urban space, such as several industrial and handicraft zones, airports, military barracks and cemeteries. Many of those urban land uses have become inconvenient – by the effect of land use transformation processes – not only located inside the region's urban space but also in many cases at the core of its cities. Other old urban areas had been planned, based on that days dominant planning criteria, but as a result of continuous urban transformation processes produced by several social, economical, and political variables, those areas were become dilapidated and in need of extra services and adequate infrastructure. They call for urgent rehabilitation or in some cases relocation. Many slums had been originated by attaching to the planned areas for different purposes and widely expanded away from the governmental monitoring, causing serious problems.

As a result of all those cases, relocation of urban usages became necessary, accordingly the urgency of land use reutilization projects came out and has been considered by the successive Egyptian governments. The prevailing obstacle lies in the fact that most of land-use reutilization projects in GCR have been executed with an unilateral approach, serving each individual project's objectives in the absence of a management methodology that comprehensively controls the whole region development strategy. In other words, the current Egyptian government's problem could be briefed as that most of the land use reutilization projects are usually executed by several related governmental authorities which are working in isolated islands with not defined management methodology which should extend proper planning, execution, monitoring, and performing corrective actions during the different

projects' life cycle stages in order to ensure successful completion of the land-use reutilization projects in accordance with achieving the objectives of the strategic urban development master plan.

Within the next chapters, the thesis will try to use 3PM / OPM approach to conclude a specific, comprehensive and integrated management methodology for managing different types of land use reutilization projects which directs and controls those projects (within the program or portfolio) during their life cycle. This management methodology helps in formulating a standard and flexible management model which could be applied for managing different types of land-use reutilization projects (within program or portfolio) related to any future proposed GCR strategic master plan in particular or related to any other Egyptian region in general.

7.8 EPILOGUE

- GCR comprises three governorates (Cairo, Giza, and Kalyoubiya) with a total area of 37000 km² and an urban agglomeration of about 650 km² and total population of about 20 million inhabitants, representing 25% of the total population in Egypt.
- GCR has been selected as the case study of testing the methodology of land use reutilization management due to its economic importance, rapid urban sprawl and urban transformation process which led to inappropriate land uses and calling for urgent land use reutilization projects.
- GCR geological characteristics marked by the existence of various distributed rocks species. Rock quarries occurred during urban sprawl and urban transformation processes, along with some basic industrials areas which located in inappropriate locations and causing urban problems which call for land use reutilization projects. GCR is also penetrated by two seismic belts.
- Topography of GCR terrain is characterized by its heights variation. Starting at Nile Valley with height rate not exceeding 20 meters above sea level, up to the Eastern periphery, with a height of about 500 meters. Most of the urbanized areas are concentrated near the river Nile, which causes the erosion of the agricultural lands and makes GCR as most urbanized region.
- Main storm water drainage lines in GCR, separating both the Red Sea basin and River Nile basin pass through 600 meters hill at the Southern side of the region. Floods are formed during rainstorms and run through

those drains like Wadi Degla and Wadi Houf. Those drains should be considered either by landscape treatment or avoiding within land use reutilization projects.

- GCR climatic conditions are homogeneous and represent a compromise between the North Coast climate and the Delta climate on one side and the Nile Valley climate on the other.
- The main regional roads which connect Upper and Lower Egypt pass through GCR. This is in addition to many arterial roads, bridges, and local roads connecting the different zones and districts in the region.
- GCR is linked to the national railways network through the main station of Ramsis, and is the only region which has two underground metro working lines and two under construction.
- Nile passenger transportation is available in GCR through river bus network and cruise. Some ports like Ain Al-Sira and Helwan play a role in the carriage of raw materials and products. GCR include the second busiest airport in Africa “Cairo International Airport”.
- GCR is fed with electricity through eight number of steam / gas power stations which are linked to the national electricity unified network and with a capacity of 6376.50 Mega- watts, representing 32% from total capacity of Egypt’s power stations. Natural and liquid gases are widely used in GCR, representing about 32% from the total amount used in the whole Egypt
- There are 105 water plants in GCR having nominal capacity of 734700 M3/hour and they produce about 36% of the potable water, produced in whole Egypt. GCR accounts for almost one third of the capacity of sewage treatment plants at the level of whole Egypt.
- GCR is the largest centre of communication in Egypt, Middle East and North Africa. In addition to the traditional communication technologies, it is the national center of introducing the new communication technologies including cellular communications, broadband internet access, broadcast satellite technologies, and intelligent buildings.
- GCR’s population is about 20 Million (25% of Egypt’s population) with annual population growth rate of 1.98%. About 73% of them are urban population comparing with 43% urban population in Egypt which is an indicator of improved socio-economic level and involvement in industrial, trade and services activities.
- GCR’s average sex ratio is 105 (same as Egypt’s ratio), GCR has a powerful workforce (63% of the total Egyptian population with

unemployment rate of 9.14%). GCR is the most attractive region for the internal immigration in Egypt, with a net immigration rate of 0.06%.

- Most of the GCR governmental classes of pre-university education suffering from high density and need more classes which should be considered within re-land use projects. Due to the centralization of large number of universities, the rate of higher education students is higher than the international rate (this is regardless of the education quality and facilities).
- There is enormous shortage in required hospital beds in GCR which should be seriously considered within re-land use projects.
- GCR residential buildings represent 76% of the total GCR buildings. GCR has 45% of the total mixed use buildings in the country, and has 30% of the total urban business buildings.
- There are a set of laws and regulations which affect the land use reutilization processes and their management; such as: Law of Building No. 119 of 2008, Law of Local Administration System no. 43 of 1979, Law of Expropriation of Property for public interest No. 10 of 1990, Law of Cemeteries No. 5 of 1966, and Law of Monuments Protection No. 117 of 1983.
- The main challenges facing GCR are: the inefficiency of infrastructure and public services, mismatching between housing supply and demand, unemployment, environmental pollution, severe traffic congestion, and complexity of institutional arrangements.
- Relocation of some GCR urban usages become necessary, accordingly the urgency of land use reutilization projects came out and considered by the Egyptian Government during the preparation of GCR Strategic Urban Development Master Plan.



CHAPTER 8

GCR STRATEGIC MASTER PLAN – VISION, MISSION, AND ORGANIZATIONAL STRATEGIC OBJECTIVES TOWARDS LAND USE REUTILIZATION PROJECTS

“Strategic spatial planning activity takes place primarily at the level of the region, the city and neighbourhood or rural settlement. Even when the focus of attention is the project rather than strategies, planning systems tend to stress how a project fits into a wider area.”

Healey, Patsy, (1997). Making strategic spatial plans, p.6

This chapter discusses **GCR Proposed Strategic Master Plan (GCR - PSMP)** in accordance with available information to date, its vision, mission, organizational strategy, goals and objectives which have been defined by the Egyptian Government, represented by the General Organization for Physical Planning (GOPP) ⁽¹⁾. Finally, the chapter will discuss, both, the role of the land-use reutilization in GCR and the management approach to different types of land use reutilization projects.

8.1 GOVERNMENTAL APPROACH TO GCR STRATEGIC MASTER PLAN

As with most of the mega-cities and as discussed in previous chapter, GCR's cities are considered the prime engine of economic growth and the main population center in Egypt. As a large urban agglomeration, GCR is the most attractive region in the country and the main destination for internal migration whether from the rural areas or the other smaller towns. As a result, the urban agglomeration has expanded very fast in the last four decades. It, currently,

¹ GCR proposed strategic urban development master plan has been presented in not published reports which have been prepared by GOPP in cooperation with Japan International Cooperation Agency (JICA) in 2007. Due to not existence of approved strategic master plan for GCR, the thesis will use the proposed strategic master plan and its outputs to demonstrate the implementation of OMP methodology to achieve its proposed strategic objectives. the formulated methodology will be applicable for implementation to any future GCR strategic urban development master plan.

covers a total area of about 650 km². Yet, this condition has produced many key challenges related to the inefficiency of the infrastructure and public services which have been managed, barely, to be kept up with the very rapid urban growth. In addition, the rapid expansion of the urban agglomeration has not been met with neither the local urban plans nor the effective use of limited financial resources allocated to the region.

The process of controlling the urban agglomeration has always been a complicated issue because of the interference between the central ministries' responsibilities with the local government's role. The direct result of not finding the proper solutions for those challenges was the origination of informal urban settlements and many slum areas which today are covering more than 40% of the total urban agglomeration.

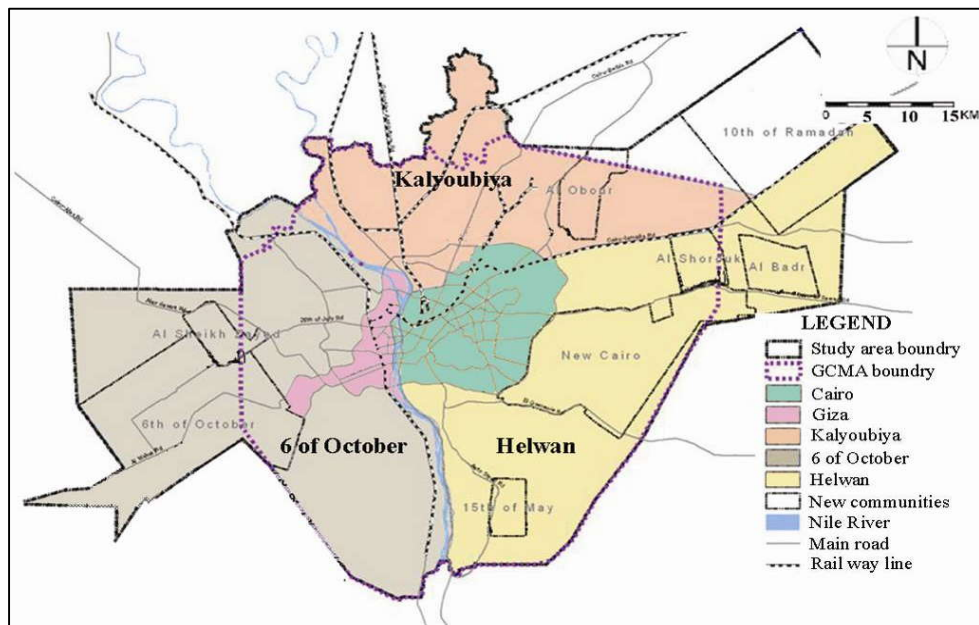


Figure (8-1) ⁽²⁾ GCR - PSMP study area

In order to deal with GCR's challenges and their consequences, the Egyptian Government, in the second half of the last decade (2007), has started a process of preparing a Strategic Urban Development Master Plan for the region which will be referred to in the following context as “GCR - PSMP”. The main goals of “GCR - PSMP” ⁽¹⁾ are to achieve the social equity, continuous economic growth, and sustainable development. These goals are linked to detailed objectives which together will be achieved through series of development's sub-plans which will deal with several issues such as: providing

¹ Ministry of housing, utilities and urban development, (2007). The strategic urban development master plan study for sustainable development of the GCR, brief report, P.1

² Ibid.

well-balanced urban development, providing decent housing alternatives, developing more urban facilities and public services, considering the economical approach and the required huge investments. All these development's sub-plans will be implemented within "GCR - PSMP" by determining and managing a set of portfolios, programs, and projects. Figure (8-1) illustrates the boundaries of GCR - PSMP's study area (Greater Cairo Metropolitan Area "GCMA") with an extent of 4367 Km².

8.2 GCR - PSMP : VISION AND MISSION

As described in Chapter Three, the vision is long-term view, concentrating on the future, where the Mission provides the details of what shall be done to achieve the Vision. GCR - PSMP vision and mission have been defined by GOPP as follows ⁽¹⁾ :

GCR - PSMP VISION: Enhance the rank of Cairo as a "Global City" to be prime urban destination in the Arab World and Middle East.

GCR - PSMP MISSION: Restore Cairo to be a better city for all the people to live in, a prosperous metropolis with strong and diverse economic activities, well-balanced urban developments, environmentally more friendly and well planned city.

8.3 GCR - PSMP : ORGANIZATIONAL STRATEGY AND OBJECTIVES

The long term goal of GCR - PSMP is to contribute to sustainable urban development of the GCR and increase its competitiveness through achieving a number of impacts, such as, strengthening the global linkages and integration between the existing urban built-up area and the new urban communities, defining the economic role and the competitive economic clusters of the region to leverage their potentials, increasing the efficiency of managing the region, and consolidating the active participation of key stakeholders in the decision making and planning process through a strategic planning approach. The time horizon for the plan is the year 2050 but will start with a short/medium-term action plan involving the following key activities ⁽²⁾:

- Develop upgrading plans for the existing slums and illegal settlements within the region and surround them with newly planned areas to prevent their illegal expansion.

1 Ministry of housing, utilities and urban development, (2007). Existing situation and proposed land use of the Greater Cairo Region, 1St seminar report, P. 2

2 Ibid., P. 16

- Transfer the Ministries and Governmental buildings from the old inner city center to a new governmental center at the peripheries of the region.
- Relocate of the polluting land-uses outside the inner city.
- Developing a new strategic plan for traffic and transportation.
- Developing a new master plan for the infrastructure.
- Developing an integrated Local Economic Development Strategy to improve the region's competitiveness.
- Revitalization of Historical Centers within the region.

The Egyptian Government represented by GOOP who has built **GCR - PSMP's organizational** strategy to define how the vision and mission will be achieved. Consequently, **GCR - PSMP's organizational** strategy has defined the objectives which OPM methodology could deal with through performing a set of prioritized portfolios, programs and projects to attain. **GCR - PSMP's organizational** strategy has been categorized under five main themes where each theme contains some objectives as follows ⁽¹⁾:

- Living in Cairo.
- Working in Cairo.
- Connecting in Cairo.
- Managing the natural environment.
- Designing a sustainable city.

8.3.1 LIVING IN CAIRO

The following two main objectives are linked to “Living in Cairo” as one of the themes of **GCR - PSMP's organizational** strategies.

- ***Providing housing supply for various household groups.***
- ***Improving the living environment of slum areas.***

Accordingly, and based on **GCR - PSMP studies** of existing conditions which show that about 70% of the total housing demand are from low income group and suggest that mobilizing of unused housing units and adjusting housing supply by different income groups, four pilot areas were selected for the improvement purpose of the slum areas – as illustrated in figure (8-2) ⁽²⁾.

Area (A) □ adjacent to proposed relocated factories in Shobra Al-Khemah.

Area (B) □ adjacent to proposed redevelopment area at north of Giza City.

Area (C) □ adjacent to tourist zone at Pyramids Area.

Area (D) □ within the cemetery zone at the East of Cairo.

¹ Ibid., P. 12-15

² Ibid., P. 13

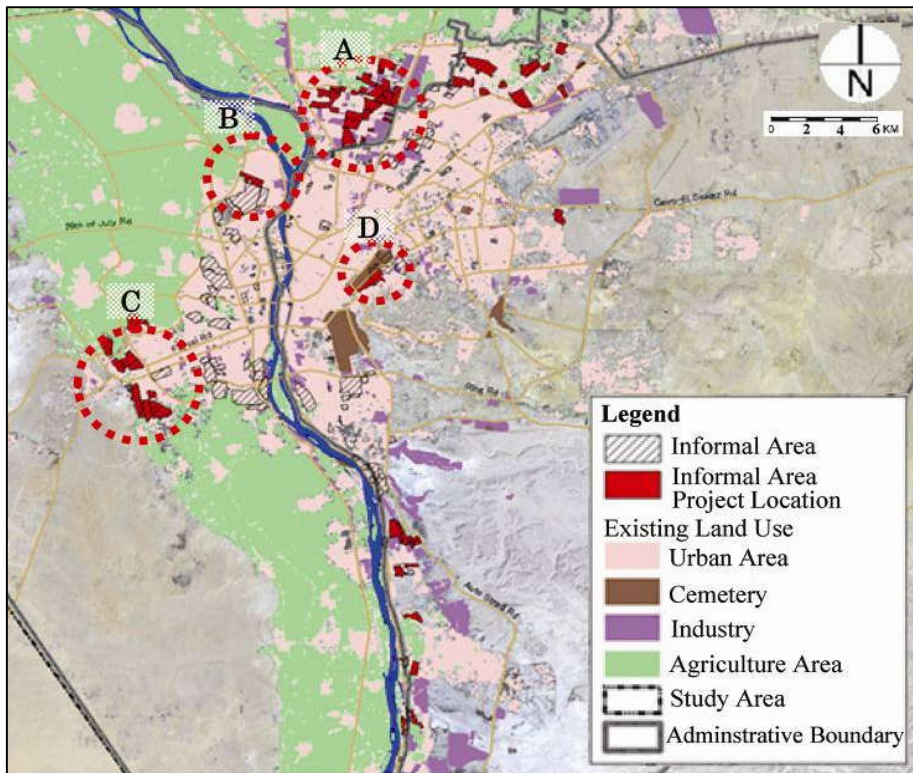


Figure (8-2) ⁽¹⁾ Improving living environment of informal areas (GCR - PSMP)

8.3.2 WORKING IN CAIRO.

The following three main objectives are linked to “working in Cairo” as one of the themes of **GCR - PSMP’s organizational** strategies.

- **Promoting New Business and Commercial Area**, by developing proper sites for internationally competitive business sector (services, banking, and telecommunication), developing commercial / business cores and development of sub-centers and district centers - Figure (8-3) ⁽²⁾ illustrates **GCR - PSMP proposed** locations of new business and commercial areas.
- **Promoting Industrial and R&D Area**, by relocating the industrial zones from residential areas like Helwan and Shubra AlKhema and rearrange them into NUCs outside main agglomeration. Accordingly 21 industrial zones have been defined to be relocated and redeveloped. Some locations have been

1 Ibid., P. 13

2 Ibid., P. 13

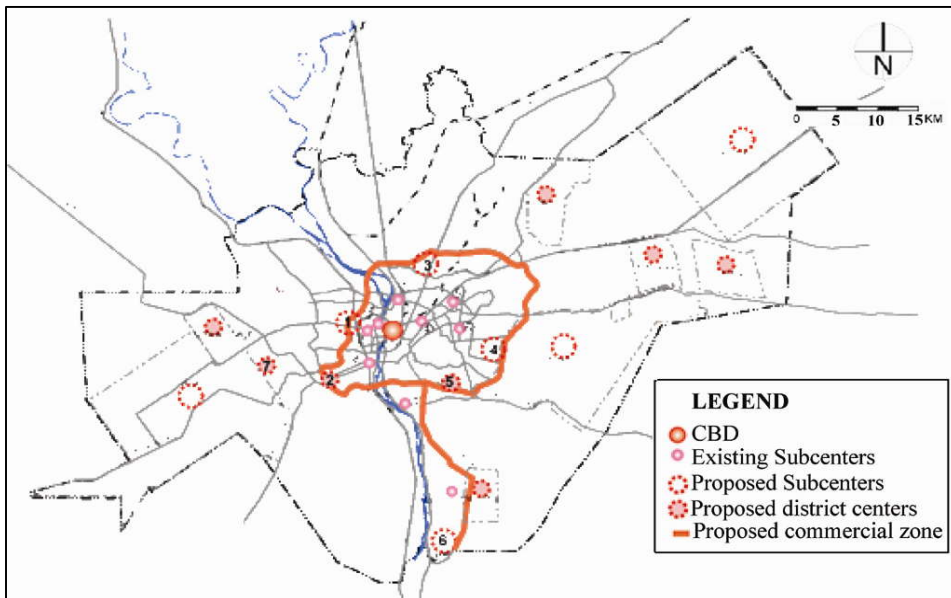


Figure (8-3) ⁽¹⁾ Proposed Locations of New Business and Commercial Areas (GCR - PSMP)

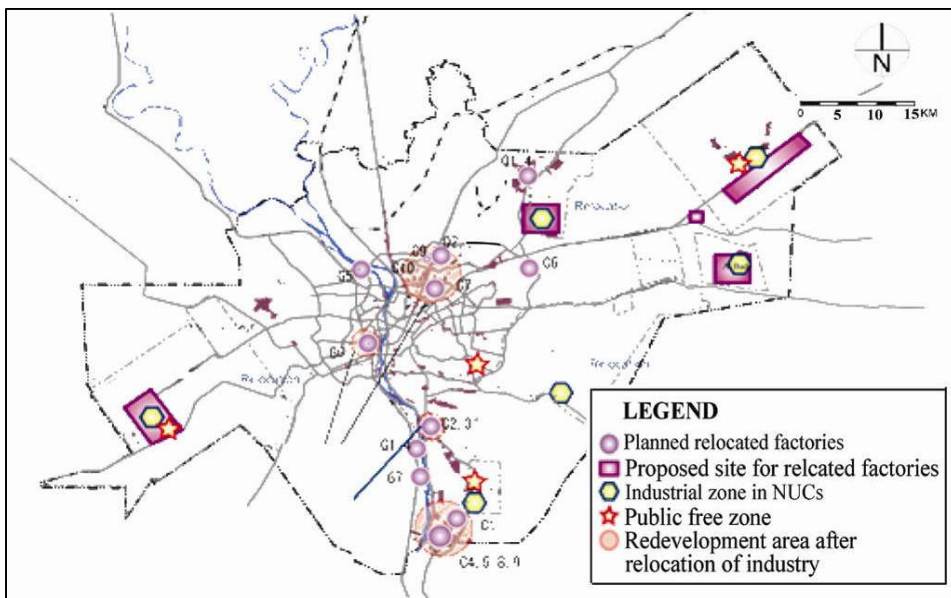


Figure (8-4) ⁽²⁾ Proposed Locations of Industrial Zones and New R&D Areas (GCR - PSMP)

selected to develop R&D industries - Figure (8-4) ⁽¹⁾ illustrates GCR - PSMP proposed locations of industries and new R&D areas.

- *Promoting Tourism Investment Area (especially at the West of Ring Road), by making existing tourism assets connected with tourism investment*

¹ Ibid., P. 14

zones, beautification of selected areas, like along the Nile River, and conserving the historical / buildings and heritage zones. Figure (8-5) illustrates proposed locations of tourism development of **GCR - PSMP**.

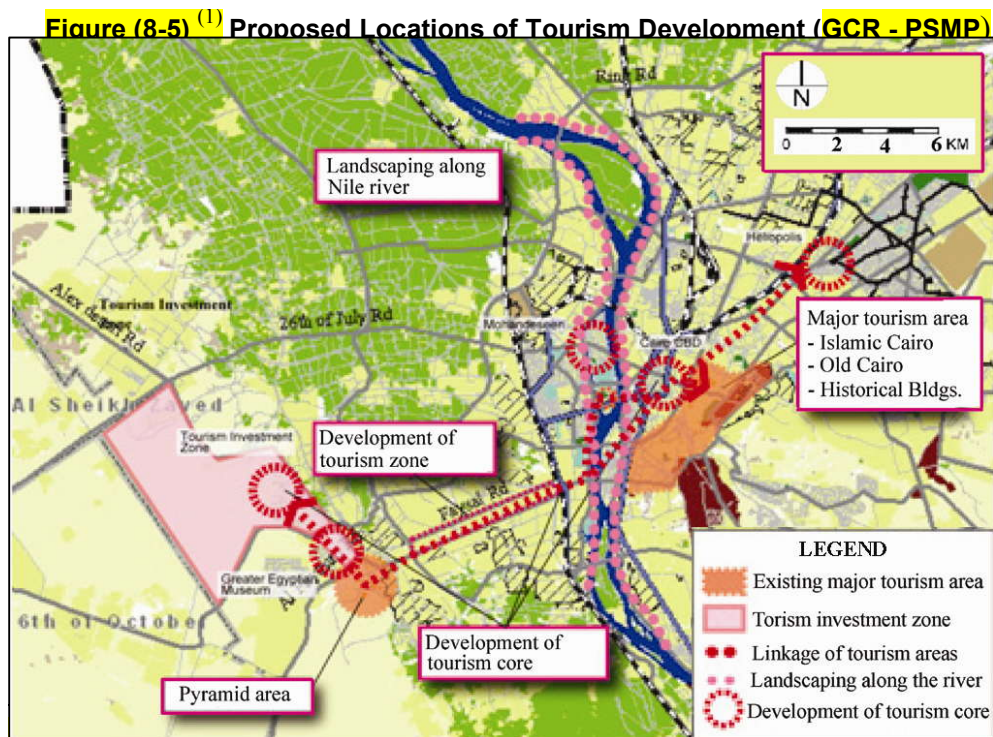
8.3.3 CONNECTING IN CAIRO.

