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REBUILDING BAGHDAD: A HALF-CENTURY OF INTERNATIONAL URBAN PLANS FOR THE HISTORIC CAPITAL OF IRAQ

by

Waleed Alsadoon

A dissertation submitted in partial fulfillment of the requirements for the Doctor of Philosophy Degree State University of New York College of Environmental Science and Forestry Syracuse, New York October 2020

Graduate Program in Environmental Science

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Abstract


I bring a personal history to this study of Baghdad. I lived and worked in Baghdad, and I have the personal connection to the place, history and people. The study investigates the international planning history in the historical capital of Iraq from middle of the twentieth century up to now. The study provides a brief history of the foundation of Baghdad in 762 AD, the characteristics of the Arab-Islamic cities and planning issues of the modern era. A qualitative comparison analysis was the methodology adopted in the study. The city plans of Doxiadis 1958, Polservice 1973, JCCF 1990, and Khatib and Alami 2018 were discussed and analyzed. Comparisons for the four plans were carried out, and an evaluation of what expertise, planning techniques and solutions the four plans brought to Baghdad. The study shows the primary physical planning strategies employed in the four plans, and how the plans addressed population growth. What lessons do the previous plans for Baghdad offer the city today, and can these lessons be transferrable to other Arab-Islamic cities? There is no question that Baghdad is the hub of political, economic, and social activities of the country. Any future study must cover not only the City of Baghdad, but also its metropolitan area, “Greater Baghdad”. Recommendations include a metropolitan development planning study developed in coordination with a national urban policy. Also, Baghdad needs an operative and implementable master plan. Based on what can be learned from many other cases from the past, it is a good chance for the Iraqi people to build a beautiful and robust national capital to match or surpass its glorious past incarnation. This study would help the urban planner, policymaker and researcher to evaluate the previous work of international urban planners, and lessons learned from this set of plans may be useful for the rebuilding of Baghdad today.

Key Words: Baghdad urban plans, Doxiadis, Polservice, JCCF, Khatib & Alami, physical planning, master plan

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1 CHAPTER 1: INTRODUCTION

The Book of Genesis features a place called the “Garden of Eden” that symbolizes the beginning of humanity. Historians and archeologists believe that the story from Genesis is set in Mesopotamia, near the Tigris and Euphrates Rivers of the Ancient East. Polybius, the Greek historian, first generated the early name of Mesopotamia, which means the fertile land between two rivers. Today, most of Mesopotamia is within the land of modern Iraq, often called the “Cradle of Mankind.”

The City of Baghdad was established in the 8th century to be the capital of the Abbasid Caliphate. The Abbasid Caliphate (750 - 1258 AD) is the third Islamic Caliphate to succeed the Islamic prophet Mohammed. It came after the fall of the Umayyad Caliphate (661-750 AD) when the Islamic Caliphate’s capital moved from Syria to Iraq. The Islamic Caliphate was vast, reaching China in the East and Spain in the West. As the capital, Baghdad was the center of the Arab-Islamic nation for more than five centuries.

If we consider that the cities of Medina (Yathrib) and Damascus were designed before Islam, and Kufa and Basra were designed as garrison cities after Islam, then the City of Baghdad can be seen as the first Arab–Islamic planned city that was designed after Islam. The Abbasids name for the city was Medinat Al Salam, City of Peace. Baghdad inherited the Mesopotamian legacy and was a center for civilization, power, culture, science, art, and translation for the entire world for many centuries. As a planned city, Baghdad is also significant in urban planning history.

Baghdad is an internationally important city with a glorious past, but this history has been obscured in more recent times by a series of wars and other struggles. In the last 30 years of continuous deterioration of the city, Baghdad’s built-up infrastructure, government complexes, cultural/educational facilities, business areas, healthcare delivery systems, industrial parks, residential inventory, and recreational/open space facilities have been substantially diminished.

Global consultancy Mercer published (Xinhua, 2019), Baghdad in 2019 became known as one of the least hospitable places in the world – providing the worst quality of life ranked at
the bottom of the world’s 231-city list. Baghdad in the early 21st century faces massive challenges including overwhelming population growth, under-regulated development, deterioration of historical heritage, deterioration of buildings, environmental decline, lack of educational and health facilities, and lack of basic infrastructure needs. The Iraq War that began in 2003 had a devastating impact on the city, but rebuilding has been underway for much of the past decade. Baghdad is quickly approaching megacity status, with an anticipated population of ten million by 2035 (UN World Urbanization Prospects, 2018).

Urban planning is a key component in the rebuilding of Baghdad today. Today’s plans are influenced, to varying extents, by ones that were developed for the city over the past half century. Since the 1950s, four comprehensive urban plans were developed for Baghdad. All were produced by international planning consultants, and all reflected the predominant planning theories and approaches of their times. Some of these plans were formally adopted, and some were not. Each of the plans, though, regardless of adoption, detail the evolution of the city and document extensive analyses of Baghdad at different points in time. This dissertation reviews the four comprehensive plans for Baghdad, dated 1958, 1973, 1990, and 2018, for the purpose of identifying the motivations that prompted planning, key concepts aimed at guiding urban form, strategies for housing an ever-expanding population, and other physical planning concerns. Lessons learned from this set of plans may be useful for the rebuilding of Baghdad that is underway now. Conclusions drawn also provide insight into international planning trends and the role of outside planning consultants.

One theme found in all the late 20th century and early 21st century plans for Baghdad is a sense of urgency to accommodate significant expected population increases. The plans advocated for particular types of urban form, reflecting the planning ideals of their times; they had various strategies for density; and they approached the integration of the historic core with newer development in different ways. Each plan was based on projections of the future, and a review of the 20th century plans reveals which projections proved to be right. The extent of plan implementation can also be determined based on current urban form, and interpretations of the reasons for success or failure of implementation can be made. This study is unique because there has been no similar review of modern Baghdad city planning, based on the city comprehensive plans, that has been documented in planning literature.
1.1 REGIONAL SIGNIFICANCE OF BAGHDAD

Iraq enjoys a significant location, situated between the East and the West. It is located adjacent to the old Byzantine, Persian, and Ottoman empires. Iraq is the largest Arab country in Western Asia and, with the two rivers, the Euphrates and the Tigris, has abundant water, fertile land, oil, and natural resources, all of which allows Iraq to play a pivotal role in the region. Baghdad is the second largest city in Arab world after Cairo, and second largest city in west Asia after Tehran.

Baghdad was a linear city on the Tigris River for thirteen centuries before it began to spread east and west, away from the river. The spreading development of the city since the 1980s has been facilitated by the region’s flat land. This has meant that much low-density growth has occurred on road corridors that enter the city at the edges. Even during periods of war, new residents have arrived in Baghdad, feeding its constant rise in population.

Baghdad and the Baghdad Metropolitan Region (Greater Baghdad) is the locomotive driving Iraq’s societal engine and the national economy as the growth center of the nation – distributing the national wealth to all other regions of the country. As recorded in one of the four comprehensive plans reviewed in this dissertation, the planners, economists, and engineers working for the Japanese Consortium of Consulting Firms (JCCF) in the 1980s concluded that, at that time, the Baghdad Metropolitan Area generated more than 45% of the nation’s economic activity (JCCF, 1990). That fact remains fairly consistent with the reality of this very different time – Baghdad Metropolitan Area remains the “growth region” and therefore, with the nation’s capital at its core, the city plays a formidable role in national development.

For over a half century, the critical issue facing the City of Baghdad in occupying this central role in national development is how to control Baghdad’s growth – the capital city and its surrounding metropolitan area. Planners have attempted to solve the problems associated with growth pressures in the context of a Greater Baghdad. It is really a multidimensional issue – a set of “container-contained” relationships exists between spatial entities in the region whose activities, in all respects, are interrelated and interdependent. Geographically, the central region of Iraq contains the Baghdad Metropolitan Area, which contains the City of Baghdad, which then contains each of the currently segregated communities within the porous city limits. The
causal force that integrates these spatial integrities is the input and output of social and economic activity that traverses the porous geographic boundaries of each.

Growth of the City of Baghdad is a paramount issue in part because the concentration of wealth and economic activity emanating from the “Baghdad Locomotive” creates a situation of under-development in the other regions of the country. National spatial economic planning has sought a balance of resource allocation around the country. The challenge for regional planning is connected to planning for the City of Baghdad itself, given the city’s historic role as the driving force of growth and development in the nation.

To understand the significance of Baghdad, the city can be compared to other international cities to assess population size during similar time periods. In Table 1.1, Baghdad is compared with Cairo, another capital city in the region that was established two centuries after Baghdad. Table 1.1 also contains data for two other prominent international cities, Tokyo and New York City. Population numbers show substantial increases in the population of Baghdad since 1950 compared with the other relevant regional capital city and the international cities.