The following two main objectives are linked to “Connecting in Cairo” as one of the themes of **GCR - PSMP’s** organizational strategies.

- ***Vitalizing The New Urban Communities***, by providing affordable housing and public transport, creation of job opportunities, providing public services and housing loans.
- ***Promoting Transport-Oriented Urban Development Area***, by providing adequate means of public transportation to the new urban communities and creating development cores in combination with public transportation network.

8.3.4 MANAGING NATURAL ENVIRONMENT

The following two main objectives are linked to “Managing the Natural



² Ibid., P. 14

² Ibid., P. 14

Environment” as one of the themes of **GCR - PSMP’s organizational** strategies:

- **Conserving Agricultural Lands and Natural Resources**, by controlling the unplanned developments on agricultural lands through setting protection zones around it. Reserve the natural environment and provide protection to archaeological areas - Figure (8-6) ⁽¹⁾ **illustrates GCR - PSMP** proposed

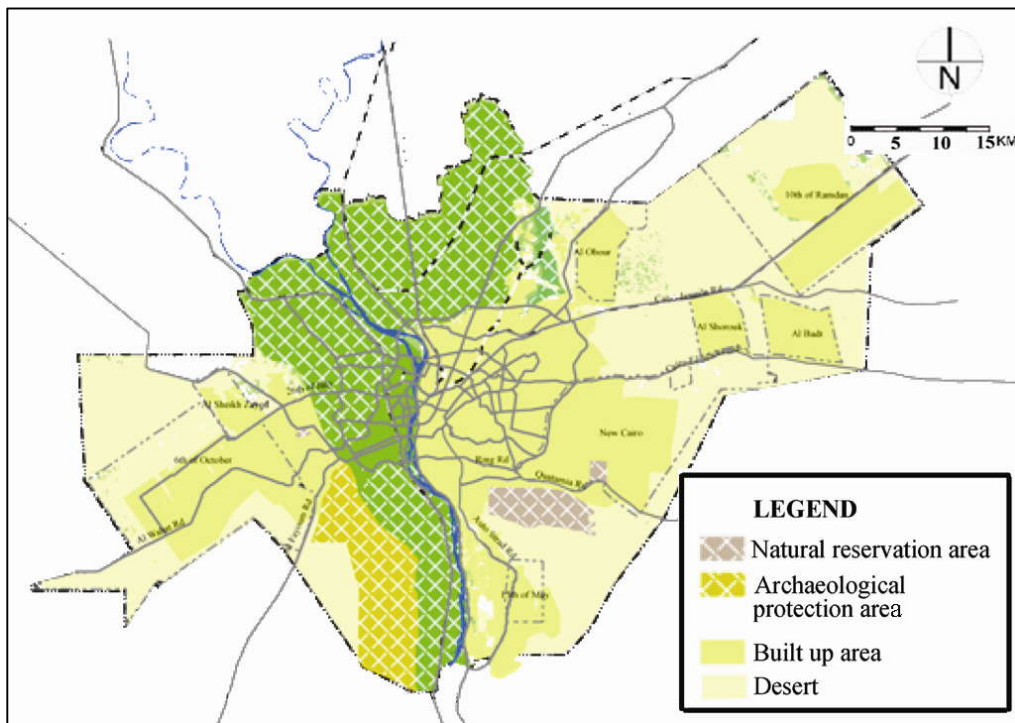


Figure (8-6) ⁽¹⁾ Proposed Conservations of Agricultural Lands (GCR - PSMP)

conservations of agricultural lands.

- **Promoting Open Green Areas Network**, by developing green areas and public parks in the main agglomeration of vacant lands, originated after the relocation of urban uses (like industrial uses, governmental buildings, cemeteries, ...), development of green networks along the Nile River, creation of district public parks in NUCs - Figure (8-7) illustrates **GCR - PSMP** proposed open and green areas network.

8.3.5 DESIGNING THE SUSTAINABLE CITY

1 Ministry of housing, utilities and urban development, (2007). The strategic urban development master plan study for sustainable development of the GCR, brief report, P.7

The following two main objectives are linked to “Designing the Sustainable City” as one of the themes of GCR - PSMP’s organizational strategies.

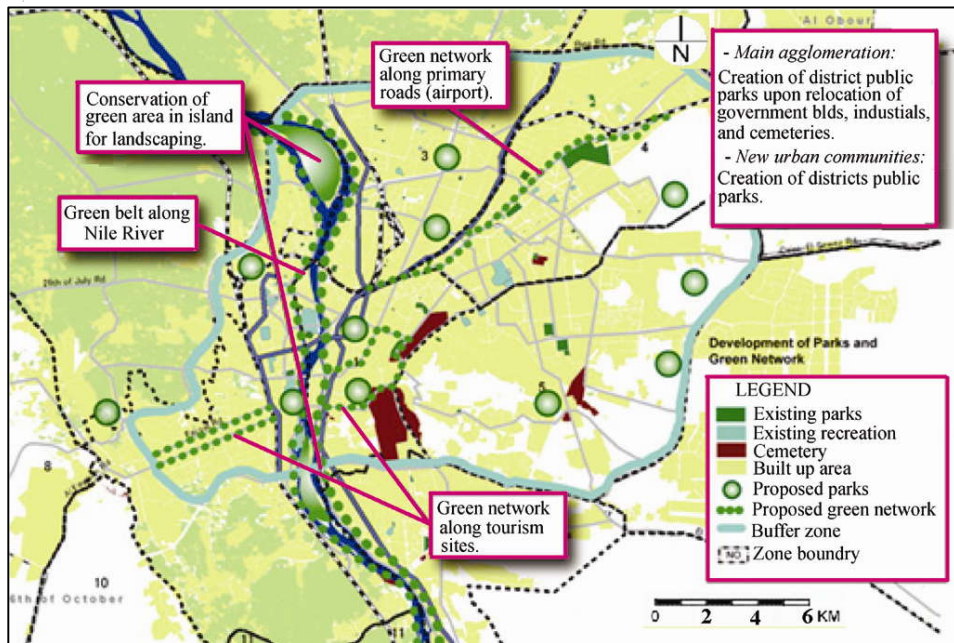


Figure (8-7) ⁽¹⁾ Proposed Open and Green Areas Network (GCR - PSMP)

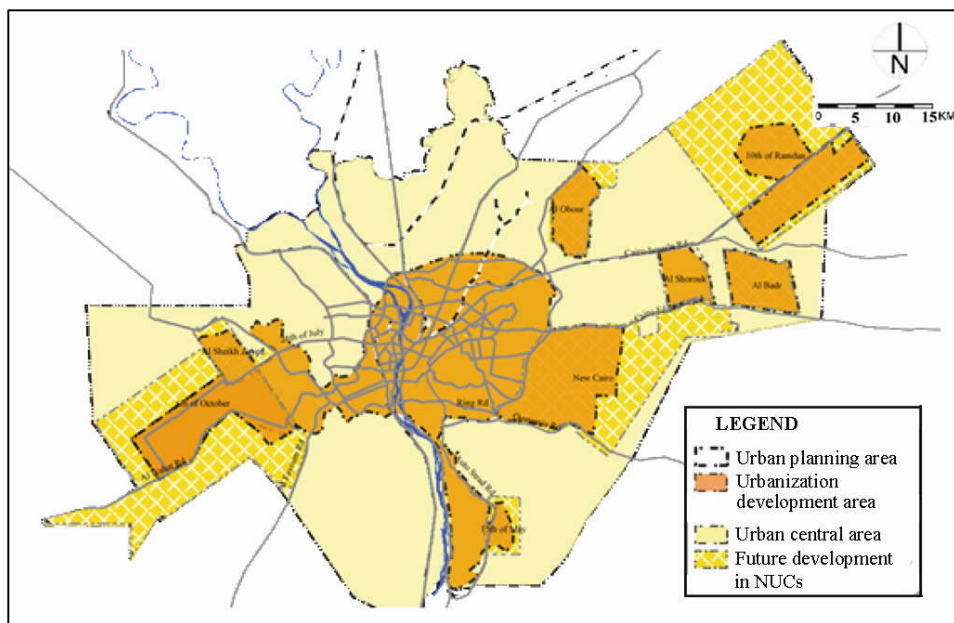


Figure (8-8) ⁽²⁾ Existing and Future Urban Development Area (GCR - PSMP)

1 Ministry of housing, utilities and urban development, (2007). Existing situation and proposed land use of the Greater Cairo Region, 1St seminar report, P. 15

2 Ministry of housing, utilities and urban development, (2007). The strategic urban development master plan study for sustainable development of the GCR, brief report, P.6

• **Encouraging Management of Urban Growth Boundary**, by setting of urbanization development areas, urban control areas and future development areas - Figure (8-8) illustrates existing and future urban development areas as per GCR - PSMP.

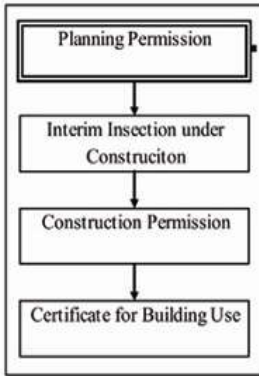
• **Improving the System Implementation of the Master Plan**, by fixing the hierarchy of statutory urban plans, developing the urban planning standards, permission systems, taxation systems, and developing the organization responsible for master plan implementation - Figures (8-9) and (8-10)⁽¹⁾ consecutively illustrate hierarchy of Statutory Urban Plan and example of planning permission system.

Type	Coverage	Purpose
Strategic Development Plan	Study Area	The plan shall show the long-term visions and direction of future growth pattern by the following outcomes; 1) visions in the long-term, say a 20 years period, 2) direction of urban growth pattern, 3) direction of land use structure, 4) urban growth boundary, say in a scale of 1/50,000, and 5) priority project to realize the expected urban growth pattern.
District Plan	Planning zone	The plan shall represent the socio-economic and physical plans in the mid-term by the following outcomes; 1) socio-economic framework, 2) urban growth boundary, say in a scale of 1/50,000, 3) land use plan, 4) spatial requirements, such as building coverage ratio, floor area ratio, and building height, 5) infrastructure requirement and its plan, and 6) priority projects and action areas.
Detailed Plan	Priority area	The plan shall represent the regulatory plan for the selected action areas and priority projects by the following outcomes; 1) layout plan, say in a scale of 1/1,000-2,500, 2) land use, 3) land parcels, and 4) infrastructure and utility plans.

Figure (8-9)⁽¹⁾
GCR - PSMP : Hierarchy of Statutory Urban Plan

1 Ministry of Housing, Utilities and Urban Development, (2007). Existing situation and proposed land use of the Greater Cairo Region, 1st seminar report, p 15

Stage of develop. control



Stage of planning permission

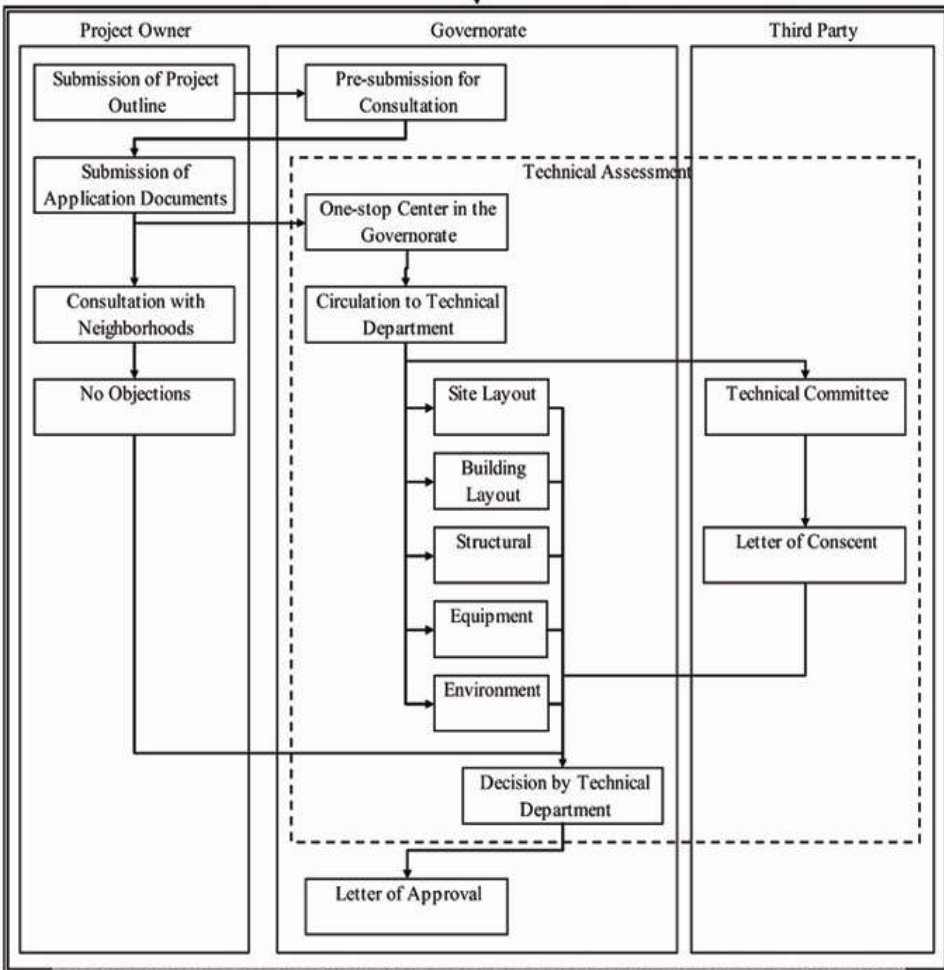


Figure (8-10) ⁽¹⁾

GCR - PSMP : Example of Planning Permission System

¹ Ibid., P. 15

8.4 GCR - PSMP LAND USE STRUCTURE PLAN

Based on the previously discussed organizational strategies and objectives, GCR - PSMP produced a preliminary Land Use Structure Plan covering the study area of GCMA – as shown in figure (8-11) ⁽¹⁾. This Land Use Structure Plan, mainly, depends on the concept of the land use reutilization inside GCR urban space. This could be happening by either the relocation of improper uses like cemeteries, industrial zones, and governmental buildings or the rehabilitation of ruined and slum areas.

8.5 GCR- PSMP AND LAND USE REUTILIZATION MANAGEMENT APPROACH

In view of the previous discussions in the Chapters of Part One, GOPP could be considered as the organization which is responsible for planning and execution of GCR - PSMP strategic urban development master plan accompanied by mission and vision statements as well as strategic objectives. OPM methodology will provide the management framework to achieve those strategic objectives through the integration of 3PM levels (Portfolio Management, Program Management, and Project Management).

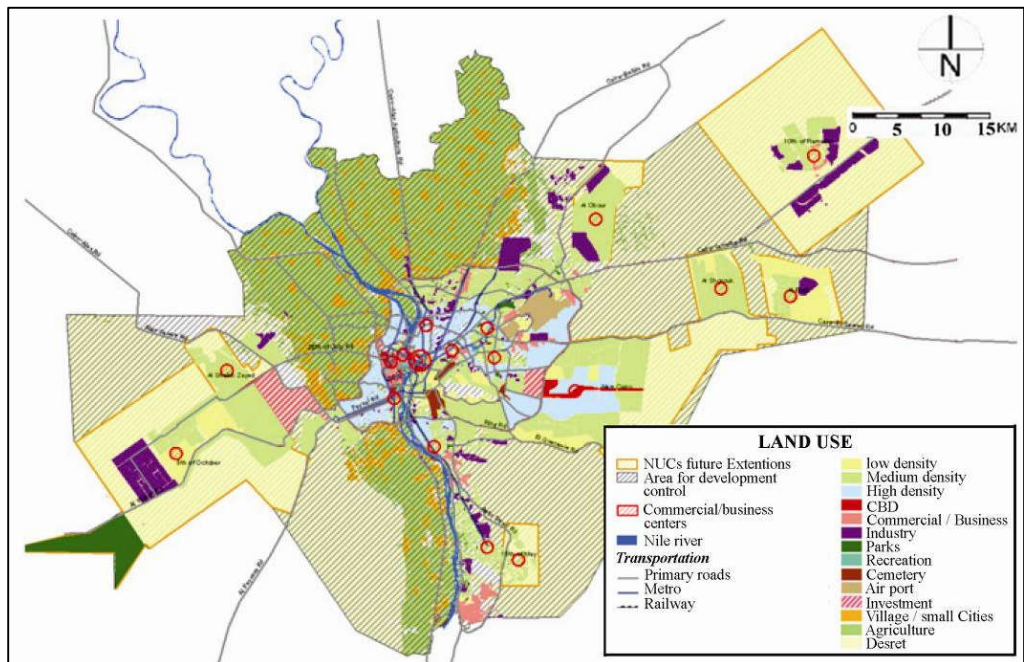


Figure (8-11) ⁽¹⁾ GCR - PSMP Land Use Structure

¹ Ibid., P. 16

The portfolio, the higher level of 3PM, links the organizational strategy to a set of prioritized programs and projects, addresses the relevant internal and external business drivers' references as objectives in **GCR - PSMP**. The ultimate goal of linking portfolio management with organizational strategy is to establish a balanced, executable plan which will help GOPP to achieve **GCR - PSMP objectives**.

GCR - PSMP has defined, tentatively, 52 programs and projects which need to be managed to achieve the determined objectives. Figures (8-12)⁽¹⁾ and (8-13)⁽²⁾ illustrate **GCR - PSMP** programs & projects defined by GOPP. The thesis will classify those programs and projects based on their interrelationship with land use reutilization processes into three groups, as follows:

- Programs & Projects with direct relation to the land use reutilization processes “12 programs and projects shown in figures (8-12) and (8-13) with beige background color”.
- Programs & Projects with indirect relation to the land use reutilization processes “10 programs and projects shown in figures (8-12) and (8-13) with yellow background color”.
- Programs & Projects with no relation to the land use reutilization processes “shown in figures (8-12) and (8-13) with white background color”.

Accordingly, 22 programs and projects, out of total 52 **GCR - PSMP** programs and projects, are related directly or indirectly to the land use reutilization activities. Based on this relative importance, the thesis will hypothesize the existence of stand-alone portfolio of GCR land use reutilization which include those 22 programs and projects within 3PM context and hence will examine how they could be managed by integral manner using OPM methodology.

1 Ministry of housing, utilities and urban development, (2007). Existing situation and proposed land use of the Greater Cairo Region, 1St seminar report, P. 16

2 Ibid., P. 16

Sub-sector Strategy	ID	Project Name	Program Schedule			Type of Program / Project			
			Short	Mid	Long	Urban	Living	Infra	Insti
Living in Cairo	1.1	Provide affordable housings for low income group					X		
	1.2	Activate housing market and housing stock					X		
	1.3	Enhance housing loan/mortgage scheme					X		
	1.4	Enhance property registration					X		
	1.5	Create inventory of informal areas					X		
	1.6	Upgraded prioritized informal areas at Shubra El Kheima, Marsaat Nasr, and Giza					X		
	1.7	Identify the pollution sources in main agglomeration					X		
	1.8	Prevent expansion of cemeteries in main agglomeration				X			
	1.9	Designate new cemeteries outside main agglomeration				X			
	1.10	Upgrade water distribution pipeline							X
	1.11	Expand water tretment plants							X
	1.12	Expande wastewater collection pipeline							X
	1.13	Expand wastewater treatment plants							X
	1.14	Upgrade solid waste management							X
	1.15	Designate new disposal site							X
Working in Cairo	2.1	Promote new sub-center in New Cairo NUC				X			
	2.2	Promote new sub-center in 6th of October NUC				X			
	2.3	Promote new sub-center in 10th of Ramadan NUC				X			
	2.4	Promote new sub-center in South of Helwan				X	X		
	2.5	Promote new sub-center in Imbaba				X	X		
	2.6	Relocate government area from Cairo CBD				X			
	2.7	Upgrade vacant land after relocating government area				X			
	2.8	Promote R&D area in New Cairo and 6th of October NUCs				X			
	2.9	Promote SME area in Al Shorouk and Badr NUC				X			
	2.10	Relocate highly polluted 21 factories from main agglomeration					X		
	2.11	Upgrade vacant lands after relocating 21 factories				X	X		

Figure (8-12) Programs & Projects Related to GCR - PSMP Strategies– Group A

Sub-sector Strategy	ID	Project Name	Program Schedule			Type of Program / Project			
			Short	Mid	Long	Urban	Living	Infra	Insti
Working in Cairo	2.12	Relocate tannery from main agglomeration	■				X		
	2.13	Relocate heavy industry to 10th of	■	■			X		
	2.14	Designate special planning district for world heritage areas (Old Cairo - Islamic Cairo)	■			X			
	2.15	Designate distinguished landscape areas	■	■		X			
	2.16	Upgrade Cairo CBD for business,	■	■		X			
Connecting in Cairo	3.1	Promote development corridor to 10th of		■		X		X	
	3.2	Promote development corridor to 6th of	■			X		X	
	3.3	Promote development corridor to New		■		X		X	
Managing Natural Environment	4.1	Formulate planning standard for parks and	■			X			
	4.2	Provide public parks at the city level	■	■		X			
	4.3	Provide pocket parks at community level	■	■	■	X			
	4.4	Create O&M system for public parks		■		X			X
	4.5	Upgrade greenery ways along Nile river		■		X			
	4.6	Upgrade islands in Nile river		■		X			
	4.7	Designate natural conservation area		■		X			X
Designing Sustainable City	5.1	Upgrade urban planning law and regulation	■			X			
	5.2	Upgrade hierarchy of urban plans	■			X			
	5.3	Formulate district plans		■		X			
Designing Sustainable City	5.4	Formulate planning standard for urban management		■		X			X
	5.5	Encourage planning permission system		■					X
	5.6	Delineate urban growth boundary	■			X			X
	5.7	Establish property assessment taxes		■					X
	5.8	Establish development charges		■					X
	5.9	Establish coordination committee of Cairo, Giza, Qaliobeya, Helwan and 6 Oct Govers.		■					X
	5.10	Establish implementing agency for the master plan		■	■				X
5.11	Encourage institutional capacity building for urban planning		■					X	

Figure (8-13) Programs & Projects Related to GCR - PSMP Strategies– Group

In general, GCR - PSMP programs and projects could be classified under a number of portfolios which could be managed in an integrated context of analogous programs and projects, the thesis would propose those portfolios as follows:

- The Portfolio of GCR land use reutilization.
- The Portfolio of developing GCR services, utilities and infrastructure.
- The Portfolio of developing NUCs and development corridors.
- The Portfolio of human development of GCR residents.
- The Portfolio of building science and technology national base in GCR.
- The Portfolio of developing GCR natural and economic resources.

In particular, the thesis will deal with the proposed portfolio of GCR land use reutilization and will consider the 22 programs and projects which are defined by GOPP in GCR - PSMP. The thesis will propose a number of programs under the portfolio of GCR land use reutilization, as follows:

- The Program of land use reutilization of cemeteries inside GCR urban space.
- The Program of land use reutilization of ruined / slum areas.
- The Program of land use reutilization of ministries and governmental buildings.
- The Program of land use reutilization of industrial zones inside GCR urban space.
- The Program of land use reutilization of transportation and traffic uses.
- The Program of land use reutilization of miscellaneous uses.

Each program will include a number of related projects. For example: the program of land use reutilization of cemeteries involves the relocation of the cemeteries which are inside GCR urban space, including 1400 Acres of cemetery along Salah Salem Road and many other cemeteries in different locations. Two new locations have been assigned by the Egyptian Government to relocate the old cemeteries to establish new ones. The first location, with area of about 5000 Acre (21 million m²), is set along the Oasis Road in 6th of October City and has a capacity of three hundred thousand cemeteries. The second location, with area of about 12000 Acres (50.4 million m²), is set along the Katamia – Ain Sokhna Road in Helwan City and has a capacity of 700 thousand tombs.

The program of land use reutilization of cemeteries inside GCR urban space may include the following projects:

- The Project of land use reutilization of the cemeteries between Autostrade and Salah Salem Roads.
- The Project of land use reutilization of the cemeteries at West side of Salah Salem Road.
- *The Project of land use* reutilization of Shubra Cemeteries.
- The Project of land use reutilization of Al-Waily District Cemeteries.
- The Project of land use reutilization of Al-Gamalia District Cemeteries.
- The Project of land use reutilization of Al-Darb Al-Ahmar District Cemeteries.
- The Project of land use reutilization of Al-Khalifa District Cemeteries.
- The Project of land use reutilization of Al-Sayeda Zainab District Cemeteries.
- The Project of land use reutilization of Masr Al-Kadema District Cemeteries.