Table 1.1  Baghdad population compared with regional and international cities

<table>
<thead>
<tr>
<th>City</th>
<th>1850</th>
<th>1900</th>
<th>1950</th>
<th>1970</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baghdad</td>
<td>60K</td>
<td>150K</td>
<td>579K</td>
<td>2,200K</td>
<td>6,812K</td>
</tr>
<tr>
<td>Cairo</td>
<td>348K (1882)</td>
<td>600K</td>
<td>2,400K</td>
<td>5,500K</td>
<td>9,500K</td>
</tr>
<tr>
<td>Tokyo</td>
<td>1,150K</td>
<td>1,120K</td>
<td>6,278K</td>
<td>11,408K</td>
<td>13,932K</td>
</tr>
<tr>
<td>New York City</td>
<td>515K</td>
<td>3,437K</td>
<td>7,891K</td>
<td>7,894K</td>
<td>8,400K</td>
</tr>
</tbody>
</table>

In the 19th century, Baghdad faced several severe floods, which resulted in deadly
epidemics such as typhoons, cholera, smallpox, and other transmissible diseases (Al Okailie, 2019). In April 1831, between two to three thousand people were dying every day due to the plague (Simons, 1994). Al Wardi, the most recognized Iraqi sociologist of the 20th century, wrote that 150,000 people were living in Baghdad before the 1830s pandemic, and Baghdad lost two-thirds of its population after the pandemic (Al Wardi, 1969). By April of 1846, Commander James Felix Jones of the Indian Navy reported that Baghdad had an estimated population of 60,000 people (Jones 1857 and Al Waili, 2017). In the end of 19th century, Baghdad was home to about 150,000 people (Al Waili, 2017).

In the 1950s, Iraqi population had grown in a rapid pace. In 1927, the population of Iraq was approximately 3 million people and Baghdad was a home for 10% of Iraqis i-e 300,000 people (Alzubaidi, 2001). In 1947, the first National Census showed the country population was about 4.8 million and the 1957 Census revealed 6.3 million, which was more than 30% increase in a decade. Accordingly, the population of Baghdad in 1957 became one million people doubling the population of the city of 1947. Based on the national official census of 1947 and 1957, the population of Baghdad has increased during this decade by an annual average rate of 5.19%. This was mainly due to the internal migration.

With reference to Tokyo, formerly known as Edo, the city grew from a small village to become, in the 1720s, the first Asian city with more than one million inhabitants. Due to many earthquakes, the population of the city was reduced, with the result that the population remained at just over one million in 1850. In 1869, the young Emperor Meiji moved to Edo and changed the name to Tokyo. In 1889, Tokyo was officially established, and the city continued to grow rapidly. In 1956, the city exceeded eight million people, and, by 1963, Tokyo became a megacity exceeding 10 million people (Saito, 1984; Tokyo Statistical Yearbook, 2017). While Baghdad currently has a population that is approximately one-half of Tokyo’s population, population projections since the 1970s have estimated that Baghdad would reach ten to twelve million residents. The current estimates for 2035 are for a population of ten million, which would establish Baghdad as one of the world’s megacities.

1.2 A HISTORY OF GROWTH AND DISRUPTION

An important description of 19th century Baghdad comes from the records of
Commander James Felix Jones, contained in his Memoirs (1857). Jones, an officer in the Indian Navy, recorded his observations of Baghdad between 1846 and 1855 (Yapp, 1999). Jones conducted the first comprehensive survey of the city, and developed a precise map with accurately labeled features.

Figure 1.1  As published in the 1902 Encyclopedia Britannica, 10th Ed., the Ground Plan of the Enceinte of Baghdad, reduced from a survey made by Commander F. Jones and Mr W. Collingwood of the Indian Navy, 1853-54 (Image source: Wikimedia Commons, public domain).