8.6 EPILOGUE

- In order to deal with GCR challenges and their consequences, the Egyptian Government has recently started a process of preparing a Proposed Strategic Master Plan for the region (GCR - PSMP).
- GCR - PSMP Vision is to enhance the rank of Cairo as a "Global City" to be prime urban destination in the Arab World and Middle East.
- GCR - PSMP Mission is to restore Cairo to be a better city for all the people to live in, a prosperous metropolis with strong and diverse economic activities, well-balanced urban developments, environmentally more friendly and well planned city.
- GCR - PSMP Organizational Strategy consists of five main themes: living in Cairo, working in Cairo, connecting in Cairo, managing the natural environment, designing a new sustainable city.
- The theme of "Living in Cairo" has two main objectives: providing housing supply for various household groups, and improving the living environment of slum areas.
- The theme of "Working in Cairo" has three main objectives: promoting new business and commercial area, promoting industrial and R&D area, and promoting tourism investment area (especially at the west of the ring road).

- The theme of “Connecting in Cairo” has two main objectives: vitalizing the new urban communities, and promoting transport-oriented urban development area.
- The theme of “Managing Natural Environment” has two main objectives: conserving agricultural lands and natural resources, and promoting open and green area network.
- The theme of “Designing a Sustainable City” has two main objectives: encouraging management of urban growth boundary, and improving of the implementation system of the master plan.
- **GCR - PSMP** has produced a preliminary land use structure plan which depends on the concept of land use reutilization inside GCR urban space.
- **GCR - PSMP** has defined, tentatively, 52 programs and projects which need to be managed to achieve the determined objectives which could be classified, based on their interrelationship with land use reutilization, into three groups as follows: direct relation, indirect relation, no relation.
- 22 programs and projects out of total 52 **GCR - PSMP** Programs and Projects are related directly or indirectly to land use reutilization activities. The thesis will hypothesize the existence of stand-alone portfolio of GCR land use reutilization which includes these 22 programs and portfolios within 3PM context and will examine how they could be managed by integral manner, using OPM methodology.
- The thesis proposes six programs which are included under the portfolio of GCR land use reutilization.
- Each program will include a number of related projects.



PART FOUR

LAND USE REUTILIZATION MANAGEMENT – INTEGRATION INTO OPM METHODOLOGY

“We should working from the premise that project management is a socially constructed field of practice that has developed through the conversations and deliberate efforts of practitioners, principles of discourse analysis are used as a framework for studying the extent to which practice reflects the espoused theories of organizational project management capability development”

Lynn Crawford, professor of project management and program director, project management journal 2006

The purpose of this part is to use OPM methodology to conclude an approach to comprehensive management methodology and to formulate 3PM model that aims to manage and control the land use reutilization projects of GCR or any other Egyptian region.

This part comprises of two chapters, it starts in the chapter nine by implementing the OPM methodology to find out an approach to comprehensive and examined management methodology that aims to set a precise management framework and sequenced / interrelated management processes on 3PM levels for the land use reutilization projects of GCR within GCR - PSMP.

Chapter ten formulates integrated 3PM model “MLRP3 – model” which is standard and flexible model could be applied during different management processes of organizational management for execution of the strategic urban development master plan for sustainable development of GCR (GCR - PSMP) in particular, and for any different types / categories of urban land use reutilization projects related to any other Egyptian regions in general. Finally the chapter summarizes the research’s conclusions and recommendations on different levels.



CHAPTER 9

LAND USE REUTILIZATION PROJECTS IN GCR - IMPLEMENTATION OF OPM METHODOLOGY

“In our increasingly global economy, in which we are all competing with organizations about which we know very little, in parts of the world with which we may not be at all familiar, it is becoming clear that one critical competitive advantage is the ability to translate strategy into organizational success through a project-based approach”

Steve Fahrenkrog, Paul R. Wesman & Ade Lewandowski, Project Management Institute.

Considering the management approach and the three proposed management levels of GCR land use reutilization, discussed in the previous chapter, the purpose of this chapter is to implement the OPM Methodology to conclude a comprehensive and examined management methodology which aims to set a precise management framework and interrelated management processes which could be applied within execution of any of future GCR Strategic Urban Development Master Plan for sustainable development.

9.1 LAND USE REUTILIZATION OF GCR – OPM METHODOLOGY

Figures (9-1) shows the proposed portfolios of GCR - PSMP as concluded within previous chapter. It shows, also, the proposed programs which compose the concerned portfolio of land use reutilization, and shows the proposed projects which compose one of the programs (program of land use reutilization of cemeteries inside GCR urban space).

The hatched cells of figure (9-1) show selected 3PM levels which OPM Methodology will deal with in this chapter. The higher level of 3PM is portfolio management which is represented by the portfolio of GCR Land Use Reutilization, the intermediate level of 3PM is the program management which

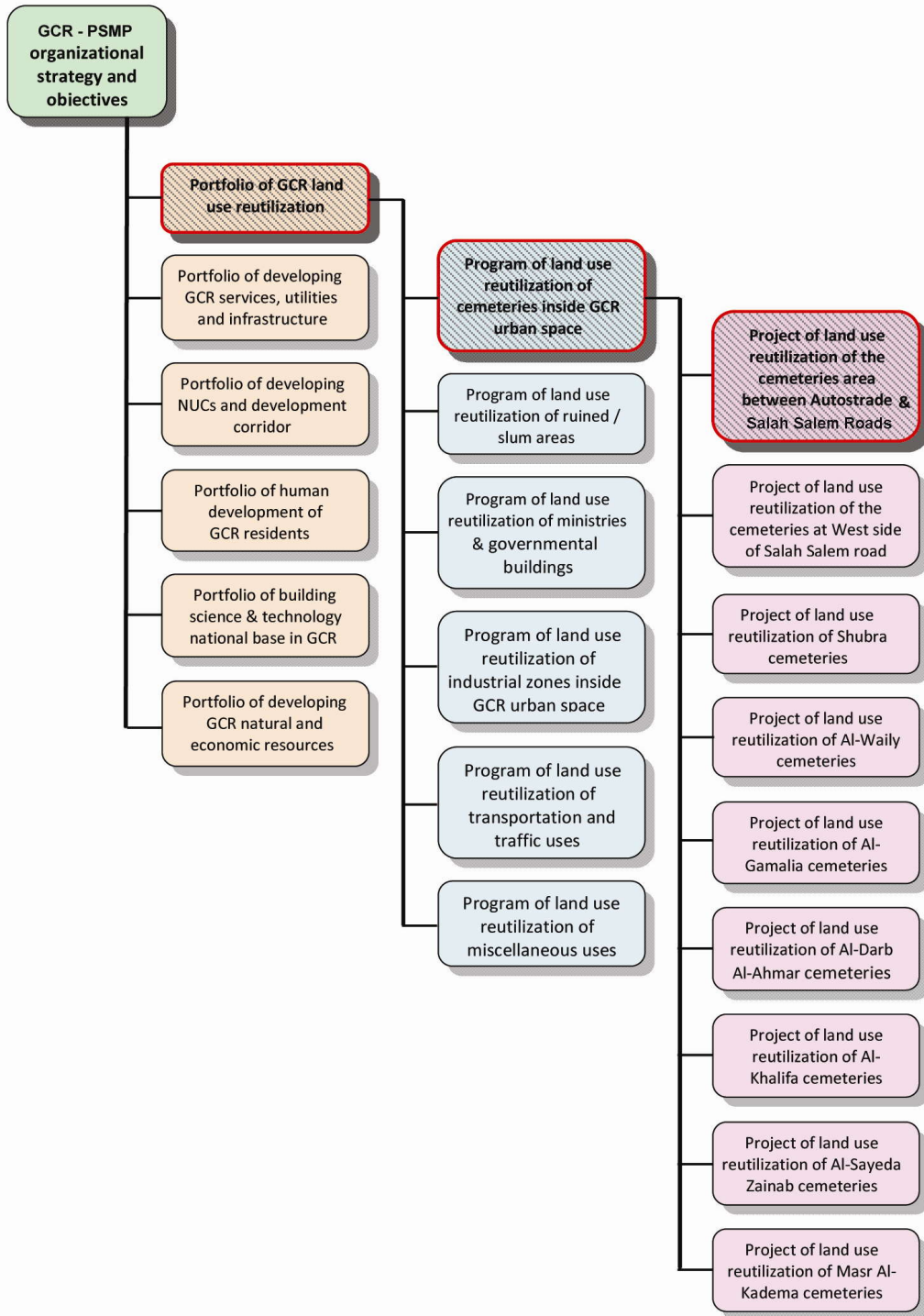


Figure (9-1) Land use reutilization management levels

(figure prepared by the researcher)

is represented by the program of land use reutilization of cemeteries inside GCR urban space, the lower level of 3PM is project management which is represented by the project of land use reutilization of the cemeteries area between Autostrade and Salah Salem Roads.

By using the standard OPM processes, described in chapter four, this chapter will determine a set of management processes in the three 3PM levels and tailored them for **GCR - PSMP** Land Use Reutilization management. According to the nature of land use reutilization management, some of PMI standard management processes will be discarded and some will be merged together. Consequently, certain group of management processes per each 3PM level will be determined as standard processes for managing land use reutilization portfolio, programs, and projects.

9.2 LAND USE REUTILIZATION OF GCR – PORTFOLIO MANAGEMENT

As per PMI, the standard processes of portfolio management are 14 processes; the thesis hypothesizes that all of them will be used in managing GCR land use reutilization portfolio. Those 14 processes will be classified under the two main portfolio management process groups (aligning process group and monitoring process group) where 10 of them will be managed under aligning process group and 4 of them will be managed under monitoring process group – as illustrated in table (9-1) - Each process will be identified by a code which contains one letter and two digits; the letter (A) is referring to the higher level of 3PM (portfolio management), the first digit refers to the knowledge area of portfolio management ⁽¹⁾, the second digit refers to the process order within the area of knowledge. The 14 management processes of GCR land use reutilization portfolio could be described along with the related activities, under the following two management process groups.

9.2.1 ALIGNING PROCESS GROUP OF PORTFOLIO MANAGEMENT

This management process group include 10 processes which have I.D no. from 1 to 10 in table (9-1).

1- IDENTIFY COMPONENTS (CODE A.4.1): it is a process which belongs to portfolio governance area of knowledge; its purpose is to set the relevant list of GCR land use reutilization portfolio components and to classify the

¹ Knowledge areas of portfolio management are two: portfolio governance (code digit: 4) and portfolio risk management (code digit: 5)

components into programs and projects, categorized by a common set of key descriptors for further comparison, evaluation, and selection, considering that the components to be in line with basic **GCR - PSMP** Strategic Objectives.

Process group Area of Knowledge	Aligning			Monitoring		
	#	Code	Process	#	Code	Process
Portfolio governance	1	A.4.1	Identify components	11	A.4.7	Communicate portfolio performance
	2	A.4.2	Categorize components	12	A.4.9	Review & report portfolio performance
	3	A.4.3	Evaluate components	13	A.4.10	Monitor business strategy changes
	4	A.4.4	Select components			
	5	A.4.5	Prioritize components			
	6	A.4.6	Balance portfolio			
	7	A.4.8	Authorize component			
Portfolio risk management	8	A.5.1	Identify portfolio risks	14	A.5.4	Monitor & control portfolio risks
	9	A.5.2	Analyze portfolio risks			
	10	A.5.3	Develop portfolio risk response			

Table (9-1) Management Processes of GCR Land Use Reutilization Portfolio

2- CATEGORIZE COMPONENTS (CODE A.4.2): it is a process which belongs to portfolio governance area of knowledge; it involves assigning components identified in previous process to relevant categories to which a common set of decision filters and criteria can be applied for evaluation, selection, prioritization, and balancing. The categories are defined on the bases of **GCR - PSMP** Organizational Objectives. In this process, GCR Land Use Reutilization portfolio management team use **GCR - PSMP** to determine component categories (programs, projects, and other works). Categories may be determined, based on the size, profitability (revenue increase, cost reduction ...), risk probability, legal obligation, market forces, duration, and level of attractiveness to customers.

3- EVALUATE COMPONENTS (CODE A.4.3): it is a process which belongs to portfolio governance area of knowledge; GCR land use reutilization portfolio components are evaluated to provide comparisons in order to facilitate the selection process. GCR land use reutilization portfolio management team implements the key activities within this process include: evaluating components with a scoring model, comprising weighted key criteria (refer to chapter 4, section 4.5.12 – items 3 and 4); producing graphical representations to facilitate decision making in the selection process; making recommendations

for the selection process. GCR land use reutilization portfolio management team can apply a series of evaluation criteria associated with various business aspects. These criteria should enable the measurement of the contribution of the component to **GCR - PSMP** Strategic Objectives. Some examples of evaluation criteria may include, but not limited to: financial criteria, risk-related criteria; legal & regulatory compliance criteria; human resources related criteria; marketing criteria; and technical criteria. The outputs components evaluation process may include: list of evaluated components by category with value score for each component; graphical representations to support decision making; recommendations for the components and entire portfolio based on the value of each component.

4- SELECT COMPONENTS (CODE A.4.4): it is a process which belongs to portfolio governance area of knowledge; it is necessary to produce a subset of **GCR - PSMP proposed** organization's components based on the evaluation process recommendations and **GCR - PSMP organization's** selection criteria. The evaluation determines the value of each component and produces a list of components which are ready for prioritization. The key activities within this process include: comparing components of GCR land use reutilization portfolio to selection criteria; selecting components based on the evaluation results; producing a list of components for prioritization. GCR land use reutilization portfolio management team applies available tools and techniques to ensure that the most desirable components are selected for inclusion in the portfolio. Some of these may include: human resources analysis; financial capacity analysis; and asset capacity analysis.

5- PRIORITIZE COMPONENTS (CODE A.4.5): it is a process which belongs to portfolio governance area of knowledge; it enables comparing of each component against all other selected components using criteria defined by **GCR - PSMP** proposed organization. The prioritization process generates information which will be used to decide which of the components can be accommodated by **GCR - PSMP** organization's financial, human, and technological resources. The key activities within this process include: confirming the classification of components in accordance with predetermined **GCR - PSMP** strategic categories; assigning, scoring or weighting criteria for ranking components; and determining which components should receive the highest priority within the portfolio. GCR land use reutilization portfolio management team applies available tools and techniques including weighted ranking and scoring technique.

6- BALANCE PORTFOLIO (CODE A.4.6): it is a process which belongs to portfolio governance area of knowledge; it provides the component mix with the greatest potential to collectively support **GCR - PSMP** proposed organization's strategic initiatives and achieve strategic objectives. Portfolio

balancing supports the ability to plan and allocate resources, according to strategic direction and the ability to maximize portfolio return within **GCR - PSMP** proposed organization's predefined desired risk profile. GCR land use reutilization portfolio balancing also includes the evaluation and management of trade-offs of objectives, such as the management of risk, balancing short-term goals against long-term goals, balancing technologies and project types to align with the strategic business objectives. This process include:

- Adding new components to land use reutilization portfolio which have been selected and prioritized for authorization.
- Identifying components that are not authorized based on the review process.
- Identifying components to be suspended, reprioritized, or terminated based on the review process.

7- AUTHORIZE COMPONENT (CODE A.4.8): it is a process which belongs to the portfolio governance area of knowledge; its purpose is to formally allocate resources required to either develop business cases or execute selected components and to formally communicate portfolio-balancing decisions. The key activities within this process include: authorizing selected components, deactivating, and terminating components of GCR land use reutilization portfolio; reallocating budget and resources from deactivated and terminated components; communicating expected results for each selected component. The main inputs to this process are the list of approved land use reutilization portfolio components, funding requirements, resource requirements, and the list of deactivated and terminated components. The main outputs of this process are components expectations updates, approved component funding expectations, approved component resource allocations and expectations, excluded components and portfolio milestones.

8- IDENTIFY PORTFOLIO RISKS (CODE A.5.1): it is a process which belongs to the portfolio risk management area of knowledge; it reveals risks which might affect GCR land use reutilization portfolio which can be categorized into two types:

- Structural risks: these are the risks associated with the way in which the portfolio is composed and the potential interactions among the components.
- Component risks: these are the risks which have been escalated from the component programs or projects of GCR land use reutilization portfolio "shown in figure (9-1)".

GCR land use reutilization portfolio management team applies available tools and techniques to identify portfolio risks including: documentation reviews, group creativity techniques (Refer to chapter 4, section 4.5.2 – item 4), check the list analysis, and diagramming techniques such as cause-and-effect diagrams and process flow charts (Refer to chapter 4, section 4.5.5 – items 3 and 9).

9- ANALYZE PORTFOLIO RISKS (CODE A.5.2): it is a process which belongs to portfolio risk management area of knowledge; it determines the priority of identified risks using their probability of occurrence and the corresponding impact on portfolio objectives for further action. **GCR - PSMP** proposed organization can improve GCR land use reutilization portfolio performance most effectively by focusing on high-priority risks. GCR land use reutilization portfolio management team should ensure that the analysis of portfolio risks process is repeated periodically during the portfolio's life cycle to stay current with changes in the portfolio's risks. The main inputs to this process are portfolio risk register and portfolio management plan. The main output of this process is portfolio risk register updates. GCR land use reutilization portfolio management team applies available tools and techniques to analyze portfolio risks including risk probability and impact assessment (Refer to chapter 4, section 4.5.8 – items 2 and 3).

10- DEVELOP PORTFOLIO RISK RESPONSE (CODE A.5.3): it is a process which belongs to portfolio risk management area of knowledge; it develops options and determines actions to enhance opportunities and reduce threats to the objectives of GCR land use reutilization portfolio. The main inputs to this process are portfolio management plan, portfolio risk register and the list of prioritized components within each strategy category. The main outputs of this process are portfolio management plan updates and portfolio risk register updates. GCR land use reutilization portfolio management team applies available tools to develop portfolio risk response, including response strategy selection for both threats and opportunities (refer to chapter 4, section 4.5.8 - items 5 and 6).

9.2.2 MONITORING PROCESS GROUP OF PORTFOLIO MANAGEMENT

This management process group include 4 processes which have I.D no. from 11 to 14 in table (9-1).

11- COMMUNICATE PORTFOLIO ADJUSTMENT (CODE A.4.7): it is a process which belongs to portfolio governance area of knowledge; its purpose is to communicate the portfolio changes to stakeholders to set expectations and provide a clear understanding of the impact of the changes on the performance of GCR land use reutilization portfolio and business strategies. The key activities within this process include: communicating GCR land use reutilization portfolio decisions to key stakeholders; acquainting stakeholders with the communications plan; and communicating expected and actual portfolio results, identifying variances and corrective actions. The main output of this process is portfolio management communication plan. The main tool

used within this process is communication requirements analysis which include the followings:

- Identify GCR land use reutilization portfolio review points on quarterly or biyearly bases to track the potential changes of **GCR - PSMP** proposed organization and its strategy and the sluggish portfolio movement as revealed through component (programs and projects) reporting.
- Identify external stakeholders, such as: other governmental authorities, inhabitants and users of the properties inside the intended lands to be reutilized, urban planning and design consultants, contractors, insurance companies, and banks.
- Rank stakeholders according to the level of impact to portfolio success.
- Determine type of communication in relation to the rank of stakeholders (refer to chapter 4, section 4.5.7 – communication management main tools).

12- REVIEW & REPORT PORTFOLIO PERFORMANCE (CODE A.4.9): it is a process which belongs to portfolio governance area of knowledge; its purpose is to gather performance indicator, report on them, and review GCR land use reutilization portfolio at an appropriate, predetermined frequency to ensure both alignment with GCR - PSMP proposed organization strategy and effective resource utilization. It aims, also, to ensure that GCR land use reutilization portfolio contains only components (programs and projects) which support achievement of **GCR - PSMP** strategic objectives. The key activities within this process include:

- Reviewing component sponsorship and accountability.
 - Reviewing component priority, dependencies, scope, expected return, risks, and financial performance against portfolio control criteria.
 - Determine whether to continue, add to, or terminate specific component or to reprioritize and realign them with **GCR - PSMP** strategic objectives.
 - Making recommendations to component (programs, projects) management
- The main outputs of this process are portfolio rebalancing recommendations and strategic objectives achievement reporting. The main tools used within this process are financial reporting systems, performance measurement techniques, graphical representations, and portfolio management resources.

13- MONITOR BUSINESS STRATEGY CHANGES (CODE A.4.10): it is a process which belongs to portfolio governance area of knowledge; its purpose is to enable GCR land use reutilization portfolio management team to respond to the changes in business strategy. Incremental changes to the strategic plan generally do not require changes to the portfolio. However, significant changes in the business environment often result in a new strategic direction, thereby impacting the portfolio and consequently component categorization or prioritization and this will require rebalancing GCR land use reutilization portfolio. The main inputs to this process are portfolio periodic reporting &

review and **GCR - PSMP** update. The main output of this process is new criteria which should be defined by GCR land use reutilization portfolio management team by considering the proposed changes in the business strategy and organizational objectives. The main tools used within this process are: expert judgement (refers to chapter 4, section 4.5.1 - item1), and criteria re-weighting.

14- MONITOR & CONTROL PORTFOLIO RISKS (CODE A.5.4): it is a process which belongs to portfolio risk management area of knowledge; it aims to ensure effective control of portfolio uncertainty during portfolio execution. The key activities within this process include the followings:

- Keeping track of the identified risks, including those on the watch list.
- Monitoring residual risks.
- Reanalyzing existing risks.
- Tracking changes in the stakeholder community.
- Reviewing the execution of risk responses while simultaneously evaluating their effectiveness.
- Identifying, analyzing, and planning for newly arising risks.

The Monitor and Control Portfolio Risks process applies techniques, such as variance and trend analysis, which require the use of performance data generated during the component execution. Along with the other risk management processes, it is an ongoing process throughout the entire portfolio life cycle. Other purposes of the Monitoring and Controlling Portfolio Risk process are to be determined if:

- Portfolio assumptions are still valid.
- Risk has changed from its prior state with the analysis of trends.
- Proper risk management policies and procedures are being followed.
- Contingency reserves of cost or schedule should be modified in line with the risks.

9.2 LAND USE REUTILIZATION OF GCR – PROGRAM MANAGEMENT

As per PMI, the standard processes of program management are 47 processes. Due to the nature of proposed programs included within GCR land use reutilization portfolio and as a way of tailoring the proper management processes, the thesis hypothesizes that only 30 program management processes will be used in managing the programs of GCR land use reutilization portfolio.

Those 30 processes will be classified under five management process groups (initiating, planning, execution, monitoring & controlling, and closing)

and under nine area of knowledge, as shown in tables (9-2a) and (9-2b). Each process will be identified by a code that contains one letter and two digits.

Processes Area of Knowledge	Initiating		Planning		Executing		Monitoring & controlling		Closing			
	#	Code	Process	#	Code	Process	#	Code	Process	#	Code	Process
Integrating Management	1	B.4.1	Initiating program	3	B.4.2	Develop program management plan	16	B.4.4	Direct & manage program execution	22	B.4.6	
				4	B.4.3	Develop program infrastructure	17	B.4.5	Manage program resources	23	B.4.7	Manage program issues
Scope Management				5	B.5.2	Define program goals & objectives	18	B.5.6	Manage program architecture			
							19	B.5.7	Manage component interfaces			
Time Management				6	B.6.1	Develop program schedule						
Commun. Management				7	B.10.1	Plan communications				24	B.10.3	Report program performance
				8	B.11.1	Plan program risk management						
Risk Management				9	B.11.2	Identify program risks						

Table (9 -2a) Management processes of programs of GCR land use reutilization portfolio

Processes Area of Knowledge	Initiating			Planning			Executing			Monitoring & controlling			Closing		
	#	Code	Process	#	Code	Process	#	Code	Process	#	Code	Process	#	Code	Process
Procurement Management				20	B.12.2	Conduct program procurements				30	B.12.4	Close program procurements			
	2	B.13.1	Establish program financial framework	10	B.13.2	Develop program financial plan				25	B.13.5	Monitor & control program financials			
Financial Management				11	B.13.3	Estimate program costs									
				12	B.13.4	Budget program costs									
				13	B.14.2	Identify program stakeholders									
Stakeholder Management				14	B.15.1	Plan & establish program governance structure				21	B.15.4	Approve component initiation			
				15	B.15.3	Plan program quality				26	B.15.5	Provide governance oversight			
										27	B.15.6	Manage program benefits			
Program Governance										28	B.15.7	Monitor & control program changes			

Table (9 -2b) Management processes of programs of GCR land use reutilization portfolio

The letter (B) is referring to the intermediate level of 3PM (program management), the first digit refers to the knowledge area of program management ⁽¹⁾, the second digit refers to the process order within the management area of knowledge. Although the proposed 30 management processes will be used to manage any program included within GCR land use reutilization portfolio, but where particularization is required the thesis will refer to the proposed program of land use reutilization of cemeteries inside GCR urban space as a sample. The proposed 30 program management processes could be described along with the related activities, under the following five management process groups.

9.3.1 INITIATING PROCESS GROUP OF PROGRAM MANAGEMENT

This management process group include only two processes which have I.D no.1 and 2 as shown in tables (9-2a) and (9-2b).

1- INITIATE PROGRAM (CODE B.4.1): it is a process which belongs to program integration management area of knowledge; the starting point for any land use reutilization program is proposed to be the mandate from GCR - PSMP proposed organization and portfolio management team with a determination of the need for a program and the definition of the expected outcomes. The key activities within this process include the followings:

- Asses the feasibility of forming land use reutilization program to achieve intended objectives, stated by **GCR - PSMP** and GCR land use reutilization portfolio.
- Clarify the benefits and critical success factors which the program is expected to deliver.
- Authorize the program and assign a program manager.
- Link the program to **GCR - PSMP** proposed organization's strategic objectives.
- Develop the Cost vs. Benefits analysis.

The key output of this process is the program charter, which may be approved or rejected. The main tools used within this process are: expert judgement feasibility studies, cost / benefit analysis, and program roadmap (refers to chapter 4, section 4.5.1 - items 1, 3, 4, and 5).

1 Knowledge areas of program management are nine: program integration management (code digit: 4), program scope management (code digit: 5), program time management (code digit: 6), program communication management (code digit: 10), program risk management (code digit: 11), program procurement management (code digit: 12), program financial management (code digit: 13), program stakeholder management (code digit: 14), program governance (code digit: 15).

2- ESTABLISH PROGRAM FINANCIAL FRAMEWORK (CODE B.13.1): it is a process which belongs to the program financial management area of knowledge. To a much greater extent than in projects, costs of land use reutilization programs occur earlier – often years earlier – than benefits. The core of the financing problem in development of land use reutilization programs is to obtain funds to bridge the gap between paying out monies for development and obtaining the benefits of the programs. Although the main sources of funding for GCR land use reutilization programs are the government funding, however the public sector may have a valuable role representing in banks, insurance companies and real estate investors. The key activities within this process include the followings:

- Program funding sources and whether it will be totally local or internationally supported.
- Funding goals; as it wishes to obtain revenue as quickly as possible or wish to delay payments as long as possible, or have other specific financial goals.
- Funding constrains: the acceptance of foreign currency payments, no funds to be proceeded without creating or selling government bonds paying for the program, funding to be only provided for pre-approved milestones.

The key output of this process is the program's financial framework. The main tools used within this process are: financial analysis (refers to chapter 4, section 4.5.4) and funding methods (refers to chapter 4, section 4.5.10 –item 3).

9.3.2 PLANNING PROCESS GROUP OF PROGRAM MANAGEMENT

This management process group include 13 processes which have I.D. no. from 3 to 15 as shown in tables (9-2a) and (9-2b).

3- DEVELOP PROGRAM MANAGEMENT PLAN (CODE B.4.2): it is a process which belongs to program integration management area of knowledge; it includes the tools and techniques used to integrate all subsidiary program plans, projects, and other inputs, into a cohesive overall program management plan. For program of land use reutilization of cemeteries inside GCR urban space, it will include the followings:

- Program roadmap, which summarizes key end point objectives of re-land use activities of vacant cemeteries' lands after relocation which may include providing service uses to serve adjacent districts (i.e. recreational, educational, health care, commercial or residential), it will accomplish this by building a bridge between cemeteries' land use reutilization program and subsidiary cemeteries land use reutilization projects.

- Program schedule, which shows the time and scope interrelationship between all subsidiary cemeteries land use reutilization projects.
- Program governance plan, which establishes – in conjunction with major stakeholders - the key governance involvements, governance metrics and main role of different governmental ministries and authorities (i.e. Ministry of Housing, Utilities & Urban Development – Ministry of Antiquities – Ministry of Endowments – Urban Planning Authority - authority of organizing the state's land uses ...).
- Program stakeholder management plan (main stakeholders may include: cemeteries’ owners, cemeteries’ inhabitants, inhabitants of adjacent areas and districts, investors, relevant ministries and authorities...)
- Program communication management plan among different stakeholders.
- Program financial plan which documents all of the program’s financial aspects: funding sources, schedules and milestones, baseline budget, contract payments and schedules, financial reporting processes and mechanism, and the financial metrics.
- Procurement and contracts management plan for significant purchases and acquisitions include contracts with different consultants and contractors such as urban planning & architectural design consultants, and construction contractors who determine the delivery and performance requirements to be met.
- Scope management plan which identify the activities to produce the deliverables in different stages (master plan drawings and reports for cemeteries lands need to be reutilized) and to establish the relationship between scope of cemeteries re-land use program and subsidiary projects.
- Schedule management plan which determines the millstones and delivery dates for each individual cemetery re-land use project.
- Quality management plan which identifies the program quality standards and their implementation process.
- Program risk management plan which shows the list of program risks and the strategies for risk responses.

The main tools used within this process are: program management information systems and expert judgement (refer to chapter 4, section 4.5.1 – items 1 & 2).

4- DEVELOP PROGRAM INFRASTRUCTURE (CODE B.4.3): it is a process which belongs to program integration management area of knowledge; it investigates, assesses, and plans the support structure which will enable the land use reutilization program to successfully achieve its goals. The main inputs to this process are: program management plan, program roadmap, and organizational policies and guidelines (including laws and legislations – refer to chapter 8, section 8.5). The main outputs of this process are: core team assignment, program resource plan, and program infrastructure. The main tools

used within this process are: expert judgement, and review meetings (refers to chapter 4, section 4.5.1 – items 1 & 6)

5- DEFINE PROGRAM GOALS & OBJECTIVES (CODE B.5.2): it is a process which belongs to program scope management area of knowledge; it is accomplished by understanding and identifying the program scope statement, identifying the scope management plan, and implementing expectations. The background of the cemeteries' lands reutilization program summarizes the problem that the program is solved. It provides a brief history of the cemeteries existence inside GCR urban space, their inhabitants and the relevant urban, social and economical problems. Then, it provides the justification for the approach taken to solve the problem. Inclusion of this information in the scope statement of cemeteries lands reutilization program will depend on stakeholders' preferences, maturity of **GCR - PSMP** proposed organization and the time available. The key activities within this process include: identify the broad outcomes which are expected of the program, clarify what is to be accomplished, and communicate planned outcomes to all stakeholders. The main outputs of this process are: program scope statement updates and benefits realization plan. The main tools used within this process are: expert judgement (refers to chapter 4, section 4.5.1 – item 1), interviewing, focus groups (refers to chapter 4, section 4.5.11 – item 2), and customer acceptance reviews (refers to chapter 4, section 4.5.12 – item 1).

6- DEVELOP PROGRAM SCHEDULE (CODE B.6.1): it is a process which belongs to program time management area of knowledge; the initial program schedule is often created before the detailed schedules of the individual projects. As more detailed analysis is performed, and feedback from the individual projects is received, the schedule is developed in greater detail. The schedule at the level of the program of cemeteries re-land use should only include milestones of subsidiary cemeteries re-land use projects which represent an output to the program or share interdependency with other projects. This process also creates a plan by which the schedule will be managed over the life of the program. The main inputs to this process are: program WBS, program constraints, program charter, and program risk register. The main outputs of this process are: program master schedule, subsidiary project milestones, program schedule management plan, program charter updates, and program risk register updates. The main tools used within this process are: schedule management tools (refers to chapter 4, section 4.5.3), benefits analysis (refers to chapter 4, section 4.5.1 – item 4), and cash flow analysis (refers to chapter 4, section 4.5.10 – item 2).

7- PLAN COMMUNICATIONS (CODE B.10.1): it is a process which belongs to program communication management area of knowledge; it determines the information and communication needs for stakeholders of land use reutilization

program based on who needs what information, when they need it, how it will be given to them and by whom. Communications requirements must be clearly defined to ensure the transfer of information from the projects to the program. The main inputs to this process are: program charter, program management plan, governance plan, program stakeholder management plan, organizational communications strategy, program scope statement, program WBS, communications requirements, stakeholder register, and program master schedule. The main outputs of this process are: program communications management plan, communications log, and communications strategy. The main tools used within this process are: program management information systems (refers to chapter 4, section 4.5.1 – item 2), communication methods (refers to chapter 4, section 4.5.7 – item 2).

8- PLAN PROGRAM RISK MANAGEMENT (CODE B.11.1): it is a process which belongs to program risk management area of knowledge; it identifies how to approach and conduct risk management activities for GCR land use reutilization programs by taking into account the subsidiary projects. It insures that the level, type, and visibility of risk management are appropriate for the risks and importance of land use reutilization program to **GCR - PSMP** proposed organization. It also identifies the resources and time required for risk management activities and establishes an agreed-upon basis for evaluating risks. It is essential to define risk profiles of **GCR - PSMP** proposed organization to conduct the most suitable approach to managing program risks, adjust risk sensitivity, and risk criticality.

The main inputs to this process are: program scope document, program management plan, resource plan, program stakeholder management plan, and lesson learned database. The main outputs of this process is program risk management plan which will describe how risk management will be structured and will document the methodology, roles, responsibilities, standard processes and tools for identifying, analyzing, planning, tracking, and controlling risks of land use reutilization programs. The main tools used within this process are: planning meetings and analysis and lessons learned review.

9- IDENTIFY PROGRAM RISKS (CODE B.11.2): it is a process which belongs to program risk management area of knowledge; it determines which risks might affect GCR land use reutilization programs. It is an iterative process since new risks may evolve or become known as the program progresses through its life cycle. The main inputs to this process are: program scope document, program management plan, program risk management plan, program stakeholder management plan, and lesson learned database. The main outputs of this process are program risk register and root causes of risk updates. The main tools used within this process are: documentation reviews (refers to chapter 4, section 4.5.1 – item 6 and section 4.5.12 – item 1), group creativity techniques

(refers to chapter 4, section 4.5.2 – item 4), diagramming techniques (refers to chapter 4, section 4.5.5), and SWOT analysis (refers to chapter 4, section 4.5.8 – item 1).

10- DEVELOP PROGRAM FINANCIAL PLAN (CODE B.13.2): it is a process which belongs to program financial management area of knowledge; the program financial plan must take into account items such as source of funding, risk reserves, potential cash flow problems, international exchange rate fluctuations, inflation, future interest rate increases or decreases. Local laws regarding finances, trends in material costs, contract incentive and penalty clauses, and extend of retainage of contractor payments. One of the main source of funding of GCR land use reutilization programs including program of land use reutilization of cemeteries is governmental funding, where the financial plan must take into account the fact that funding may be provided on an annual basis rather than funded entirely at the beginning of the program. A funding schedule must be considered when developing the overall financial plan.

The main inputs to this process are: program financial framework, program WBS, funding constrains, and program management plan. The main outputs of this process are: program financial plan, program payment schedule, program operational costs, and program financial metrics. The main tools used within this process are: program financial analysis (refers to chapter 4, section 4.5.10), and contract management (refers to chapter 4, section 4.5.9).

11- ESTIMATE PROGRAM COSTS (CODE B.13.3): it is a process which belongs to the program financial management area of knowledge; program costing is done in multiple stages with approval gates between each stage. These gates are necessary to allow full control and governance over the program budget. The program of land use reutilization of GCR cemeteries is a long term program in which the initial cost estimates at early program phases will be the least accurate. Once the initial master plan for the program which is showing the different projects of cemeteries re-land uses is determined, a more detailed estimate is developed. The more program details are determined the more accurate estimates are developed.

The main inputs to this process are: program management plan, program risk register, and contracts. The main outputs of this process are: program cost estimates and component (projects) cost estimate. The main tools used within this process are: estimating techniques (refers to chapter 4, section 4.5.4).

12- BUDGET PROGRAM COSTS (CODE B.13.4): it is a process which belongs to the program financial management area of knowledge; developing the budget of any land use reutilization program involves compiling all available

financial information and listing all income and payment schedules in sufficient detail so that the program's costs can be tracked. The majority cost of any land use reutilization program is traceable to the individual projects within the program and is not due to the overhead in managing the program. When contractors are involved, the details of the budget come from the contractors. The program overhead is added to the initial budget figure before a baseline budget can be prepared.

The main inputs to this process are: program cost estimates, program management plan, contracts, and component (projects) cost estimates. The main outputs of this process are: program budget baseline, program payment schedule, and component (projects) payment schedules. The main tools used within this process are: cost analysis (refers to chapter 4, section 4.5.10 – item 2) and reserve analysis (refers to chapter 4, section 4.5.4 – item 2).

13- IDENTIFY PROGRAM STAKEHOLDERS (CODE B.14.2): it is a process which belongs to program stakeholder management area of knowledge; it addresses the systematic identification and analysis of the program stakeholders and creates the stakeholder register which lists the various internal and external stakeholders who may be impacted by certain land use reutilization program directly or indirectly. This register serves as the primary input for the distribution of program reports and other communications. This process also identifies the impacts, either positive or negative, on the stakeholders and determines approaches for managing these relationships.

The main inputs to this process are: program stakeholder management plan, organizational chart, contracts, and request for proposals (RFPs). The main outputs of this process are: stakeholder register, program stakeholder management plan updates, and stakeholder management strategy. The main tools used within this process are: stakeholder analysis, interviews, focus groups, stakeholder checklist, and program impact analysis (refers to chapter 4, section 4.5.11) questionnaires and surveys, brainstorming (refers to chapter 4, section 4.5.2).

14- PLAN & ESTABLISH PROGRAM GOVERNANCE STRUCTURE (CODE B.15.1): it is a process which belongs to program governance area of knowledge; effective land use reutilization program governance relies on a governance framework which can be used across the program. The program management team, in conjunction with major stakeholders, establishes the key governance principles and ensures that the correct structure is in place to encourage effective and appropriate governance. Different factors may affect governance such as, national or local government regulations and laws, banking and financial advisory services. The governance structure ensures the land use reutilization

program's goals and objectives are aligned with **GCR - PSMP** strategic goals and objectives.

The main inputs to this process are: strategic directive, program management plan, and organizational charts. The main outputs of this process are: governance plan, issue escalation process, and audit plan. The main tools used within this process are: program management information systems, organizational planning, program management office, expert judgment.

15- PLAN PROGRAM QUALITY (CODE B.15.3): it is a process which belongs to program governance area of knowledge; the majority of quality planning will occur at the project level (including quality assurance and quality control. Each of the projects of re-land use is responsible for establishing appropriate mechanisms for assuring the quality of their progress and outputs. It may be useful for the land use reutilization program to be involved in project-level reviews of items critical to the successful delivery of the program benefits. The program quality management plan should include quality requirements which are cross-project or minimal requirements for individual projects. It will be used as an input to individual project planning.

The main inputs to this process are: program management plan and organizational quality standards. The main outputs of this process are: program quality management plan. The main tools used within this process are: cost / benefit analysis (refers to chapter 4, section 4.5.1 – item 4), benchmarking (refers to chapter 4, section 4.5.5 – item 1), and cost of quality (refers to chapter 4, section 4.5.4 – item 4).

9.3.3 EXECUTING PROCESS GROUP OF PROGRAM MANAGEMENT

This management process group include 6 processes which have I.D no. from 16 to 21 as shown in tables (9-2a) and (9-2b).

16- DIRECT & MANAGE PROGRAM EXECUTION (CODE B.4.4): it is a process which belongs to program integration management area of knowledge; it is the process of managing the execution of the program management plan. It ensures that land use reutilization projects remain aligned with the program's strategic directives and **GCR - PSMP** main objectives. Program management plan execution becomes the primary responsibility of the program manager and the program team once the initial planning activities are completed and execution of the program has begun.

The main inputs to this process are: program management plan, program performance reports, change requests, work results, audit reports, go/no-go

decision, and program roadmap. The main outputs of this process are: approved change requests, project initiation requests, program issues register, and program roadmap updates. The main tools used within this process are: program management information systems, expert judgment, program management office, decision logs, and impact analysis (refers to chapter 4, section 4.5.1 – item 8).

17- MANAGE PROGRAM RESOURCES (CODE B.4.5): it is a process which belongs to the program integration management area of knowledge; it is the process of tracking and adapting the use of program resources throughout the land used reutilization program's life cycle. This process monitors program-level resource allocation and recognizes that the majority of the program's resources are located in, and managed at, the project level. It monitors the expenditure or use of resources to ensure compliance with **GCR - PSMP** proposed organization's guidelines. It also provides inputs to GCR Strategic Master Plan and budgeting processes to reflect any changes required to support execution according to the program management plan.

The main inputs to this process are: program management plan, component status reports, resource availability, and program resource plan. The main output of this process is program resource plan updates. The main tools used within this process are: program management information systems, expert judgement, and program management office (PMO).

18- MANAGE PROGRAM ARCHITECTURE (CODE B.5.6): it is a process which belongs to the program scope management area of knowledge; it ensures the relationships among different project of land use reutilization program are well structured and adhere to the set of governing rules as defined in the program architecture.

The main inputs to this process are: program architecture baseline, program management plan, and change requests. The main outputs of this process are: program architecture baseline updates, approved change requests, and program management plan updates. The main tools used within this process are: expert judgement, and change impact analysis (refers to chapter 4, section 4.5.1 – item 8).

19- MANAGE COMPONENT INTERFACES (CODE B.5.7): it is a process which belongs to the program scope management area of knowledge; Land use reutilization program management interfaces with both operational and projects activities as well as those distinctive work components, which are part of the program overall scope. The parts of the scope of the inter-related re-land use project may need to be reviewed, together with the elements of program architecture.

The main inputs to this process are: program architecture baseline, program management plan, change requests, program communications management plan, and component stakeholder management guidelines. The main outputs of this process are: approved change requests, program management plan updates, and program communications management plan updates. . The main tools used within this process are: expert judgement, communication methods analysis (refers to chapter 4, section 4.5.7 – item 2), review meetings (refers to chapter 4, section 4.5.1 – item 6), and conflict management (refers to chapter 4, section 4.5.6 – item 9).

20- CONDUCT PROGRAM PROCUREMENTS (CODE B.12.2): it is a process which belongs to the program procurement management area of knowledge; it is performed in order to acquire the desired services, resources, or materials which the land use reutilization program requires to meet its objectives. Relevant to the procurement process are contractual agreements for insurance or services to protect the program.

The main inputs to this process are: program assets which may be used in different projects of the program, program management plan, program procurement management plan, components (re-land use projects) cost estimates, and qualified seller list. The main outputs of this process are: selected sellers, request for proposals, identified internal services providers, contracts, program procurement's management plan updates, component (re-land use projects) payment schedule updates. The main tools used within this process are: procurement planning, bidder conferences, distribution of request for proposals (RFPs), develop qualified seller list, contract negotiation, proposal evaluation system, expert judgment, contract management procedures, and seller selection.

21- APPROVE COMPONENT INITIATION (CODE B.15.4): it is a process which belongs to program governance management area of knowledge; it is the process of performing the land use reutilization program management activities to initiate a component within the program (main components for program of land use reutilization of GCR cemeteries are projects of land use reutilization of different cemetery areas) . This process can occur during any program phase except closing. The main inputs to this process are: program management plan which includes program charter and program strategic plan, component initiation requests, and component initiation criteria. The main outputs of this process are: go / no-go decision, and change requests. The main tools used within this process are: expert judgement and reviews (refers to chapter 4, section 4.5.12 – item 1).

9.3.4 MONITORING PROCESS GROUP OF PROGRAM MANAGEMENT

This management process group includes 7 processes which have I.D no. from 22 to 28 as shown in tables (9-2a) and (9-2b).

22- MONITOR & CONTROL PROGRAM PERFORMANCE (CODE B.4.6): it is a process which belongs to program integration management area of knowledge; it monitors activities in all program management process groups, phases, and components and ensures that land use reutilization program execution occurs according to the approved program management plan. Monitoring is performed throughout a program's life cycle, which includes collecting, measuring and disseminating performance information, and assessing overall program trends. The main inputs to this process are: program management plan, and program performance reports. The main outputs of this process are: program performance reports, and forecasts. The main tools used within this process are: program management information systems, expert judgement, review meetings, earned value management (refers to chapter 4, section 4.5.4 – item 6), and program performance analyses (refers to Chapter 4, Section 4.5.12 – item 2).

23- MANAGE PROGRAM ISSUES (CODE B.4.7): it is a process which belongs to program integration management area of knowledge. An issue is an unplanned event which may have an impact on the cost, schedule, or other program area. Manage program issues assesses and escalates issues which could not be solved at the level of land use reutilization project, where necessary, to program level. When an issue is addressed, the process addressing the issue and communicates its actions by means of the issue register. It also ensures that the issue has been appropriately reflected and, if necessary, invokes an appropriate process (such as stakeholder management) assigned for further action.

The main inputs to this process are: program management plan, audit reports, program risk register, program performance reports, and program issues register. The main outputs of this process are: change requests, and program issues register updates. The main tools used within this process are: expert judgment, and issues analysis.

24- REPORT PROGRAM PERFORMANCE (CODE B.10.3): it is a process which belongs to program communications management area of knowledge; it consolidates performance data to provide stakeholders with information about how resources are being used to deliver land use reutilization program benefits. It also aggregates all performance information across projects and non-project activity to provide a clear picture of the program performance as a whole.

The main inputs to this process are: program performance reports, program budget baseline, program management plan, program master schedule, go/no-go decision, and performance measurements. The main outputs of this process are: program performance reports, and communications messages. The main tools used within this process are: information presentation tools, status review meetings (refers to chapter 4, section 4.5.1 – item 6), and reporting systems (refers to chapter 4, section 4.5.7 – item 4).

25- MONITOR & CONTROL PROGRAM FINANCIALS (CODE B.13.5): it is a process which belongs to program financial management area of knowledge; once land use reutilization program has received initial funding and has started paying expenses, the financial effort moves into tracking, monitoring, and controlling the program's funds and expenditures. Monitoring and controlling includes:

- Identifying factors which create changes to the financial baseline.
- Managing changes when they occur.
- Monitoring contract expenditures to ensure funds are disbursed in accordance with the contracts.
- Identifying impacts to the program components (different land use reutilization projects).

The main inputs to this process are: program financial plan, program management plan, program budget baseline, contracts, and change requests. The main outputs of this process are: contract payments, program budget baseline updates, approved change requests, estimate at completion, and corrective actions. The main tools used within this process are: contract cost management, status reviews, cost forecasting techniques, and earned value management (refers to chapter 4, section 4.5.4 – item 6).

26- PROVIDE GOVERNANCE OVERSIGHT (CODE B.15.5): it is a process belongs to program governance management area of knowledge; it deals with developing, communicating, implementing, monitoring, and assuring the policies, procedures, organizational structures, practices and outcomes associated with land use reutilization program. Governance meetings should be planned on a regular, scheduled basis, and not just performed in ad-hoc manners which ensure that the governance board is providing adequate oversight, and reduce the risk.

The main inputs to this process are: governance plan, program performance reports, program issues register, program risk register, and program management plan. The main outputs of this process are: go/no-go decision, governance decision register, governance plan updates, and program closure recommendation. The main tools used within this process are: reviews and expert judgements.

27- MANAGE PROGRAM BENEFITS (CODE B.15.6): it is a process which belongs to program governance management area of knowledge; it is an indication that governance is being followed and **GCR - PSMP** goals are met by the program. It also ensures there is a defined set of metrics reported to the program management office and program stakeholders. By consistently reporting benefits metrics, stakeholders can assess the overall health of the program, and take action as required to ensure successful benefit delivery.