Jones’s map depicts “New Town” (or Rusafa) on the east bank of the Tigris and a smaller “Old Town” (or Karkh) on the west bank, connected by a pontoon bridge. From the establishment of the City of Baghdad until today, the two names, Karkh and Rusafa, have been in continuous usage. Jones identified 63 neighborhoods in Rusafa, and 25 in Karkh. Baghdad measured 2.95 km², with Rusafa being 2.37 km² and Karkh being 0.58 km² respectively, surrounded by a wall with trenches and protective towers. Jones reported that the city’s 60,000 people comprised 15,000 families, with an average family size of about four people. The detailed description recorded 313 streets, 61 mosques, 47 markets, 98 coffee houses, 14 hamams (public baths), and 55 khans (hotels) (Al Waili, 2017). Jones described the city’s location, form, parts, bridges, shrines, cemeteries, and many other details. A later document from Al Arab local newspaper published on December 1917 also describes the people of Baghdad, with a population of 126,484 people in Rusafa, of which 77,296 (61.11%) were Muslim, 41,058 (32.46%) were Jewish, and 8,130 (6.43%) were Christian, and approximately 70,000 people in Karkh (Al Arab, 1917). At that time, the City of Baghdad was a multicultural, diverse city.
Jones was describing a city that had been under Ottoman rule for nearly 400 years. In 1920, that era ended with the British Mandate and establishment of the Kingdom of Iraq in 1921. In 1932, Iraq became an independent state after fifteen years of rule by Britain. Following independence, the capital witnessed rapid growth due mainly to rural to urban migration, better life expectancy in the capital, and growing economic opportunity. Additionally, in 1927, the first oil well in Iraq was excavated at Baba-Ghurghur, Kirkuk, and this created prosperity for the young nation. Figure 2 identifies key events in Baghdad planning history.

The influence of national government leadership in Iraq has been a major determinant of planning activity over the last 120 years. Key government events since 1900 include the establishment of the Kingdom of Iraq, independence in 1958, and the presidency of Saddam Hussein that began in 1979. Peaks in oil revenue were associated with new planning initiatives. Periods of war have also had an effect on the city and attempts to create and implement plans. For nearly 40 years, planning for the City of Baghdad has taken a back seat to the Iran - Iraq War, the Second Gulf War with Kuwait, and with the Iraq War of 2003 through 2011, one that caused great damage to the city.

The 1980s dominate the history of planning shown in Figure 2. Many projects that focused on urban revitalization took place in the 1980s, such as the Haifa Street project, Project 10, the Rusafa study, and the Abu Nuwas project. The projects were aimed at modernizing the city’s infrastructure and establishing Baghdad as a globally important city, reflecting the ambitions of the new government.

In November 1981, the Mayoralty of Baghdad (MoB) organized the World Conference for Future Baghdad, inviting reputed planners, architects, and critics (Erickson A. et al., 1982). Four topics were mainly discussed in this conference: the cultural heritage of Iraq, current growth and development of Baghdad, character and environment of the Abu Nuwas area, and future growth of Baghdad and Iraq. This conference was the first time in Iraq that such a broad discussion concerning basic urban design and planning issues had been publicly held, and it involved notable decision makers and a wide range of participants.
Urban Plans for the Historic Capital of Iraq

**Figure 1.2 Timeline**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1902</td>
<td>Government: Establishment of the British Mandate; King Faisal becomes the first Iraqi monarch.</td>
</tr>
<tr>
<td>1903</td>
<td>Physical Planning: Construction of the Bagh-Baghdad railroad begins.</td>
</tr>
<tr>
<td>1921</td>
<td>Government: King Faisal I of Iraq becomes the last Iraqi monarch.</td>
</tr>
<tr>
<td>1927</td>
<td>Disruptions: The first railroad is completed.</td>
</tr>
<tr>
<td>1933</td>
<td>Government: King Ghazi of Iraq becomes the 2nd Iraqi monarch.</td>
</tr>
<tr>
<td>1936</td>
<td>Physical Planning: The first modern bridge is constructed along the Tigris River.</td>
</tr>
<tr>
<td>1950</td>
<td>Oil Revenue: The Iraq Nationalization of Oil Act is signed.</td>
</tr>
<tr>
<td>1966</td>
<td>Government: General Abdul Salam Arif becomes President of Iraq.</td>
</tr>
<tr>
<td>1972</td>
<td>Oil Revenue: Oil nationalization oil, 2nd oil price hike.</td>
</tr>
<tr>
<td>1980</td>
<td>Physical Planning: Landmark proposal for Abu Naimi Housing Complex, a two-story residential housing unit facing the riverfront and generating power from solar.</td>
</tr>
<tr>
<td>1981</td>
<td>Physical Planning: International conference on planning and design of Abu Naimi area.</td>
</tr>
<tr>
<td>1982</td>
<td>Physical Planning: Karak development project.</td>
</tr>
<tr>
<td>1984</td>
<td>Disruptions: 2nd Oil War begins.</td>
</tr>
<tr>
<td>1991</td>
<td>Disruptions: 2nd Gulf War - Kuwait,海湾的战争.</td>
</tr>
<tr>
<td>2018</td>
<td>Physical Planning: Comprehensive Development Plan (CCDP) for Baghdad 2030 by Khatib and Alami.</td>
</tr>
</tbody>
</table>

Architect George Dudley and Arthur Erickson, along with the Mayor of Baghdad, organized the conference participants and concluding statements. Ambitious projects explored in this conference were cut short by the Iran - Iraq War that lasted eight years, from 1980 to 1988.