The main inputs to this process are: program management plan, program charter, program performance reports, and governance plan. The main outputs of this process are: benefits realization report, governance plan updates, and change requests. The main tools used within this process are: reviews, benefits realization analysis (refers to chapter 4, section 4.5.12 – items 1 and 2).

28- MONITOR & CONTROL PROGRAM CHANGES (CODE B.15.7): it is a process which belongs to program governance management area of knowledge; it is the process that ensures the appropriate level of governance is applied to decision making regarding proposed changes to the program plan. Proposed changes may be accepted, rejected or modified in this process.

The main inputs to this process are: program management plan, change request log, and change requests. The main outputs of this process are: approved change requests, and change request log updates. The main tools used within this process are: reviews and impact analysis (refers to chapter 4, section 4.5.1 – items 8).

9.3.5 CLOSING PROCESS GROUP OF PROGRAM MANAGEMENT

This management process group include two processes which have I.D no. 29 and 30 as shown in tables (9-2a) and (9-2b).

29- CLOSE PROGRAM (CODE B.4.8): it is a process which belongs to program integration management area of knowledge; it formalizes the acceptance of specific land use reutilization program's outcome by the land use reutilization portfolio manager and **GCR - PSMP** proposed organization. All land use reutilization projects under the program need to be closed before the program is closed. Formal acceptance of specific land use reutilization program is achieved by reviewing the program scope and the closure documents of the program's constituent projects and non-project activities. During this process, the lesson learned should be documented for future use.

The main inputs to this process are: program management plan, and program closure recommendation. The main outputs of this process are: released

resources, final reports, knowledge transition, and closed program. The main tools used within this process are: program management information systems, expert judgment, and contract closure procedure.

30- CLOSE PROGRAM PROCUREMENTS (CODE B.12.4): it is a process which belongs to program procurement management area of knowledge; it will be closed when all procurement activities on specific land use reutilization program are concluded. This involves notifying program and component stakeholders, including suppliers and project management teams, and **GCR - PSMP** proposed organization's finance department. In addition to reviewing contract termination clauses, residual stipulations and clauses need to be noted and the appropriate parties informed.

The main inputs to this process are: program management plan, contracts, program's budget, program performance reports, and component closure notification. The main outputs of this process are: closed contracts, procurement performance reports, and closed budget allocation. The main tools used within this process are: contract closure procedure, supplier performance review, and budget allocation reconciliation.

9.4 LAND USE REUTILIZATION OF GCR – PROJECT MANAGEMENT

As per PMI, the standard processes of project management are 42 processes. Due to the nature of proposed projects included within any program related to GCR land use reutilization portfolio and as a way of tailoring the proper management processes, the thesis hypothesizes that only 30 project management processes will be used in managing the projects of programs related to GCR land use reutilization portfolio.

Those 30 processes will be classified under five management process groups (initiating, planning, execution, monitoring & controlling, and closing) and under nine area of knowledge – as illustrated in tables (9-3a) and (9-3b) - Each process will be identified by code contains one letter and two digits; the letter (C) is referring to the lowest level of 3PM (project management), the first digit refers to the knowledge area of project management⁽¹⁾, the second digit refers to the process order within the management area of knowledge.

¹ Knowledge areas of project management are nine: project integration management (code digit: 4), project scope management (code digit: 5), project time management (code digit: 6), project cost management (code digit: 7), project quality management (code digit: 8), project human resources management (code digit: 9), project communication management (code digit: 10), project risk management (code digit: 11), project procurement management (code digit: 12).

The 30 processes will be tailored from the standard 42 PMI's processes by using some of them, ignoring some or by merging some others⁽¹⁾. Although the proposed 30 management processes will be used to manage any project included within the programs related to GCR land use reutilization portfolio, but where particularization is required the thesis will refer to the proposed project of land use reutilization of the cemeteries area between Autostrade and Salah Salem roads as a sample. The proposed 30 project management processes could be described along with the related activities under the following five management process groups.

9.4.1 INITIATING PROCESS GROUP OF PROJECT MANAGEMENT

This management process group include only two processes which have I.D no.1 and 2 as shown in tables (9-3a) and (9-3b).

1- DEVELOP PROJECT CHARTER (CODE C.4.1): it is a process which belongs to project integration management area of knowledge; it concerns the developing of the document which formally authorizes a project or a phase, the project manager and documenting initial requirements which satisfy the stakeholders' needs and expectations. It establishes a partnership between the performing organization and **GCR - PSMP** proposed organization. The key inputs to this process are: project statement of work, contract and organizational process assets (includes policies, templates historical information and lesson learned). The key output of this process is the project charter. The main tool used within this process is expert judgement.

2- IDENTIFY STAKEHOLDERS (CODE C.10.1): it is a process which belongs to project communications management area of knowledge; it identifies all people or organizations effected by the project of land use reutilization, and documenting relevant information regarding their interests, involvement, and the impact on project's success. The key inputs to this process are: project charter, procurement documents, and organizational process assets (includes stakeholder register templates, lessons learned from previous projects). The key outputs of this process are: stakeholder register and stakeholder management strategy. The main tools used within this process are: stakeholder

¹ Where merging of certain standard project management processes is applied to tailor a specific process of land use reutilization project management, the second digit of the code of tailored process will refer to the orders of merged PMI's standard processes, for example the process's code of (C.6.^{1/5}) means that the process formed by merging PMI's standard project time management processes nos. 1, 2, 3, 4, and 5

Processes Area of Knowledge	Initiating		Planning		Executing		Monitoring & controlling		Closing		
	#	Code	Process	Code	Process	#	Code	Process	#	Code	Process
Integrating Management	1	C.4.1	Develop project charter			14	C.4.3	Direct / manage project execution	20	C.4.4	Monitor & control project work
									21	C.4.5	Perform integrated change control
									22	C.5.5	Control Scope
Scope Management											
Time Management											
Cost Management											

Table (9 -3a) Management processes of GCR land use reutilization portfolio

Processes Area of Knowledge	Initiating		Planning		Executing		Monitoring & controlling		Closing			
	#	Code	Process	#	Code	Process	#	Code	Process	#	Code	Process
Quality Management	9	C.8.1	Plan quality	15	C.8.2	Perform quality assurance	25	C.8.3	Perform quality control			
Human Resource Management	10	C.9.1	Develop human resource plan	16	C.9.2/4	acquire, develop & manage project team						
Communication Management	2	C.10.1	Identify Stakeholders	11	C.10.2	Plan communication	17	C.10.3	Distribute information	26	C.10.5	Report performance
Risk Management				12	C.11.1/2	Identify risks & plan risk management	18	C.10.4	manage stakeholder expectation	27	C.11.6	Monitor & control risks
Procurement Management				13	C.12.1	Plan Procurement	19	C.12.2	Conduct Procurement	28	C.12.3	Administer Procurement
										30	C.12.4	Close Procurement

Table (9 -3b) Management processes of projects of GCR land use reutilization portfolio

9.4.2 PLANNING PROCESS GROUP OF PROJECT MANAGEMENT

This management process group includes 11 processes which have I.D no. from 3 to 13 as shown in tables (9-3a) and (9-3b).

3- DEVELOP PROJECT MANAGEMENT PLAN (CODE C.4.2): it is a process which belongs to project integration management area of knowledge; it documents the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans through the life cycle of land use reutilization project.

The key inputs to this process are: project charter, outputs from planning processes, enterprise environmental factors (includes governmental standards, project management information systems, and organizational structure and culture), and organizational process assets (includes standardized guidelines, project management plan template, change control procedures, and historical information and lessons learned). The key output of this process is project management plan. The main tool used within this process is expert judgement.

4- COLLECT REQUIREMENTS (CODE C.5.1): it is a process which belongs to the project scope management area of knowledge; it is the process of defining and documenting stakeholders' needs to meet land use reutilization project objectives. Land use project's success is directly influenced by the care taken in capturing and managing project requirements which include the quantified and documented needs and expectations of the **GCR - PSMP** proposed organization and other stakeholders.

The key inputs to this process are: project charter and stakeholder register. The key outputs of this process are requirements' documentation, requirements management plan. The main tools used within this process are: interviews, focus groups, facilitated workshops, group creativity techniques, group decision making techniques, questionnaires and surveys, observations, and prototypes.

5- DEFINE SCOPE (CODE C.5.2): it is a process which belongs to project scope management area of knowledge; it is the process of developing a detailed description of land use reutilization project. The preparation of a detailed project scope statement is critical to the project's success and builds upon the major deliverables, assumptions, and constraints which are documented during the project initiation. During planning, the project scope is defined and described with greater specificity as more information about the project is known.

The key inputs to this process are: project charter, requirements documentation, and organizational process assets (policies, procedures, templates for a project scope statement, and lesson learned). The key outputs of this process are:

project scope statement, project document updates. The main tools used within this process are: expert judgment, identification of alternatives, and facilitated workshops.

6- CREATE WBS (CODE C.5.3): it is a process which belongs to project scope management area of knowledge; it is the process of subdividing land use reutilization project deliverables into smaller, more manageable components. The planned work is contained within the lowest level WBS components, which are called work packages. A work package can be scheduled, cost estimated, monitored, and controlled.

The key inputs to this process are: project scope statement, requirements documentation, and organizational process assets (policies, procedures, templates for WBS, and lesson learned). The key outputs of this process are: WBS, scope baseline, and project document updates. The main tool used within this process is decomposition (refers to chapter 4, section 4.5.2 – item 2).

7- DEFINE / PLAN ACTIVITIES & SCHEDULE (CODE C.6.1^{1/5}): it is a process which belongs to project time management area of knowledge; it is the process of identifying the specific actions to be performed to produce land use reutilization project deliverables, identifying and documenting relationships among the project activities, estimating the type and quantities of material / people / equipment / or supplies required to perform each activity, approximating the number of work periods needed to complete individual activities with estimated resources, and analyzing activity sequences / durations / resource requirements / and schedule constraints to create the project schedule.

The key inputs to this process are: scope baseline, organizational process assets, enterprise environmental factors, activity list, activity attributes, milestone list, project scope statement, activity resource requirements, activity duration estimates. The key outputs of this process are: activity list, activity attributes, milestone list, project schedule network diagrams, project document updates, activity resource requirements, resource breakdown structure, project document updates, activity duration estimates, schedule baseline. The main tools used within this process are: rolling wave planning, templates, expert judgment, precedence diagramming method (PDM), applying leads and lags, schedule network templates, bottom-up estimating, analogous estimating, three-point estimates, critical path method, critical chain method, resource levelling, what-if scenario analysis, scheduling tool, and schedule compression. (refers to chapter 4, section 4.5.3).

8- ESTIMATE COST & DETERMINE BUDGET (CODE C.7.^{1/2}): it is a process which belongs to project cost management area of knowledge; it develops an approximation of the monetary resources needed to complete land use reutilization project activities and aggregates the estimated costs of each individual activities to establish an authorized cost baseline. Cost estimates should be refined during the course of the project to reflect additional detail as it becomes available. Costs are estimated for all resources which will be charged to land use reutilization project. This includes, but not limited to, design consultants, contractors, suppliers, labor, materials, equipment, services, and facilities, as well as special categories such as an inflation allowance or contingency costs.

The key inputs to this process are: scope baseline, project schedule, human resources plan, risk register, activity cost estimates, basis of estimates, contracts. The key outputs of this process are: activity cost estimates, basis of estimates, project document updates, cost performance baseline, project funding requirements, and project document updates. The main tools used within this process are: expert judgment, analogous estimating, bottom-up estimating, three-point estimates (refers to chapter 4, section 4.5.3), reserve analysis, cost of quality (COQ), cost aggregation, and funding limit reconciliation (refers to chapter 4, section 4.5.4).

9- PLAN QUALITY (CODE C.8.1): it is a process which belongs to the project quality management area of knowledge; it identifies quality requirements and/or standards for land use reutilization project, and documents how land use reutilization project will demonstrate compliance. Quality planning should be performed in parallel with the other land use reutilization project planning processes.

The key inputs to this process are: scope baseline (includes: scope statement and WBS), stakeholder register, cost performance baseline, schedule baseline, and risk register. The key outputs of this process are: quality management plan, quality metrics, quality checklists, and project document updates. The main tools used within this process are: cost-benefit analysis (refers to chapter 4, section 4.5.1 - item 4), cost of quality "COQ" (refers to chapter 4, section 4.5.4 - item 4), control charts, benchmarking, design of experiments, and flowcharting (refers to chapter 4, section 4.5.5).

10- DEVELOP HUMAN RESOURCE PLAN (CODE C.9.1): it is a process which belongs to project human resources management area of knowledge; it identifies and documents land use reutilization project roles, responsibilities, required skills, reporting relationships, and creates a staffing management plan including the timetable for staff acquisition and release, necessary skills required for land use reutilization project's success. It may also include

identification of training needs, team-building strategies, plans for recognition and rewards programs, compliance considerations and safety issues.

The key inputs to this process are: activity resource requirements, enterprise environmental factors (includes **GCR - PSMP** proposed organizational culture and structure - available human resources - personnel administration policies), and organizational process assets (organizational standard processes and policies - standardized role descriptions - templates for organizational charts and position descriptions - historical information on organizational structures which have worked in previous land use reutilization projects). The key output of this process is human resources plan (including but not be limited to: roles and responsibilities - project organization charts - staffing management plan). The main tools used within this process are: organization charts and position descriptions, networking, and organizational theory (refers to chapter 4, section 4.5.6).

11- PLAN COMMUNICATION (CODE C.10.2): it is a process which belongs to the project communication management area of knowledge; it is the process of determining land use reutilization project stakeholder information needs and defining a communication approach. Improper communication planning will lead to problems such as delay in message delivery, communication of sensitive information to the wrong audience, or lack of communication to some of the required stakeholders.

The key inputs to this process are: stakeholder register, and stakeholder management strategy. The key outputs of this process are: communications management plan, and project document updates. The main tools used within this process are: communication requirements analysis, communication technology, communication models, and communication methods (refers to chapter 4, section 4.5.7).

12- IDENTIFY RISKS & PLAN RISK MANAGEMENT (CODE C.11.^{1/2}): it is a process which belongs to project risk management area of knowledge; it is the process of determining which risks may affect the land use reutilization project and documenting their characteristics. It also defines how to conduct risk management activities for land use reutilization project and to ensure that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of each land use reutilization project to GCR strategic urban development master plan (**GCR - PSMP**).

The key inputs to this process are: risk management plan, activity cost estimates, activity duration estimates, scope baseline, project scope statement, stakeholder register, cost management plan, schedule management plan, quality management plan, and communications management plan. The key

outputs of this process are: risk register, and risk management plan. The main tools used within this process are: documentation reviews, information gathering techniques, checklist analysis, assumptions analysis, diagramming techniques, SWOT analysis (refers to chapter 4, section 4.5.8).

13- PLAN PROCUREMENT (CODE C.12.1): it is a process which belongs to the project procurement management area of knowledge; it documents land use reutilization project purchasing decisions, specifying the approach and identifying potential sellers of activities outside **GCR - PSMP** proposed organization (include consultants, contractors, and suppliers). It also includes consideration of the risks involved with each make-or-buy decision and includes reviewing the type of contract planned to be used with respect to mitigating risks, sometimes transferring risks to the seller.

The key inputs to this process are: scope baseline, risk register, risk-related contract decisions, activity resource requirements, project schedule, and activity cost estimates. The key outputs of this process are: procurement management plan, procurement statements of work, make-or-buy decisions, procurement documents, and source selection criteria. The main tools used within this process are: expert judgment, make-or-buy analysis, and contract types (refers to chapter 4, section 4.5.9).

9.4.3 EXECUTING PROCESS GROUP OF PROJECT MANAGEMENT

This management process group includes 6 processes which have I.D no. from 14 to 19 as shown in tables (9-3a) and (9-3b).

14- DIRECT / MANAGE PROJECT EXECUTION (CODE C.4.3): it is a process which belongs to project integration management area of knowledge; it performs the work defined in the project management plan to achieve land use reutilization project's objectives which include, but are not limited to:

- Perform activities to accomplish project requirements.
- Create land use reutilization project deliverables.
- Staff, train, and manage the team members assigned to the project.
- Obtain, manage, and use resources including materials, tools, equipment, and facilities.
- Implement the planned methods and standards.
- Generate project data (cost, schedule, technical and quality progress).
- Issue change requests and adapt approved changes into the scope.
- Manage risks and implement risk response activities.
- Manage sellers and suppliers.
- Collect and document lessons learned.

The key inputs to this process are: project management plan, approved change requests, enterprise environmental factors (GCR - PSMP proposed organization culture and structure – personnel administration – stakeholder risk tolerance), organizational process assets (standardized guidelines - communication requirements - project files from previous projects - defect management database). The key outputs of this process are: deliverables, work performance information, change requests, and project management plan updates. The main tools used within this process are: expert judgment and project management information system (refers to chapter 4, section 4.5.1).

15- PERFORM QUALITY ASSURANCE (CODE C.8.2): it is a process which belongs to project quality management area of knowledge; it is the process of auditing the quality requirements and the results from quality control measurements to ensure appropriate quality standards and operational definitions are used. It is an execution process that uses data created during performing the quality control. It also provides an umbrella for continuous process improvement, which is an iterative means for improving the quality of all processes.

The key inputs to this process are: project management plan, quality metrics, work performance information, and quality control measurements. The key outputs of this process are: organizational process assets updates, change requests, project management plan updates, and project document updates. The main tools used within this process are: plan quality and perform quality control tools and techniques, and quality audits (refers to chapter 4, section 4.5.5).

16- ACQUIRE, DEVELOP & MANAGE PROJECT TEAM (CODE C.9.^{2/4}): it is a process which belongs to project human resources management area of knowledge; it is the process of confirming human resource availability and obtaining the team necessary to complete land use reutilization project assignments. It improves the competencies, team interaction, and the overall team environment to enhance land use reutilization project performance. it also tracks team member performance, providing feedback, resolving issues, and managing changes to optimize land use reutilization project performance

The key inputs to this process are: project management plan, enterprise environmental factors (existing information for human resources - personnel administration policies - location or multiple locations), organizational process assets (organization's standard policies, processes and procedures), project staff assignments, resource calendars, team performance assessments, and performance reports. The key outputs of this process are: project staff assignments, resource calendars, project management plan updates, team performance assessments, and change requests. The main tools used within this

process are: pre-assignment, negotiation, acquisition, virtual teams, interpersonal skills, training, team-building activities, ground rules, co-location, and conflict management (refers to chapter 4, section 4.5.6), recognition and rewards, observation and conversation, project performance appraisals.

17- DISTRIBUTE INFORMATION (CODE C.10.3): it is a process which belongs to project communication management area of knowledge; it is the process of making relevant information available to land use reutilization project's stakeholders as planned. Although it is performed throughout the entire project life cycle and in all management processes, but it usually be implemented broadly and mainly during execution process.

The key inputs to this process are: project management plan, performance reports, and organizational process assets (policies, procedures, guidelines, historical information and lessons learned regarding information distribution). The key output of this process is: organizational process assets updates which include (stakeholder notifications - project reports - project presentations - project records - feedback from stakeholders - lessons learned documentation). The main tools used within this process are: communication methods (refers to chapter 4, section 4.5.7 - item 2), and information distribution tools.

18- MANAGE STAKEHOLDER EXPECTATION (CODE C.10.4): it is a process which belongs to the project communication management area of knowledge; it involves communication activities directed towards land use reutilization project stakeholders to influence their needs and expectations, address concerns, and resolving issues. It also helps to increase the probability of project success by ensuring that the stakeholders understand the project benefits and risks. This enables stakeholders to be active supporters of the project and to help with risk assessment of project choices.

The key inputs to this process are: stakeholder register, stakeholder management strategy, project management plan, and issue log. The key outputs of this process are: organizational process assets updates (causes of issues - reasoning behind corrective actions - lessons learned from managing stakeholder expectations), change requests, project management plan updates, project document updates. The main tools used within this process are: communication methods, interpersonal skills, and management skills.

19- CONDUCT PROCUREMENT (CODE C.12.2): it is a process which belongs to project procurement management area of knowledge; it involves obtaining seller (consultants, contractors, suppliers, ...) responses and proposals during the bidding processes , selecting a seller, and awarding a contract. During execution of land use reutilization project, a list of qualified sellers can be

established and then evaluation can be conducted for selection and hiring purposes.

The key inputs to this process are: project management plan, procurement documents, source selection criteria, qualified seller list, seller proposals, project documents, and make-or-buy decisions. The key outputs of this process are: selected sellers, procurement contract award, change requests, project management plan updates, and project document updates. The main tools used within this process are: bidder conferences, proposal evaluation techniques, procurement negotiations (refers to chapter 4, section 4.5.9), expert judgments, advertising, and internet search.

9.4.4 MONITORING PROCESS GROUP OF PROJECT MANAGEMENT

This management process group include 9 processes which have I.D no. from 20 to 28 as shown in tables (9-3a) and (9-3b).

20- MONITOR & CONTROL PROJECT WORK (CODE C.4.4): it is a process which belongs to the project integration management area of knowledge; it involves tracking, reviewing, and regulating the progress to meet the performance objectives defined in the project management plan. Monitoring is an aspect of project management performed throughout land use reutilization project. Monitoring includes collecting, measuring, and distributing performance information, and assessing measurements and trends to effect process improvements. Continuous monitoring gives the project management team insight into the health of the project, and identifies any areas which may require special attention. Control includes determining corrective or preventive actions or re-planning and following up on action plans to determine if the actions taken resolved the performance issue.

The key inputs to this process are: project management plan, performance reports, enterprise environmental factors (governmental or industry standards - **GCR - PSMP** proposed organization's work authorization system), organizational process assets (**GCR - PSMP proposed** organization's communication requirements - financial controls procedures - risk control procedures - lessons learned database). The key outputs of this process are: change requests, project management plan updates, and project document updates. The main tool used within this process is expert judgment.

21- PERFORM INTEGRATED CHANGE CONTROL (CODE C.4.5): it is a process which belongs to the project integration management area of knowledge; it involves reviewing all change requests, approving and managing changes to the deliverables, organizational process assets, project documents and the

project management plan. It is conducted from project inception through completion. The project management plan, the project scope statement, and other deliverables are maintained by carefully and continuously managing changes, either by rejecting changes or by approving changes thereby assuring that only approved changes are incorporated into a revised baseline.

The key inputs to this process are: project management plan, work performance information, change requests, enterprise environmental factors (project management information system), organizational process assets (change control procedures - procedures for approving and issuing change authorizations). The key outputs of this process are: change request status updates, project management plan updates, project document updates. the main tools used within this process are: expert judgment, and change control meetings.

22- CONTROL SCOPE (CODE C.5.5): it is a process which belongs to the project scope management area of knowledge; it involves monitoring the status of land use reutilization project scope and managing changes to the scope baseline. Controlling the project scope ensures all requested changes and recommended corrective or preventive actions are processed through performing integrated change control process. It is also used to manage the actual changes when they occur and is integrated with the other control processes. Uncontrolled changes are often referred to as project scope creep.

The key inputs to this process are: project management plan, work performance information, requirements documentation. The key outputs of this process are: work performance measurements, organizational process assets updates (causes of variances - corrective action chosen - other types of lessons learned from project scope control), project management plan updates, and project document updates. The main tool used within this process is variance analysis (refers to chapter 4, section 4.5.2 - item 7).

23- CONTROL SCHEDULE (CODE C.6.6): it is a process which belongs to the project time management area of knowledge; it involves monitoring the status of land use reutilization project to update project progress and manage changes to the schedule baseline. It is concerned with:

- Determining the current status of the project schedule.
- Influencing the factors which create schedule changes.
- Determining that the project schedule has changed.
- Managing the actual changes as they occur.

The key inputs to this process are: project management plan, project schedule, work performance information, and organizational process assets (existing formal and informal schedule control-related policies, procedures, and

guidelines - schedule control tools - monitoring and reporting methods to be used). The key outputs of this process are: work performance measurements, change requests, project management plan updates, project document updates. The main tools used within this process are: performance reviews, variance analysis, project management software, resource levelling, what-if scenario analysis, adjusting leads and lags, schedule compression, and scheduling tool (refers to chapter 4, section 4.5.3).

24- CONTROL COSTS (CODE C.7.3): it is a process which belongs to project cost management area of knowledge; it involves monitoring the status of land use reutilization project to update the project budget and managing changes to the cost baseline. Updating the budget involves recording actual costs spent to date. Any increase to the authorized budget can only be approved through the process of perform integrated change control. The key to effective cost control is the management of the approved cost performance baseline and the changes to that baseline.

The key inputs to this process are: project management plan, project funding requirements, work performance information, organizational process assets (existing formal and informal cost control-related policies, procedures, and guidelines - cost control tools - monitoring and reporting methods to be used). The key outputs of this process are: work performance measurements, budget forecasts, organizational process assets updates (causes of variances - corrective action chosen and the reasons - lessons learned from project cost control), change requests, project management plan updates, and project document updates. The main tools used within this process are: earned value management (refers to chapter 4, section 4.5.4 - Item 6), variance analysis (refers to chapter 4, section 4.5.2 - Item 7), performance reviews, and project management software.

25- PERFORM QUALITY CONTROL (CODE C.8.3): it is a process which belongs to the project quality management area of knowledge; it involves monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes. Quality control is performed throughout land use reutilization project. Quality standards include the goals of project processes. Project results include deliverables and project management results, such as cost and schedule performance. Quality control is often performed by a quality control department or similarly titled unit within GCR - PSMP proposed organization. Quality control activities identify causes of poor process quality and recommend and/or take action to eliminate them.

The key inputs to this process are: project management plan, quality metrics, quality checklists, work performance measurements, approved change requests, and organizational process assets (quality standards and policies - standard

work guidelines). The key outputs of this process are: quality control measurements, validated changes, validated deliverables, change requests, project document updates, and project management plan updates. The main tools used within this process are: cause and effect diagrams, control charts, flowcharting, histogram, pareto chart, and scatter diagram (refers to chapter 4, section 4.5.5).

26- REPORT PERFORMANCE (CODE C.10.5): it is a process which belongs to the project communication management area of knowledge; it involves collecting and distributing performance information, including status reports, progress measurements, and forecasts. It also involves the periodic collection and analysis of baseline versus actual data to understand and communicate land use reutilization project progress and performance as well as to forecast the project results.

The key inputs to this process are: project management plan, work performance information, work performance measurements, budget forecasts, organizational process assets (report templates - policies and procedures which define the measures to be used). The key outputs of this process are: performance reports, organizational process assets updates, change requests. The main tools used within this process are: variance analysis (refers to chapter 4, section 4.5.2 – Item 7), forecasting methods, communication methods, and reporting systems (refers to chapter 4, section 4.5.7).

27- MONITOR & CONTROL RISKS (CODE C.11.6): it is a process which belongs to project risk management area of knowledge; it involves implementing risk response plans, tracking identified risks monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout land use reutilization project. Planned risk responses which are included in the project management plan are executed during the life cycle of the project, but the project work should be continuously monitored for new, changing, and outdated risks.

The key inputs to this process are: risk register, project management plan, work performance information, performance reports. The key outputs of this process are: risk register updates, change requests, project management plan updates, project document updates. The main tools used within this process are: risk reassessment, risk audits (refers to chapter 4, section 4.5.8 – Items 7 and 8), variance and trend analysis, technical performance measurement, reserve analysis (refers to chapter 4, section 4.5.4 – Item 2), and status meetings.

28- ADMINISTER PROCUREMENT (CODE C.12.3): it is a process which belongs to project procurement management area of knowledge; it involves managing procurement relationships, monitoring contract performance, and

making changes and corrections as needed. It also ensures that the seller's (consultant, contractor, supplier ...) performance meets procurement requirements and that the buyer (land use reutilization project management team) performs according to the terms of the legal contract.

The key inputs to this process are: procurement documents, project management plan, contract, performance reports, approved change requests, and work performance information. The key outputs of this process are: procurement documentation, change requests, and project management plan updates. The main tools used within this process are: contract change control system, procurement performance reviews (refers to chapter 4, section 4.5.9 – Item 4 and 5), inspections and audits, performance reporting, payment systems, and records management system.

9.4.5 CLOSING PROCESS GROUP OF PROJECT MANAGEMENT

This management process group include 2 processes which have I.D no. from 29 and 30 as shown in tables (9-3a) and (9-3b).

29- CLOSE PROJECT (CODE C.4.6): it is a process which belongs to the project integration management area of knowledge; it involves finalizing all activities across all of the project management process groups to formally complete land use reutilization project. Since the project's scope is measured against the project management plan, the project manager will review that document to ensure completion before considering the project's closure. The process of close project also establishes the procedures to investigate and document the reasons for actions taken, if a project is terminated before completion.

The key inputs to this process are: project management plan, accepted deliverables, organizational process assets (project closure guidelines or requirements - historical information and lessons learned knowledge base). The key outputs of this process are: final product, service, or result transition, organizational process assets updates. The main tool used within this process is expert judgment.

30- CLOSE PROCUREMENT (CODE C.12.4): it is a process which belongs to the project procurement management area of knowledge; it involves completing each project's procurement and supports land use reutilization close project or phase process, since it involves verification that all work and deliverables were acceptable. It also involves administrative activities such as finalizing open claims, updating records to reflect final results and archiving such information for future use.

The key inputs to this process are: project management plan, and procurement documentation. The key outputs of this process are: closed procurements, and organizational process assets' updates (procurement file - deliverable acceptance - lessons learned documentation). The main tools used within this process are: procurement audits, negotiated settlements, and records management system.

9.5 EPILOGUE

- This chapter discusses the implementation of OPM methodology through the three 3PM levels to conclude comprehensive and examined management methodology which aims to set a precise management framework and sequenced / interrelated management processes which could be applied within the execution of any future strategic urban development master plan for sustainable development of GCR
- Within this chapter, OPM processes have been tailored for land use reutilization portfolio and its components of GCR - PSMP.
- For GCR - PSMP land use reutilization portfolio, 14 management processes have been determined, tailored and described for managing the portfolio.
- For sub-programs of GCR - PSMP land use reutilization portfolio, 30 management processes have been determined, tailored and described for managing any subordinate program.
- For sub-projects of each program under GCR - PSMP Land Use Reutilization Portfolio, 30 management processes have been determined, tailored and described for managing any subordinate project.



CHAPTER 10

LAND USE REUTILIZATION MANAGEMENT MODEL – MLRP3

“Organizations today are increasingly recognizing the advantages and benefits of using the agile project management approach in their projects, but are lost when it comes to using a well defined set of metrics that can be applied to these agile projects. The solution lies in examining the Agile Manifesto and building metrics based on the tenets of agile project management principles”

Prashant Ram, Senior IT executive consultant, New York

Considering the implementation of OPM methodology through 3PM levels which have been concluded in the previous chapter, the purpose of this chapter is to formulate an integrated 3PM model “MLRP3 – model”. It is a standard and flexible model which could be applied during the different management processes of organizational management for execution of any future strategic urban development master plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects related to other regions in general.

10.1 MANAGEMENT OF LAND USE REUTILIZATION PORTFOLIO, PROGRAM, AND PROJECT MODEL (MLRP3 - MODEL)

According to previous chapter’s discussion and conclusion of OPM methodology implementation through 3PM levels, a model of **Management of Land use Reutilization Portfolio, Program, and Project (MLRP3 model)** could be formulated. This model could be formulated in three levels: Level (A) of portfolio management, Level (B) of program management, Level (C) of project management. Each level contains the tailored management processes as discussed in the previous chapter. **GCR - PSMP** organization which has been proposed in previous chapter, represents the sponsor of GCR - PSMP which sets the vision, mission, and strategic planning goals and controls the highest level of MLRP3 model.

The thesis suggests forming of a specialized council which acts as GCR - PSMP proposed organization. This council includes the relevant ministers, real estate investors, civil society representatives, and experts in related fields (urban planning, project management, socioeconomics, ecology, sustainability, and traffic ...). This council may be called: Supreme Council of Land Use Management "SCLM" and reports directly to the Council of Ministers ⁽¹⁾. SCLM proposed to manage and control all strategic urban development master plans in Egypt including proposed strategic plan of GCR.

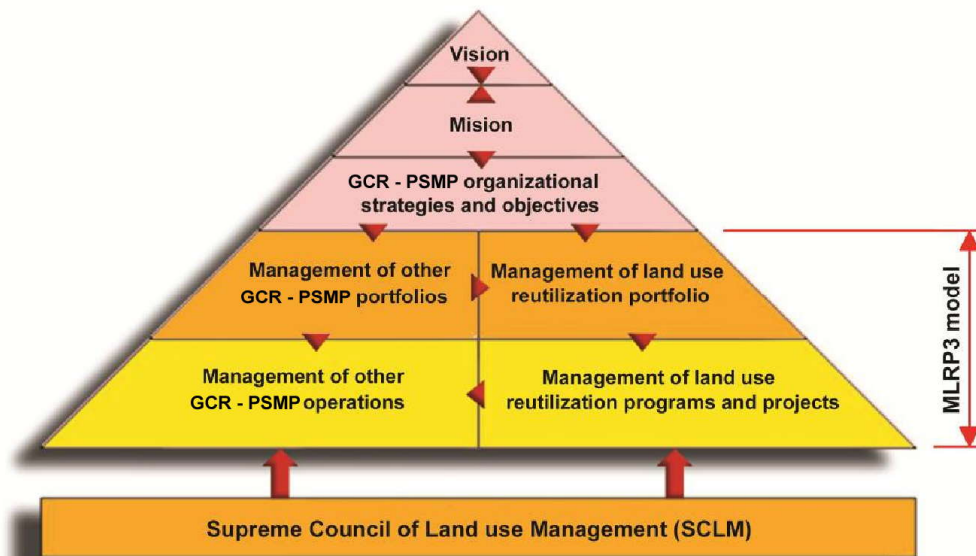


Figure (10-1) ⁽²⁾

Role of MLRP3 Model in GCR - PSMP Strategic Master Plan

Considering figure (3-10) in Chapter three which shows the general relationship among organization's vision, mission, its organizational objectives and 3PM , and also the approach of comprehensive methodology of managing and controlling the interrelations and interactions among tailored OPM processes (described in pervious chapter). The thesis concludes MLRP3 model which could be applied during different management processes of portfolio, program, and project management for execution of the strategic urban development master plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects related to other regions in general. Figure (10-1) shows MLRP3 model role in

1 There is existing Egyptian authority called "The national center for planning state land uses" reported to the cabinet of ministers but it is responsible for counting, reformation, and preparation of the general planning of the state lands **outside the urban spaces**.

2 The figure is prepared by the researcher.

GCR - PSMP. MLRP3 will be applied into the three management levels (portfolio management, program management, and project management).

10.1.1 MLRP3 MODEL – LEVEL A: ACTION MECHANISM AND PROCESSES INTERACTION

MLRP3 – level (A) is the highest level of MLRP3 model which deals with portfolio management processes. This level is managed and controlled by the portfolio manager ⁽¹⁾ who will be reporting directly to SCLM (Supreme Council of Land use Management). For the portfolio of GCR land use reutilization and in accordance with the two portfolio management areas of knowledge as previously illustrated in figure (9-1) at chapter nine, the portfolio manager heads two subordinate management teams ⁽²⁾ (portfolio governance team and portfolio risk management team). Each team is responsible for managing the related portfolio management processes during the two stages of portfolio life cycle (aligning and monitoring).

As previously shown in table (9-1) at chapter nine, the portfolio governance's team will manage 10 processes (the processes have I.D. codes starting with "A.4"), seven of them will be managed during aligning stage and the other four processes during monitoring stage; whereas the portfolio risk management team will manage 4 processes (the processes have I.D. code starting with "A.5"), three of them will be managed during aligning stage and the remaining one during monitoring stage. When managing each process, the responsible team will work to give certain inputs to other processes of different portfolio management areas of knowledge during different life cycle stages and will work to get outputs from other processes of different portfolio management areas of knowledge during different life cycle stages.

Tables (10-1) and (10-2) of MLRP3 model (level - A) show the proposed interrelation / interaction of each portfolio management process with other processes. The definition, main activities, key inputs, key outputs, and used management tools and techniques of each portfolio management process (discussed in chapter nine) should be reviewed in detail by each management team in the course of managing each process. Figure (10-2) shows the suggested management processes flow diagram of MLRP3 model (level - A).

1 The portfolio manager could be individual, team or even management board subject to the size and scale of the portfolio itself.

2 The number of each team members is varies and may represented by only one individual based on the size of portfolio and subordinate programs / projects.

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Aligning	1	Identify components	A.4.1	1	Categorize components	A.4.2	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
Aligning	2	Categorize components	A.4.2	1	Evaluate components	A.4.3	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
				2	Identify portfolio risks	A.5.1	2	Organizational strategy & objectives	A.4.1
							3	Identify portfolio risks	A.5.1
Aligning	3	Evaluate components	A.4.3	1	Select components	A.4.4	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
				2	Develop portfolio risk response	A.5.3	2	Categorize components	A.4.2
							3	Analyze portfolio risks	A.5.2
Aligning	4	Select components	A.4.4	1	Prioritize components	A.4.5	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
				2	Analyze portfolio risks	A.5.2	2	ENTERPRISE ENVIRONMENTAL FACTORS	
							3	Evaluate components	A.4.3
							4	Communicate portfolio adjustment	A.4.7
							5	Review & report portfolio performance	A.4.9
							6	Monitor business strategy changes	A.4.10
							7	Develop portfolio risk response	A.5.3
Aligning	5	Prioritize components	A.4.5	1	Balance portfolio	A.4.6	1	Select components	A.4.4
							2	Analyze portfolio risks	A.5.2
Aligning	6	Balance portfolio	A.4.6	1	Authorize component	A.4.8	1	ENTERPRISE ENVIRONMENTAL FACTORS	
							2	Prioritize components	A.4.5
							3	Review & report portfolio performance	A.4.9

Table (10-1) MLRP3 – Level “A” (1 Of 2)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Aligning	7	Authorize component	A.4.8	1	LEVEL “B” PROGRAMS		1	Balance portfolio	A.4.6
				2	Review & report portfolio performance	A.4.9			
Aligning	8	Identify portfolio risks	A.5.1	1	Categorize components	A.4.2	1	Categorize components	A.4.2
				2	Analyze portfolio risks	A.5.2			
Aligning	9	Analyze portfolio risks	A.5.2	1	Evaluate components	A.4.3	1	Select components	A.4.4
				2	Prioritize components	A.4.5	2	Identify portfolio risks	A.5.1
				3	Develop portfolio risk response	A.5.3			
Aligning	10	Develop portfolio risk response	A.5.3	1	Select components	A.4.4	1	Evaluate components	A.4.3
				2	Monitor & control portfolio risks	A.5.4	2	Analyze portfolio risks	A.5.2
Monitoring	11	Communicate portfolio adjustment	A.4.7	1	Select components	A.4.4	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
				2	Monitor business strategy changes	A.4.10	2	ENTERPRISE ENVIRONMENTAL FACTORS	
							3	Review & report portfolio performance	A.4.9
Monitoring	12	Review & report portfolio performance	A.4.9	1	Select components	A.4.4	1	ENTERPRISE ENVIRONMENTAL FACTORS	
				2	Balance portfolio	A.4.6	2	Authorize component	A.4.8
				3	Communicate portfolio adjustment	A.4.7	3	Monitor & control portfolio risks	A.5.4
Monitoring	13	Monitor business strategy changes	A.4.10	1	Select components	A.4.4	1	ORGANIZATIONAL STRATEGY & OBJECTIVES	
							2	Communicate portfolio adjustment	A.4.7
							3	Monitor & control portfolio risks	A.5.4
Monitoring	14	Monitor & control portfolio risks	A.5.4	1	Review & report portfolio performance	A.4.9	1	Develop portfolio risk response	A.5.3
				2	Monitor business strategy changes	A.4.10			

Table (10-2) MLRP3 – Level “A” (2 of 2)

10.1.2 MLRP3 MODEL – LEVEL B: ACTION MECHANISM AND PROCESSES INTERACTION

MLRP3 – level (B) is the intermediate level of MLRP3 model which deals with program management processes. This level is managed and controlled by the program manager ⁽¹⁾ who will be reported to GCR land use reutilization portfolio manager. For any program of GCR land use reutilization and in accordance with the nine program management areas of knowledge as previously illustrated in figure (9-2a) and (9-2b) at chapter nine, the program manager heads nine subordinate management teams ⁽²⁾ (integration management team – scope management team – time management team – communication management team – risk management team - procurement management team – financial management team – stakeholder management team – program governance team). Each team is responsible for managing the related program management processes during the five stages of program life cycle (initiation, planning, execution, monitoring, controlling and closing).

As previously shown in tables (9-2a) and (9-2b) at chapter nine, the thesis proposes 30 tailored program management processes. Those processes are suggested to be managed and controlled by the above mentioned nine management teams (each team will manage the group of processes by management area of knowledge (which have same I.D. code “B.4”, “B.5”, “B.6”, and so on). When managing each process, the responsible team will work to give certain inputs to other processes of different program management areas of knowledge during different program life cycle stages and will work to get outputs from other processes of different program management areas of knowledge during different program life cycle stages.

Tables (10-3) to (10-9) of MLRP3 model (level - B) show the proposed interrelation / interaction of each program’s management process with other program management processes. The definition, main activities, key inputs, key outputs, and used management tools and techniques of each program management process (discussed in chapter nine) should be reviewed in detail by each management team in the course of managing each process. Figure (10-3) shows the suggested management processes flow diagram of MLRP3 model (level - B).

1 The program manager could be individual or team subject to the size and scale of the program itself.

2 The nine program management teams could be merged into smaller number of teams based on the size of program and the number of each team members is varies also based on the size of the program and its subordinate projects.

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Initiating	1	Initiate program	B.4.1	1	Develop program management plan	B.4.2	1	MLRP3 – level A (portfolio) - Program sponsor / initiator	
				2	Develop program infrastructure	B.4.3			
				3	Direct & manage program execution	B.4.4			
				4	Plan communications	B.10.1			
				5	Establish program financial framework	B.13.1			
Initiating	2	Establish program financial framework	B.13.1		Develop program financial plan	B.13.2		Monitor & control portfolio risks	B.4.1
Planning	3	Develop program management plan	B.4.2	1	Develop program infrastructure	B.4.3	1	Monitor & control portfolio risks	B.4.1
				2	Direct & manage program execution	B.4.4	2	Manage component interfaces	B.5.7
				3	Manage program resources	B.4.5	3	Develop program schedule	B.6.1
				4	Monitor & control program performance	B.4.6			
				5	Manage program issues	B.4.7			
				6	Close program	B.4.8			
				7	Manage program architecture	B.5.6			
				8	Manage component interfaces	B.5.7			
				9	Develop program schedule	B.6.1			
				10	Plan communications	B.10.1			
				11	Report program performance	B.10.3			
				12	Plan program risk management	B.11.1			
				13	Identify program risks	B.11.2			
				14	Conduct program procurements	B.12.2			
				15	Close program procurements	B.12.4			

Table (10-3) MLRP3 – Level “B” (1 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Planning	3	Develop program management plan	B.4.2	16	Develop program financial plan	B.13.2			
				17	Estimate program costs	B.13.3			
				18	Budget program costs	B.13.4			
				19	Monitor & control program financials	B.13.5			
				20	Identify program stakeholders	B.14.2			
				21	Plan & establish program governance structure	B.15.1			
				22	Plan program quality	B.15.3			
				23	Approve component initiation	B.15.4			
				24	Provide governance oversight	B.15.5			
				25	Manage program benefits	B.15.6			
				26	Monitor & control program changes	B.15.7			
Planning	4	Develop program infrastructure	B.4.3	1	Direct & manage program execution	B.4.4	1	Monitor & control portfolio risks	B.4.1
				2	Manage program resources	B.4.5	2	Develop program management plan	B.4.2
Planning	5	Define program goals & objectives	B.5.2	1	Manage program issues	B.4.7	1	Develop program management plan	B.4.2
				2	Develop program schedule	B.6.1			
				3	Plan communications	B.10.1			
				4	Report program performance	B.10.3			
				5	Plan program risk management	B.11.1			
				6	Develop program financial plan	B.13.2			
				7	Plan & establish program governance structure	B.15.1			
				8	Plan program quality	B.15.3			

Table (10-4) MLRP3 – Level “B” (2 of 7)

Process Group	I.D.	Process	Code	Give inputs to			Get outputs from		
				#	Process	Code	#	Process	Code
Planning	6	Develop program schedule	B.6.1	1	Develop program management plan	B.4.2	1	Develop program management plan	B.4.2
				2	Plan communications	B.10.1	2	Define program goals & objectives	B.5.2
				3	Report program performance	B.10.3	3	Conduct program procurements	B.12.2
Planning	7	Plan communications	B.10.1	1	Manage program architecture	B.5.6	1	Monitor & control portfolio risks	B.4.1
				2	Manage component interfaces	B.5.7	2	Develop program management plan	B.4.2
							3	Define program goals & objectives	B.5.2
							4	Develop program schedule	B.6.1
							5	Plan & establish program governance structure	B.15.1
Planning	8	Plan program risk management	B.11.1	1	Identify program risks	B.11.2	1	Develop program management plan	B.4.2
							2	Define program goals & objectives	B.5.2
							3	Plan & establish program governance structure	B.15.1
Planning	9	Identify program risks	B.11.2	1	Manage program issues	B.4.7	1	Develop program management plan	B.4.2
				2	Estimate program costs	B.13.3	2	Plan program risk management	B.11.1
				3	Provide governance oversight	B.15.5			
Planning	10	Develop program financial plan	B.13.2	1	Balance portfolio	A.4.6	1	Develop program management plan	B.4.2
				2	Estimate program costs	B.13.3	2	Define program goals & objectives	B.5.2
				3	Monitor & control program financials	B.13.5	3	Establish program financial framework	B.13.1
Planning	11	Estimate program costs	B.13.3	1	Conduct program procurements	B.12.2	1	Develop program management plan	B.4.2
				2	Budget program costs	B.13.4	2	Identify program risks	B.11.2
							3	Conduct program procurements	B.12.2
							4	Develop program financial plan	B.13.2

Table (10-5) MLRP3 – Level “B” (3 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Planning	12	Budget program costs	B.13.4	1	Close program procurements	B.12.4	1	Develop program management plan	B.4.2
							2	Conduct program procurements	B.12.2
							3	Estimate program costs	B.13.3
							4	Plan program quality	B.15.3
Planning	13	Identify program stakeholders	B.14.2	1	Direct & manage program execution	B.4.4	1	Develop program management plan	B.4.2
							2	Conduct program procurements	B.12.2
				2	Plan program risk management	B.11.1	2	Define program goals & objectives	B.5.2
				3	Provide governance oversight	B.15.5	3	Provide governance oversight	B.15.5
			4	Manage program benefits	B.15.6				
Planning	14	Plan & establish program governance structure	B.15.1	1	Plan communications	B.10.1	1	Develop program management plan	B.4.2
							2	Define program goals & objectives	B.5.2
				2	Plan program risk management	B.11.1	2	Define program goals & objectives	B.5.2
				3	Provide governance oversight	B.15.5	3	Provide governance oversight	B.15.5
			4	Manage program benefits	B.15.6				
Planning	15	Plan program quality	B.15.3	1	Direct & manage program execution	B.4.4	1	Develop program management plan	B.4.2
							2	Define program goals & objectives	B.5.2
Executing	16	Direct & manage program execution	B.4.4	1	Manage program issues	B.4.7	1	Monitor & control portfolio risks	B.4.1
							2	Develop program management plan	B.4.2
							3	Develop program infrastructure	B.4.3
				2	Manage component interfaces	B.5.7	2	Develop program management plan	B.4.2
				3	Approve component initiation	B.15.4	3	Develop program infrastructure	B.4.3
				4	Monitor & control program changes	B.15.7	4	Manage program resources	B.4.5
							5	Monitor & control program performance	B.4.6
			6	Manage component interfaces	B.5.7				
			7	Identify program stakeholders	B.14.2				

Table (10-6) MLRP3 – Level “B” (4 of 7)

Process Group	I.D.	Process	Code	Give inputs to			Get outputs from		
				#	Process	Code	#	Process	Code
Executing	16	Direct & manage program execution	B.4.4				8	Plan program quality	B.15.3
							9	Provide governance oversight	B.15.5
Executing	17	Manage program resources	B.4.5	1	Direct & manage program execution	B.4.4	1	Develop program management plan	B.4.2
							2	Develop program infrastructure	B.4.3
Executing	18	Manage program architecture	B.5.6	1	Manage component interfaces	B.5.7	1	Develop program management plan	B.4.2
							2	Manage component interfaces	B.5.7
							3	Plan communications	B.10.1
Executing	19	Manage component interfaces	B.5.7	1	Develop program management plan	B.4.2	1	Develop program management plan	B.4.2
				2	Direct & manage program execution	B.4.4	2	Direct & manage program execution	B.4.4
				3	Manage program architecture	B.5.6	3	Manage program architecture	B.5.6
							4	Plan communications	B.10.1
Executing	20	Conduct program procurements	B.12.2	1	Develop program schedule	B.6.1	1	Develop program management plan	B.4.2
				2	Estimate program costs	B.13.3	2	Estimate program costs	B.13.3
				3	Budget program costs	B.13.4	3	Plan program quality	B.15.3
				4	Monitor & control program financials	B.13.5			
				5	Identify program stakeholders	B.14.2			
Executing	21	Approve component initiation	B.15.4	1	Manage program benefits	B.15.6	1	Develop program management plan	B.4.2
				2	Monitor & control program changes	B.15.7	2	Direct & manage program execution	B.4.4
Monitoring	22	Monitor & control program performance	B.4.6	1	Direct & manage program execution	B.4.4	1	Develop program management plan	B.4.2
				2	Manage program issues	B.4.7	2	Develop program financial plan	B.13.2
				3	Report program performance	B.10.3	3	Manage program benefits	B.15.6
				4	Close program procurements	B.12.4			

Table (10-7) MLRP3 – Level “B” (5 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Monitoring	23	Manage program issues	B.4.7	1	Provide governance oversight	B.15.5	1	Develop program management plan	B.4.2
				2	Monitor & control program changes	B.15.7	2	Direct & manage program execution	B.4.4
							3	Monitor & control program performance	B.4.6
							4	Define program goals & objectives	B.5.2
							5	Identify program risks	B.11.2
							6	Monitor & control program changes	B.15.7
Monitoring	24	Report program performance	B.10.3	1	Close program procurements	B.12.4	1	Develop program management plan	B.4.2
				2	Provide governance oversight	B.15.5	2	Monitor & control program performance	B.4.6
				3	Manage program benefits	B.15.6	3	Define program goals & objectives	B.5.2
							4	Develop program schedule	B.6.1
							5	Monitor & control program financials	B.13.5
Monitoring	25	Monitor & control program financials	B.13.5	1	Report program performance	B.10.3	1	Develop program management plan	B.4.2
				2	Close program procurements	B.12.4	2	Conduct program procurements	B.12.2
				3	Budget program costs	B.13.4	3	Close program procurements	B.12.4
							4	Develop program financial plan	B.13.2
							5	Budget program costs	B.13.4
Monitoring	26	Provide governance oversight	B.15.5	1	Direct & manage program execution	B.4.4	1	Develop program management plan	B.4.2
				2	Close program	B.4.8	2	Manage program issues	B.4.7
				3	Plan & establish program governance structure	B.15.1	3	Report program performance	B.10.3
				4	Manage program benefits	B.15.6	4	Identify program risks	B.11.2
							5	Close program procurements	B.12.4

Table (10-8) MLRP3 – Level “B” (6 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Monitoring	26	Provide governance oversight	B.15.5			6	Plan & establish program governance structure	B.15.1	
						7	Manage program benefits	B.15.6	
Monitoring	27	Manage program benefits	B.15.6	1	Monitor & control program performance	B.4.6	1	Develop program management plan	B.4.2
				2	Plan & establish program governance structure	B.15.1	2	Report program performance	B.10.3
				3	Provide governance oversight	B.15.5	3	Plan & establish program governance structure	B.15.1
				4	Monitor & control program changes	B.15.7	4	Approve component initiation	B.15.4
						5	Provide governance oversight	B.15.5	
Monitoring	28	Monitor & control program changes	B.15.7	1	Manage program issues	B.4.7	1	Develop program management plan	B.4.2
						2	Direct & manage program execution	B.4.4	
						3	Manage program issues	B.4.7	
						4	Approve component initiation	B.15.4	
						5	Manage program benefits	B.15.6	
Closing	29	Close program	B.4.8	CLOSE OF ALL PROGRAM STRUCTURE		1	Develop program management plan	B.4.2	
						2	Close program procurements	B.12.4	
						3	Provide governance oversight	B.15.5	
Closing	30	Close program procurements	B.12.4	1	Close program	B.4.8	1	Develop program management plan	B.4.2
				2	Monitor & control program financials	B.13.5	2	Monitor & control program performance	B.4.6
				3	Provide governance oversight	B.15.5	3	Report program performance	B.10.3
						4	Conduct program procurements	B.12.2	
						5	Budget program costs	B.13.4	
						6	Monitor & control program financials	B.13.5	

Table (10-9) MLRP3 – Level “B” (7 Of 7)

10.1.3 MLRP3 MODEL – LEVEL C: ACTION MECHANISM AND PROCESSES INTERACTION

MLRP3 – level (C) is the lowest level of MLRP3 model which deals with project management processes. This level is managed and controlled by the project manager ⁽¹⁾ who will report to the related GCR land use reutilization program manager. For any project of GCR land use reutilization and in accordance with the nine project management areas of knowledge as previously illustrated in figure (9-3a) and (9-3b) at chapter nine, the project manager heads nine assistant project managers ⁽²⁾ (integration assistant PM – scope assistant PM – time assistant PM – cost assistant PM – quality assistant PM – human resources assistant PM - communication assistant PM – risk assistant PM - procurement assistant PM). Each assistant PM is responsible for managing the related project management processes during the five stages of the project life cycle (initiation, planning, execution, monitoring / controlling and closing).

As previously shown in tables (9-3a) and (9-3b) at chapter nine, the thesis proposes 30 tailored project management processes. Those processes are suggested to be managed and controlled by the above mentioned nine assistant PMs (each assistant PM will manage the group of processes by management area of knowledge (which have same I.D. code “C.4”, “C.5”, “C.6”, and so on). When managing each process, the responsible assistant PM will work to give certain inputs to other processes of different project management areas of knowledge during different project life cycle stages and will work to get outputs from other processes of different project management areas of knowledge during different project life cycle stages.

Tables (10-10) to (10-16) of MLRP3 model (level - C) show the proposed interrelation / interaction of each project management process with other project management processes. The definition, main activities, key inputs, key outputs, and used management tools and techniques of each project management process (discussed in chapter nine) should be reviewed in detail by each assistant PM in the course of managing each process. Figure (10-4) shows the suggested management processes flow diagram of MLRP3 model (level - C).

1 The project manager could be individual or team subject to the size and scale of the project itself.

2 The nine assistant project managers could be merged into smaller number based on the size of project. In big projects each assistant project manager may has one project coordinator or more; however in small project the project manager can handle the role of all assistant project managers.

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Initiating	1	Develop project charter	C.4.1	1	Develop project management plan	C.4.2	MLRP3 – level A (program) - Project sponsor / initiator		
				2	Collect requirements	C.5.1			
				3	Define scope	C.5.2			
				4	Identify stakeholders	C.10.1			
Initiating	2	Identify stakeholders	C.10.1	1	Develop project management plan	C.4.2	1	Develop project charter	C.4.1
				2	Collect requirements	C.5.1	2	Plan procurement	C.12.1
				3	Plan quality	C.8.1			
				4	Manage stakeholder expectations	C.10.4			
				5	Identify risks & plan risk management	C.11.1/2			
Planning	3	Develop project management plan	C.4.2	1	Direct / manage project execution	C.4.3	1	Develop project charter	C.4.1
				2	Monitor & control project work	C.4.4	2	Monitor & control project work	C.4.4
				3	Perform integrated change control	C.4.5	3	Perform integrated change control	C.4.5
				4	Close project	C.4.6	4	Collect requirements	C.5.1
				5	Control scope	C.5.5	5	Define scope	C.5.2
				6	Control schedule	C.6.6	6	Create WBS	C.5.3
				7	Control costs	C.7.3	7	Plan activities & schedule	C.6.1/5
				8	Perform quality assurance	C.8.2	8	Estimate cost & determine budget	C.7.1/2
				9	Perform quality control	C.8.3	9	Plan quality	C.8.1
				10	Acquire, develop & manage project team	C.9.2/4	10	Perform quality control	C.8.3
				11	Distribute Information	C.10.3	11	Develop human resource plan	C.9.1
				12	Manage stakeholder expectations	C.10.4	12	Acquire, develop & manage project team	C.9.2/4
				13	Report performance	C.10.5	13	Identify stakeholders	C.10.1
				14	Monitor & control risk	C.11.6	14	Plan communication	C.10.2
				15	Conduct procurement	C.12.2	15	Manage stakeholder expectations	C.10.4
				16	Administer procurement	C.12.3	16	Identify risks & plan risk management	C.11.1/2

Table (10-10) MLRP3 – Level “C” (1 Of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Planning	3	Develop project management plan	C.4.2	17	Close procurement	C.12.4	17	Plan procurement	C.12.1
							18	Conduct procurement	C.12.2
							19	Administer procurement	C.12.3
Planning	4	Collect requirements	C.5.1	1	Develop project management plan	C.4.2	1	Develop project charter	C.4.1
				2	Define scope	C.5.2	2	Identify stakeholders	C.10.1
				3	Create WBS	C.5.3			
				4	Control scope	C.5.5			
				5	Plan procurement	C.12.1			
Planning	5	Define Scope	C.5.2	1	Develop project management plan	C.4.2	1	Develop project charter	C.4.1
				2	Create WBS	C.5.3	2	Collect requirements	C.5.1
				3	Plan activities & schedule	C.6. ^{1/5}			
				4	Identify risks & plan risk management	C.11. ^{1/2}			
Planning	6	Create WBS	C.5.3	1	Develop project management plan	C.4.2	1	Collect requirements	C.5.1
				2	Plan activities & schedule	C.6. ^{1/5}	2	Define scope	C.5.2
				3	Estimate cost & Determine budget	C.7. ^{1/2}			
				4	Plan quality	C.8.1			
				5	Identify risks & plan risk management	C.11. ^{1/2}			
				6	Plan procurement	C.12.1			
Planning	7	Define / Plan activities & schedule	C.6. ^{1/5}	1	Develop project management plan	C.4.2	1	Define scope	C.5.2
				2	Control schedule	C.6.6	2	Create WBS	C.5.3
				3	Estimate cost & Determine budget	C.7. ^{1/2}	3	Acquire, develop & manage project team	C.9. ^{2/4}
				4	Plan quality	C.8.1	4	Conduct procurement	C.12.2
				5	Develop human resource plan	C.9.1			
				6	Identify risks & plan risk management	C.11. ^{1/2}			
				7	Plan procurement	C.12.1			

Table (10-11) MLRP3 – Level “C” (2 of 7)

process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Planning	8	Estimate cost & Determine budget	C.7.1/2	1	Develop PM plan	C.4.2	1	Create WBS	C.5.3
				2	Control costs	C.7.3	2	Plan activities & schedule	C.6.1/5
				3	Plan quality	C.8.1	3	Identify risks & plan risk management	C.11.1/2
				4	Develop human resource plan	C.9.1	4	Conduct procurement	C.12.2
				5	Acquire, develop & manage project team	C.9.2/4			
				6	Identify risks & plan risk management	C.11.1/2			
				7	Plan procurement	C.12.1			
Planning	9	Plan quality	C.8.1	1	Develop PM plan	C.4.2	1	Create WBS	C.5.3
				2	Perform quality assurance	C.8.2	2	Plan activities & schedule	C.6.1/5
				3	Perform quality control	C.8.3	3	Estimate cost & Determine budget	C.7.1/2
				4	Identify risks & plan risk management	C.11.1/2	4	Identify stakeholders	C.10.1
							5	Identify risks & plan risk management	C.11.1/2
Planning	10	Develop human resource plan	C.9.1	1	Develop project management plan	C.4.2	1	Plan activities & schedule	C.6.1/5
							2	Estimate cost & Determine budget	C.7.1/2
Planning	11	Plan communication	C.10.2	1	Develop project management plan	C.4.2	1	Identify stakeholders	C.10.1
				2	Identify risks & plan risk management	C.11.1/2			
Planning	12	Identify risks & plan risk management	C.11.1/2	1	Develop project management plan	C.4.2	1	Define scope	C.5.2
				2	Estimate cost & Determine budget	C.7.1/2	2	Create WBS	C.5.3
				3	Plan quality	C.8.1	3	Plan activities & schedule	C.6.1/5
				4	Monitor & control risks	C.11.6	4	Estimate cost & Determine budget	C.7.1/2
				5	Plan procurement	C.12.1	5	Plan quality	C.8.1
							6	Identify stakeholders	C.10.1
							7	Plan communication	C.10.2

Table (10-12) MLRP3 – Level “C” (3 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Planning	13	Plan procurement	C.12.1	1	Develop project management plan	C.4.2	1	Collect requirements	C.5.1
				2	Perform integrated change control	C.4.5	2	Create WBS	C.5.3
				3	Identify stakeholders	C.10.1	3	Plan activities & schedule	C.6. ^{1/5}
				4	Conduct procurement	C.12.2	4	Estimate cost & Determine budget	C. 7. ^{1/2}
				5	Administer procurement	C.12.3	5	Identify risks & plan risk management	C.11. ^{1/2}
Executing	14	Direct / manage project execution	C.4.3	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
				2	Control scope	C.5.5	2	Perform integrated change control	C.4.5
				3	Control schedule	C.6.6			
				4	Control costs	C.7.3			
				5	Perform quality assurance	C.8.2			
				6	Perform quality control	C.8.3			
				7	Report performance	C.10.5			
				8	Monitor & control risks	C.11.6			
				9	Administer procurement	C.12.3			
Executing	15	Perform quality assurance	C.8.2	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
						2	Direct / manage project execution	C.4.3	
						3	Plan quality	C.8.1	
						4	Perform quality control	C.8.3	
Executing	16	Acquire, develop & manage project team	C.9. ^{2/4}	1	Develop project management plan	C.4.2	1	Develop project management plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Estimate cost & Determine budget	C. 7. ^{1/2}
				3	Plan activities & schedule	C.6. ^{1/5}	3	Report performance	C.10.5
						4	Conduct procurement	C.12.2	

Table (10-13) MLRP3 – Level “C” (4 of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Executing	17	Distribute information	C.10.3			1	Develop Project Management plan	C.4.2	
						2	Report performance	C.10.5	
Executing	18	Manage stakeholder expectation	C.10.4	1	Develop PM plan	C.4.2	1	Develop PM plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Identify stakeholders	C.10.1
Executing	19	Conduct procurement	C.12.2	1	Develop PM plan	C.4.2	1	Develop PM plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Plan procurement	C.12.1
				3	Plan activities & schedule	C.6.1/5			
				4	Estimate cost & Determine budget	C.7.1/2			
				5	Acquire, develop & manage project team	C.9.2/4			
Executing	20	Monitor & control project work	C.4.4	1	Develop PM plan	C.4.2		Develop PM plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Report performance	C.10.5
Monitoring	21	Perform integrated change control	C.4.5	1	Develop PM plan	C.4.2	1	Develop PM plan	C.4.2
				2	Perform quality control	C.8.3	2	Direct / manage project execution	C.4.3
						3	Monitor & control project work	C.4.4	
						4	Control scope	C.5.5	
						5	Control schedule	C.6.6	
						6	Control costs	C.7.3	
						7	Perform quality assurance	C.8.2	
						8	Perform quality control	C.8.3	
						9	Acquire, develop & manage project team	C.9.2/4	
						10	Manage stakeholder expectation	C.10.4	
						11	Report performance	C.10.5	
						12	Monitor & control risks	C.11.6	
						13	Plan procurement	C.12.1	
						14	Conduct procurement	C.12.2	
						15	Administer procurement	C.12.3	

Table (10-14) MLRP3 – Level “C” (5 Of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Monitoring	22	Control scope	C.5.5	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
				2	Close project	C.4.6	2	Direct / manage project execution	C.4.3
				3	Perform quality control	C.8.3	3	Collect requirements	C.5.1
				4	Report performance	C.10.5			
Monitoring	23	Control schedule	C.6.6	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
				2	Perform quality control	C.8.3	2	Plan activities & schedule	C.6. ^{1/5}
				3	Report performance	C.10.5			
Monitoring	24	Control costs	C.7.3	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
				2	Perform quality control	C.8.3	2	Direct / manage project execution	C.4.3
				3	Report performance	C.10.5	3	Estimate cost & Determine budget	C. 7. ^{1/2}
Monitoring	25	Perform quality control	C.8.3	1	Develop project management plan	C.4.2	1	Develop project management plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Direct / manage project execution	C.4.3
				3	Perform quality assurance	C.8.2	3	Perform integrated change control	C.4.5
							4	Control scope	C.5.5
							5	Control schedule	C.6.6
							6	Control costs	C.7.3
							7	Plan quality	C.8.1
Monitoring	26	Report performance	C.10.5	1	Monitor & control project work	C.4.4	1	Develop project management plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Direct / manage project execution	C.4.3
				3	Acquire, develop & manage project team	C.9. ^{2/4}	3	Control scope	C.5.5
				4	Distribute information	C.10.3	4	Control schedule	C.6.6
				5	Monitor & control risks	C.11.6	5	Control costs	C.7.3
				6	Administer procurement	C.12.3			

Table (10-15) MLRP3 – Level “C” (6 Of 7)

Process Group	I.D.	Process	Code	Give inputs to		Get outputs from			
				#	Process	Code	#	Process	Code
Monitoring	27	Monitor & control risks	C.11.6	1	Perform integrated change control	C.4.5	1	Develop project management plan	C.4.2
							2	Direct / manage project execution	C.4.3
							3	Report performance	C.10.5
							4	Identify risks & plan risk management	C.11.1/2
Monitoring	28	Administer procurement	C.12.3	1	Develop project management plan	C.4.2	1	Develop project management plan	C.4.2
				2	Perform integrated change control	C.4.5	2	Direct / manage project execution	C.4.3
				3	Close procurement	C.12.4	3	Report performance	C.10.5
							4	Plan procurement	C.12.1
							5	Conduct procurement	C.12.2
Closing	29	Close project	C.4.6	1	CLIENT DELIVERY		1	Develop project management plan	C.4.2
							2	Control scope	C.5.5
							3	Close procurement	C.12.4
Closing	30	Close procurement	C.12.4	1	Close project	C.4.6	1	Develop project management plan	C.4.2
								Administer procurement	C.12.3

Table (10-16) MLRP3 – Level “C” (7 of 7)

10.2 RESEARCH GENERAL CONCLUSIONS

- The land use transformation process which is defined as the invasion of stronger land use, over weaker, in terms of prevailing demand is causing changes in the urban land use patterns, may be directing the city urban development process versus the sustainability and ecological principles. Land use reutilization process is an urban planning treatment which is extremely needed to deal with the bad effect changes and shifts of land use transformation.
- Strategic planning is a systematic, creative, and comprehensive process of determining the organization's future goals and objectives and developing strategies which will govern the acquisition and use of the resources to achieve these objectives.
- Land use reutilization objectives could be classified under three different categories; urban, environmental, socio-economical. A well-governed city establishes a clear vision & mission accompanied with strategic planning which brings together those objectives and draws the roadmap of land use reutilization activities.
- 3PM is an international management term which refers to the three levels of management (project management, program management, and portfolio management). The context where 3PM interact is internationally known as "OPM" (Organizational Project Management) which is the systematic management of projects, programs, and portfolios in alignment with the organization's strategic business goals to provide a framework to develop comprehensive methodology of managing land use reutilization projects.
- 3PM life cycle is a collection of sequential and sometimes overlapping phases in each management level which provides the basic framework for managing the project, program, and portfolio.
- As per PMI standards, there are 42 standard project management processes categorized under nine areas of management knowledge; 47 standard program management processes categorized under twelve areas of management knowledge; and 14 standard portfolio management processes categorized under two areas of management knowledge.
- There are sets of 3PM management tools and techniques which are management aids used for running 3PM processes. 3PM management

tools and techniques are commonly used in running many processes within different management areas of knowledge.

- There are different international cities in developed countries with case studies where OPM approach has been implemented in managing their land use reutilization projects. The thesis discusses four different case studies which have outcomes representing the implementation of extensive portfolio, program, and project management processes and related tools and techniques in different levels. Each case has its own level of organizational management maturity and different combination of 3PM processes.
- There are main common criteria which have been followed in the management approaches of the four presented case studies, could be summarized as follows:
 - Urban, socioeconomic, and ecological objectives have been determined through the strategic plan preparation process of each case study; accordingly the portfolios, programs, and projects have been identified and then OPM management approach has been used.
 - OPM methodology is an integration management methodology which many stakeholders participating in and usually presented by either the controlling committee or board, including local authorities, private investors, researchers, consultants, contractors, and citizen groups.
 - Various management tools and techniques have been used in most of 3PM management processes such as Critical Path Method, Critical Chain Method, and What-If scenario.
 - Detailed management plans in different management areas of knowledge have been implemented on the three levels of 3PM.
 - Quality metrics and checklists have been determined by certain quality committees which have been formed for each case study; accordingly, quality assurance and quality control processes have been performed.
 - Risk management approach, risk assessment which identifies portfolio, program, and project risks, impacts, probabilities, severity and contingency plans have been implemented. Corrective actions are generated accordingly.
 - The case studies have been decomposed into portfolios, programs, and projects. This approach helped in mitigating any anticipated risk impact and gave the chance to evaluate each project and set the lesson

learned list to be used in coming projects within different programs and portfolios.

- GCR has been selected as a case study to test the methodology of land use reutilization management due to the followings: economic importance, overpopulation, rapid urban sprawl and urban transformation process which leads to inappropriate land uses and calling for urgent land use reutilization projects.
- The main challenges facing GCR are: the inefficiency of infrastructure and public services, mismatching between housing supply and demand, unemployment, environmental pollution, severe traffic congestion, and complexity of institutional arrangements.
- There are sets of laws and regulations affecting the land use reutilization processes and their management, such as: Law of Building no. 119 of 2008, Law of Local Administration System no. 43 of 1979, Law of Expropriation of Property for Public Interest no. 10 of 1990, Law of Cemeteries no. 5 of 1966, and Law of Protection of Monuments no. 117 of 1983.
- In order to deal with GCR challenges and their consequences and in an effort to reposition GCR and grasp its competitive endowments and improve service delivery, the former Egyptian government embarked on a process of preparing a strategic urban development master plan for the region (GCR - PSMP) which considers many projects of land use reutilization projects.
- GCR - PSMP Vision is to manage GCR to attain a better quality of life for its inhabitants, increase its competitiveness, and enhance its position as a global city. Where its Mission is Making Cairo to be a better city to live in, well planned, more prosperous with strong economic activities, well-balanced urban structure, more environmentally friendly city.
- The former Egyptian Government through GOOP builds GCR - PSMP Organizational Strategy to define how the vision and mission will be achieved. Accordingly, GCR - PSMP Organizational Strategy has been built based on the following five main themes: living in Cairo, working in Cairo, connecting in Cairo, managing natural environment, designing a sustainable city.
- Based on GCR - PSMP Organizational Strategies and their objectives, GCR - PSMP produced a preliminary Land Use Structure Plan depending on the concept of land use reutilization inside GCR urban space. Subsequently, either relocation of improper uses like cemeteries,

industrial zones, and governmental buildings, or rehabilitation of ruined / slum areas must be executed.

- **GCR - PSMP** defined, tentatively, 52 programs and projects which need to be managed to achieve the determined objectives. This could be classified, based on their interrelationship with land use reutilization, into three groups as follows: direct relation, indirect relation, no relation.
- Twenty two programs and projects out of total 52 **GCR - PSMP** programs and projects are related directly or indirectly to land use reutilization activities. Based on this relative importance, the thesis hypothesizes the existence of stand-alone portfolio of GCR land use reutilization which includes those 22 programs and portfolios within 3PM context and examines how they could be managed by an integral manner, using OPM methodology.
- The thesis proposes six number of programs under the portfolio of GCR Land Use Reutilization, which they are: land use reutilization of cemeteries, land use reutilization of ruined / slum areas, land use reutilization of ministries and governmental buildings, land use reutilization of industrial zones, land use reutilization of transportation and traffic uses, and land use reutilization of miscellaneous uses.
- Each program includes a number of related projects; for example: the program of land use reutilization of cemeteries includes a set of projects involved in relocation of the cemetery lands which are located inside GCR urban space.
- The thesis discusses the implementation of OPM methodology in GCR through the three 3PM levels to conclude comprehensive and examined management methodology which aims to set a precise management framework and sequenced / interrelated management processes which could be applied within the execution of any future strategic urban development master plan for sustainable development of GCR.
- Particular OPM processes have been tailored for **GCR - PSMP** Land Use Reutilization Portfolio whose components are as follows: 14 management processes have been determined, tailored and described for managing the portfolio, 30 management processes have been determined, tailored and described for managing any subordinate program, and 30 management processes have been determined, tailored and described for managing any subordinate project.

- An integrated 3PM Model (**Management of Land use Reutilization Portfolio, Program, and Project** “MLRP3 model”) has been formulated as a standard and flexible model which could be applied during the different management processes of organizational management for the execution of any future Strategic Urban Development Master Plan for sustainable development of GCR in particular, and for any different types / categories of urban land use reutilization projects, related to other regions, in general.
- MLRP3 model has been formulated in three levels: Level (A) of Portfolio Management, Level (B) of Program Management, Level (C) of Project Management, where each level contains the tailored management processes. The highest level of the model is controlled along with GCR - PSMP vision, mission, and strategic objectives by proposed management council (Supreme Council of Land use Management "SCLM").

10.3 RESEARCH GENERAL RECOMMENDATIONS

- In the context of expected booming within the few coming years in Egypt accompanied with the recent political changes of 25 January 2011 popular revolution, it is expected that many projects of different strategic urban development master plans will be executed. The trend should be to get strategic goals and objectives achieved rather than putting shiny strategies with implementation difficulties. This trend calls for concentrating on producing an efficient mechanism for implementing management approaches which are consistent with the modern international management approaches, while maintaining the particularity of Egyptian experiment.
- Any proposed management methodology which is dealing with the strategic planning objectives, should consider the different ideas of influential civil society leaders and encourage participation of private sector investors by offering them adequate incentives.
- Give adequate attention to the scientific management solutions of urban land use reutilization in general and develop a comprehensive plan of the 3PM knowledge and skills at different levels for the related government executives and employees.
- Activate the Egyptian role in developing its unique management models for land use reutilization projects, considering that Egypt has its unique configurations of urban land uses. Those models will offer Egypt the

leadership in the management of land use reutilization solutions in the Middle East and Arab world.

- Develop special web-based software applications for dealing with the land use reutilization management models which may be linked with other software applications, either of urban planning and GIS developments (GeaBios, Geo Media Professional, and Arc GIS Desktop) or of 3PM management developments (Primavera Project Planner, CA clarity PPM, AtTask, and Microsoft Office Project Server).
- Develop a specialized and independent “Board of High Authorities” for managing and controlling the urban land use reutilization activities, its related processes, and stakeholders (the proposed Supreme Council of Land Use Management "SCLM" will be reporting directly to the Cabinet of Ministers).

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كلية الهندسة
قسم التخطيط العمرانى

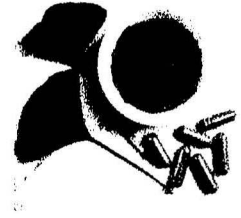
مدخل لمنهجية إدارة إعادة توظيف استعمالات الأراضى
دراسة حالة إقليم القاهرة الكبرى

رسالة مقدمة من
المهندس / وليد محمد محمد صادق
للحصول على درجة الدكتوراه
فى التخطيط العمرانى

إشراف

أ.د./ محمد تامر زكريا الخرزاتى
الأستاذ بقسم التخطيط العمرانى
كلية الهندسة - جامعة عين شمس

أ.د./ يوهانس-ن يحيى عيـد
وكيل الكلية السابق لشئون الدراسات العليا
والأستاذ بقسم التخطيط العمرانى
كلية الهندسة - جامعة عين شمس



ملخص البحث

" إن المدينة يمكن تشبيهها بالكائن الحى الذى يحتاج دوماً إلى حيز مكاني متمسح يمارس فيه بعض التمارين الرياضية لتقوية جسده الذى هو تحت ضغوط الحياة اليومية عرضه إلى الإجهاد والإرهاق وضيق التنفس أو تصلب وانسداد الشرايين ، بل وفى أحيان أخرى حرجة قد يتعرض إلى السكتة الدماغية. وفى هذه الحالات المستعصية فإن العلاجات المسكنة غالباً ما تكون عديمة الفائدة ، حيث أن العلاج السليم قد يستلزم إجراء عملية جراحية دقيقة فى القلب أو الأوردة والشرايين ، ويستتبعها اتباع مستمر لنظام غذائى معين "

هاورد سالمن (١٩٧١). "هاوسمان : تحول مدينة باريس - ص ١١٧".

إن أهم ما يميز أى مدينة ويعطيها طابعها الخاص هو نمطها العمرانى والمعمارى والذى يتنوع باختلاف الثقافات الحياتية لسكانى كل مدينة بالإضافة إلى الظروف التشغيلية لمرافق وخدمات المدينة. ومع التغيرات الاقتصادية والاجتماعية والسياسية الناشئة عن تطور الاحتياجات مكانياً وزمانياً ، فإنه يحدث نوع من التغيير للنمط العمرانى للمدينة أو ما يعرف بالتحول العمرانى للمدينة. وفى أحوال كثيرة - وخاصة بمدن الدول النامية - فإن هذه التغيرات غالباً ما توجه المدينة بعيداً عن مبادئ التنمية المستدامة ، وفى اتجاه المزيد من المعاناه بيئياً واقتصادياً واجتماعياً.

ومن وقت لآخر تظهر الحاجة الماسة إلى تدخل المخطط العمرانى ببعض المعالجات العمرانية فى محاولات إصلاحية للمشاكل التى قد يسببها التحول العمرانى للمدينة ذو الإتجاه السلبى عمرانياً وبيئياً بل ومحاوله توجيه ذلك التحول إلى الإتجاه العكسى الإيجابى. ويجب أن تكون أعمال المعالجات العمرانية عمليات مستمرة بحيث تواكب مختلف التغيرات الاجتماعية والاقتصادية والسياسية بالمدينة.

ويعد إقليم القاهرة الكبرى والذى يضم أكبر ثلاثة مدن مصرية من حيث عدد السكان والأهمية الاقتصادية - القاهرة والجيزة والقليوبية - من أسرع الأقاليم المصرية تحولاً باتجاه المزيد من المشاكل العمرانية مع افتقاره الشديد لعمليات المعالجات العمرانية المستمرة، وعلى مدار الثلاثة عقود الماضية فإن الحكومات المصرية المتعاقبة قامت بمحاولات مختلفة لتطوير مخططات استراتيجية لإقليم القاهرة الكبرى، وبصرف النظر عن مدى ملاءمة أو كفاءة هذه المحاولات فإن أحداً من هذه المحاولات لم يحقق أهدافه كاملة وإنما فى أحسن الاحوال تم تحقيق بعض الأهداف بصورة جزئية.

وقد بدأت المحاولة الأخيرة في النصف الثاني من العقد الماضي لإعداد مخطط استراتيجي للتنمية العمرانية المستدامة لإقليم القاهرة الكبرى حتى عام ٢٠٥٠ والذي يعرف بـ "القاهرة ٢٠٥٠"، حيث يهدف إلى الوصول إلى تصور مجتمعي للإقليم ويحدد التوجه الذي يجب أن تكون عليه العاصمة من حيث كونها إما مركزا ثقافيا وتاريخيا أو مركزا ماليا للشرق الأوسط أو أن تكون المدينة الأشهر في جودة الحياة والبيئة بالمنطقة.

ومن المؤكد أن إعادة توظيف استعمالات الأراضي تعتبر من أهم المشروعات التي سيتم إدارتها أثناء تنفيذ المخطط الاستراتيجي للإقليم، حيث توجد العديد من استعمالات الأراضي الحضرية التي لا تتناسب مع أي توجه تنموي مزعم بالإقليم، فالعديد من المناطق الحضرية التي تم تخطيطها قديما خارج الحيز العمراني لمدينة الإقليم كالمناطق الصناعية والحرفية والمطارات وتكنات الجيش وأيضا المقابر أصبحت معظمها الآن تقع داخل الحيز العمراني بفعل التحول العمراني بل في أحيان كثيرة أصبحت تقع في قلب المدن، وهناك أيضا مناطق حضرية تم إنشائها قديما بناء على الأسس والمعايير التخطيطية السائدة في ذلك الوقت والمستنتجة من ظروف المدينة وسكانها آنذاك، إلا أنه مع التحول العمراني الناتج عن معطيات اجتماعية واقتصادية وسياسية لم يتم التجاوب معها فقد ساعات أوضاع هذه المناطق بحيث أصبحت متهاكلة وفي حاجة ماسة إلى مشروعات إعادة تأهيل عمراني. كما توجد أيضا العديد من المناطق العشوائية التي نشأت وتوسعت - لأسباب متعددة - ملاصقة للمناطق الحضرية المخططة في غيبة من الرقابة الحكومية مسببة العديد من المشاكل العمرانية الخطيرة.

وفي جميع الحالات السابقة يمكن أن تكون مشروعات إعادة توظيف استعمالات الأراضي إحدى أهم أنماط المشروعات التخطيطية التي يمكن تنفيذها ضمن حزم مشروعات المخطط الاستراتيجي للإقليم، وعلى ذلك فإن طريقة إدارة هذه النوعية من المشروعات تعد أهم عوامل نجاحها أو فشلها وبالتالي تحقيق أو عدم تحقيق أهداف المخطط الاستراتيجي للإقليم. وبالفعل فإنه وعبر سنوات طوال وجدت محاولات جزئية للتعامل مع بعض هذه الحالات، حيث نفذت بعض مشروعات إعادة توظيف استعمالات الأراضي، وقد نجح بعضها وأخفق البعض الآخر في تحقيق أهدافه.

تعريف المشكلة :

تعد مشروعات إعادة توظيف استعمالات الأراضي من أهم أنماط مشروعات التخطيط العمراني التي يمكن تنفيذها لتحقيق أهداف المخطط الاستراتيجي للتنمية العمرانية المستدامة بإقليم القاهرة الكبرى، وتكمن مشكلة البحث الرئيسية في حقيقة أن معظم مشروعات إعادة توظيف استعمالات الأراضي التي تم تنفيذها بإقليم القاهرة الكبرى تم إدارتها بصورة جزئية وبصور خاص يحقق أهداف معينة قد لا تتكامل في أحيان كثيرة مع الأهداف العامة لتطوير الإقليم في صورته الأشمل.

تستدعي أهمية مشروعات إعادة توظيف استعمالات الأراضي صياغة منهجية شاملة مرنة ومختبرة لإدارة هذه النوعية من المشروعات على اختلاف أنماطها وأهدافها ضمن حزم وبرامج مشروعات المخطط الاستراتيجي، ومن ثم استنباط نموذج قياسي مرن لإدارة هذه الحزم والبرامج والمشروعات يمكن تطبيقه في إطار تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى.

فرضية البحث :

إن منهجية الإدارة التنظيمية للمشروعات (Organizational Project Management) "OPM" عن طريق تطوير علاقات متبادلة محددة بين مجموعة من عملياتها الإدارية القياسية المختارة على مستوى الحزم والبرامج والمشروعات تشكل مدخلا لمنهجية إدارة شاملة وتصيغ نموذج إدارة (MLRP³ model) يستخدم لإدارة مشروعات إعادة توظيف استعمالات الأراضي أثناء تنفيذ المخططات الاستراتيجية للتطوير العمراني المستدام للإقليم.

ويوفر نموذج الإدارة المقترح (MLRP³) إطاراً حاكماً للمجالات المعرفية المختلفة لإدارة مشروعات إعادة توظيف استعمالات الأراضي، والتي تشمل إدارة كل من (التكامل، النطاق، الوقت، التكلفة، الجودة، الموارد البشرية، الاتصالات، المخاطر، المشتريات)، كما أنه يهيئ مجالاً مناسباً للتخطيط والتنفيذ والمراقبة ووضع الإجراءات التصحيحية اللازم اتخاذها أثناء المراحل المختلفة وذلك لتأكيد الإنهاء الناجح لمشروعات إعادة توظيف استعمالات الأراضي في إطار تحقيق أهداف المخطط الاستراتيجي للإقليم.

أهداف البحث :

اعتماداً على كل من دراسات التنمية العمرانية المستدامة والإدارة التنظيمية للمشروعات بمستوياتها الثلاثة (الحزم والبرامج والمشروعات) كمجالين من مجالات المعرفة العلمية فإن هذا البحث يحاول تحقيق هدفين رئيسيين :

- استنباط مدخل لمنهجية شاملة مرنة ومختبرة تهدف إلى وضع إطار حاكم لعمليات إدارية مختارة ذات علاقات متبادلة قياسية على المستويات الثلاثة للإدارة التنظيمية للمشروعات وذلك لمشروعات إعادة توظيف استعمالات الأراضي التي يتم إدارتها أثناء تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى على وجه التحديد، أو أي مخططات استراتيجية للتطوير العمراني المستدام لأقاليم أخرى بوجه عام.
- استخدام منهجية الإدارة التنظيمية للمشروعات (OPM) لصياغة نموذج إدارة قياسي متكامل ومرن (MLRP³) يمكن تطبيقه على مستويات الإدارة الثلاثة (الحزم والبرامج والمشروعات) لإدارة مشروعات إعادة توظيف استعمالات الأراضي أثناء تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى على وجه التحديد، أو أي مخططات استراتيجية للتطوير العمراني المستدام لأقاليم أخرى بوجه عام.

منهجية البحث :

لكي يصل البحث إلى أهدافه ويختبر فرضية البحث ، فإنه سوف يبدأ باستعراض شامل لأهم النظريات والمفاهيم الرئيسية الخاصة باستخدامات الأراضي الحضرية وأنماطها وتوزيعها المكاني وعمليات التحول العمراني بها ، وكذلك مدى الحاجة إلى إعادة توظيف بعض استعمالات هذه الأراضي، كما سيستعرض البحث أهم مبادئ التخطيط الاستراتيجي ومداخل الإدارة التي يمكن استخدامها لتحقيق الأهداف الاستراتيجية ، ومن ثم وضع فهم للعلاقة المتبادلة بين إعادة توظيف استعمالات الأراضي وإدارة المخطط الاستراتيجي.

سيقوم البحث بعد ذلك بتقصي وفحص أهم مداخل الإدارة الحديثة للأنماط المختلفة لمشروعات إعادة توظيف استعمالات الأراضي بأماكن مختلفة ببعض المدن العالمية في إطار مخططاتها الاستراتيجية ، ثم محاولة فهم وتفسير هذه المداخل واعتمادياتها المختلفة كظاهرة بحثية.

وكهدف أساسي فإن البحث يسير من فحص الجزئيات المتعلقة بهذه الظاهرة إلى كشف القاعدة أو المبدأ العام الذي يحكم تلك الجزئيات ، مع استنباط المدخل المناسب لمنهجية شاملة ومرنة لإدارة مشروعات إعادة توظيف استعمالات الأراضي وذلك باستخدام منهجية الإدارة التنظيمية للمشروعات (OPM)، ومن ثم صياغة نموذج إدارة قياسي متكامل ومرن (MLRP³) يمكن تطبيقه على مستويات الإدارة الثلاثة (الحزم والبرامج والمشروعات) لإدارة مشروعات إعادة توظيف استعمالات الأراضي أثناء تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى على وجه التحديد، أو أى مخططات استراتيجية للتطوير العمرانى المستدام لأقاليم أخرى بوجه عام.

هيكلية البحث :

ينقسم البحث للوصول إلى أهدافه إلى أربعة أبواب رئيسية ، يحتوى كل باب منها على عدة فصول كالتالى :

الباب الأول : إعادة توظيف استعمالات الأراضي وإدارة التخطيط الاستراتيجي - فهم العلاقة المتبادلة

ينقسم هذا الفصل إلى أربعة فصول كالتالى :

الفصل الأول : عمليات إعادة توظيف استعمالات الأراضي : المبدأ والأهمية

يناقش هذا الفصل أنماط استعمالات الأراضي الحضرية ونظريات توزيعها المكانية داخل الأحوزة العمرانية للمدن والتأثيرات المختلفة لاستراتيجيات التوزيع المكانية لها، ثم يلقي الضوء على عمليات تحول استعمالات الأراضي بالمدينة وأسبابها المختلفة التى توجه النمط العمرانى للمدينة وبالتالي الاحتياج إلى عمليات إعادة توظيف بعض استعمالات الأراضي بالمدينة وبالتبعية كيفية إدارة هذه العمليات.

الفصل الثانى : التخطيط الاستراتيجي : المدخل والهيكلية

يهدف هذا الفصل إلى التعرف على أهم المبادئ والمفاهيم الرئيسية للتخطيط الاستراتيجي ودورها فى تطوير استعمالات الأراضي الاقليمية وذلك من خلال استعراض الإطار النظرى والتاريخي للتخطيط الاستراتيجي، ثم ينتقل الفصل إلى عرض لأهم أدوات التخطيط الاستراتيجي المستخدمة فى تطوير استعمالات الأراضي الاقليمية.

الفصل الثالث : عمليات إعادة توظيف استعمالات الأراضي : تحقيق الأهداف ومداخل إدارة الحزم والبرامج والمشروعات / الإدارة التنظيمية للمشروعات

يهدف هذا الفصل إلى استعراض أهم الأهداف العامة الممكن تحقيقها أثناء عمليات إعادة توظيف استعمالات الأراضي ضمن المخطط الاستراتيجي وعلى مستويين عمرانيين: مستوى المدينة ومستوى الإقليم. وسيتناول الفصل الأوجه المختلفة التي يمكن أن تشملها هذه الأهداف عمرانياً وبيئياً واقتصادياً واجتماعياً، ومن ثم سيليقي الفصل الضوء على مداخل إدارة الحزم والبرامج والمشروعات ومنهجية الإدارة التنظيمية للمشروعات، وكذلك العلاقة بين التخطيط الاستراتيجي ومنهجية الإدارة التنظيمية للمشروعات والتكامل مع الحوكمة التنظيمية.

الفصل الرابع : إدارة الحزم والبرامج والمشروعات - تكامل العمليات ووسائل الإدارة

يهدف هذا الفصل إلى استعراض عمليات إدارة الحزم والبرامج والمشروعات كما تحددها المقاييس العالمية للمعهد الأمريكي لإدارة المشروعات (PMI)، حيث يستعرض التعريفات الخاصة بالعمليات القياسية لإدارة الحزم والبرامج والمشروعات وأهم مدخلاتها ومخرجاتها وأدواتها في إطار الإدارة التنظيمية للمشروعات من أجل تحقيق المتطلبات والأهداف الاستراتيجية المحددة.

الباب الثاني : التجارب العالمية لتحقيق أهداف إعادة توظيف استعمالات الأراضي ومداخل الإدارة

ينقسم هذا الباب إلى فصلين (الخامس والسادس) واللذان يعرضان بعض الحالات الدراسية لمدن عالمية ذات تجارب في مناهج الإدارة الحديثة لمشروعات إعادة توظيف استعمالات الأراضي.

الفصل الخامس : عمليات إعادة توظيف استعمالات الأراضي : مدخل الإدارة لتحقيق الأهداف - مدينتين غربيين عالميتين

يستعرض هذا الفصل تجربتين لمدينتين عالميتين، الأولى أوروبية بدولة السويد (مالم) والثانية بالولايات المتحدة الأمريكية (نيو أورلينز)، حيث يناقش الفصل عمليات تحول استعمالات الأراضي بهما وأهدافها، ومداخل الإدارة الحديثة التي اتبعت لتحقيق أهداف مشروعات إعادة توظيف استعمالات الأراضي بهما.

الفصل السادس : عمليات إعادة توظيف استعمالات الأراضي : مدخل الإدارة لتحقيق الأهداف - مدينتين عالميتين بجنوب شرق آسيا

يستعرض هذا الفصل تجربتين لمدينتين عالميتين بجنوب شرق آسيا (سنغافورة وهونج كونج)، حيث يناقش الفصل عمليات تحول استعمالات الأراضي بهما وأهدافها، ومداخل الإدارة الحديثة التي اتبعت لتحقيق أهداف مشروعات إعادة توظيف استعمالات الأراضي بهما.

الباب الثالث : إعادة توظيف استعمالات الأراضي بإقليم القاهرة الكبرى - مدخل لمنهجية الإدارة

ينقسم هذا الباب إلى فصلين (السابع والثامن)، ويتناول بالدراسة والتحليل إقليم القاهرة الكبرى من حيث الأوضاع الراهنة به ومشاكله ومدى احتياجه لمشروعات إعادة توظيف استعمالات الأراضي وتطبيقها من خلال رؤية المخطط الاستراتيجي (القاهرة ٢٠٥٠).

الفصل السابع : إقليم القاهرة الكبرى - الوضع الراهن وضرورة إعادة توظيف استعمالات الأراضي

يتناول هذا الفصل بالدراسة والتحليل الوضع الراهن لإقليم القاهرة الكبرى لتحديد مواطن القوة والضعف، ومن ثم التعرف على التأثيرات المحتملة أثناء إدارة مشروعات إعادة توظيف استعمالات الأراضي. كما يتناول الفصل بالعرض المشاكل التي يعاني منها الإقليم من عدة أوجه فيما يخص توزيع استعمالات الأراضي الحضرية بالإقليم، وأخيرا يتعرض الفصل لأهم أسباب احتياج الإقليم لمشروعات إعادة توظيف استعمالات الأراضي.

الفصل الثامن : المخطط الاستراتيجي لإقليم القاهرة الكبرى - الرؤية والمهمة والأهداف التنظيمية الاستراتيجية لمشروعات إعادة توظيف استعمالات الأراضي

يتناول هذا الفصل بالدراسة والتحليل المخطط الاستراتيجي لإقليم القاهرة الكبرى (القاهرة ٢٠٥٠) من حيث الرؤية والمهمة والاستراتيجية التنظيمية والأهداف والغايات المحددة من جانب هيئة التخطيط العمراني الممثلة للحكومة المصرية، ثم يناقش دور إعادة توظيف استعمالات الأراضي في إطار مخطط القاهرة ٢٠٥٠ ومدخل الإدارة لأنماط المختلفة لمشروعات إعادة توظيف استعمالات الأراضي بالمخطط.

الباب الرابع : إدارة إعادة توظيف استعمالات الأراضي - التكامل مع منهجية الإدارة التنظيمية للمشروعات

ينقسم هذا الباب إلى فصلين (التاسع والعاشر) ويهدف إلى صياغة فرضية البحث وعرض أهم النتائج والتوصيات.

الفصل التاسع : إعادة توظيف استعمالات الأراضي بإقليم القاهرة الكبرى : تطبيق منهجية الإدارة التنظيمية للمشروعات

يهدف هذا الفصل إلى تطبيق منهجية الإدارة التنظيمية للمشروعات وذلك لاستنباط مدخل لمنهجية إدارة شاملة ومختبرة تهدف لوضع إطار حاكم لعمليات إدارية مختارة ذات علاقات متبادلة قياسية على المستويات الثلاثة للإدارة التنظيمية للمشروعات وذلك لمشروعات إعادة توظيف استعمالات الأراضي التي يتم إدارتها أثناء تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى على وجه التحديد، أو أي مخططات استراتيجية للتطوير العمراني المستدام لأقاليم أخرى بوجه عام.

الفصل العاشر : نموذج إدارة إعادة توظيف استعمالات الأراضي (MLRP٣)

يهدف هذا الفصل إلى صياغة نموذج إدارة قياسي متكامل ومرن (MLRP٣) يمكن تطبيقه على مستويات الإدارة الثلاثة (الحزم والبرامج والمشروعات) لإدارة مشروعات إعادة توظيف استعمالات الأراضي أثناء تنفيذ المخطط الاستراتيجي لإقليم القاهرة الكبرى على وجه التحديد، أو أي مخططات استراتيجية للتطوير العمراني المستدام لأقاليم أخرى بوجه عام. وأخيرا يعرض الفصل أهم النتائج والتوصيات للبحث.