All major Arab cities are experiencing urban growth pressures today, and the City of Baghdad is no exception. Due to urbanization and migration from rural areas, growth is unplanned, and this puts pressure on natural resources, infrastructure, and utilities, which are typically inadequate in these major cities. The twentieth century has presented enormous changes in the history of urban design especially for the City of Baghdad. Like other cities, some of the changes in Baghdad have been due to the remarkable, sustained increase in population; other changes resulted from the tremendous increase in automobile use over the past century; and, of course, the physical, economic, and social impacts of war have changed the morphology and fabric of all Iraqi cities, including Baghdad. Looking for solutions to complex urban problems in Baghdad, policymakers since the 1950s turned to international planning consultants.

1.3 MUNICIPAL COMPREHENSIVE PLANS FOR BAGHDAD

British planning firms produced the first modern city plans for Baghdad in the early part of the twentieth century. In 1936, Breeks & Bronoweiner introduced the plan for Baghdad at the time Ahmed Mukhtar Ibrahim, was the first Iraqi architect not urban planner appointed the Public Work Administrator for Baghdad City. In 1936, Mukhtar planned and executed the 2nd street in Baghdad and the 1st street after Ottoman era, the King Ghazi Street (Al Kifah Street today), with two main orthogonal designs, demolishing the historic fabric of the city. Also, he introduced a new design of mixed-used building in Baghdad, where the ground level is designed for shops and services and the upper levels are either office or residential. Due to the rapid growth of the capital, both Breeks & Bronoweiner of 1936, and Minoprio, Spenceley & MacFarlane of 1956 were unattainable. Table 1.2 lists these plans and the others produced since 1936.
### Table 1.2 Major 20th and 21st century plans for Baghdad

<table>
<thead>
<tr>
<th>Plan</th>
<th>Year</th>
<th>Planning Firm</th>
<th>Nationality</th>
<th>Implemented (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Plan of Baghdad</td>
<td>1936</td>
<td>Breeks &amp; Bronoweiner</td>
<td>British</td>
<td>Partial</td>
</tr>
<tr>
<td>Master Plan of Baghdad</td>
<td>1956</td>
<td>Minoprio, Spenceley &amp; MacFarlane</td>
<td>British</td>
<td>N</td>
</tr>
<tr>
<td>Master Plan of Baghdad</td>
<td>1958</td>
<td>Doxiadis Associates</td>
<td>Greece</td>
<td>Y</td>
</tr>
<tr>
<td>Comprehensive Development Plan for Baghdad 2000</td>
<td>1973</td>
<td>Polservice</td>
<td>Poland</td>
<td>Y</td>
</tr>
<tr>
<td>Integrated Capital Development Plan (ICDP) 2001</td>
<td>1990</td>
<td>Japanese Consortium of Consulting Firms (JCCF)</td>
<td>Japan</td>
<td>Partial</td>
</tr>
<tr>
<td>City Comprehensive Development Plan (CCDP) for Baghdad 2030</td>
<td>2018</td>
<td>Khatib and Alami</td>
<td>Lebanon</td>
<td>N</td>
</tr>
</tbody>
</table>

During the middle of the twentieth century, Iraqi government leaders sought extensive international urban planning technical assistance. With the help of the World Bank, the Iraqi administration hired international urban planners and consultants to redesign the City of Baghdad and other major cities of Iraq.

Over a period of sixty years, four major urban plans were presented to the City of Baghdad by different international planning firms to analyze, specify, and organize the urban land uses of the City of Baghdad. Each of these plans was influenced by the planning firm’s background, school of planning, philosophy, themes, and approaches that the firm developed elsewhere and proposed to introduce to the City of Baghdad. It is worth mentioning here that the morphology of Baghdad was changed substantially even before the recent war, and Baghdad lost much of its architectural heritage. Therefore, not all the local architects and urban planners have been happy with the international urban design plans, especially when no considerable attention was paid to the conservation of the heritage of the historical part of the city.

In this dissertation, the last four plans listed in Table 1.2 were selected for detailed study. These were the plans developed during the modern period, and each grappled with issues
associated with a rapidly expanding population.

1.3.1 The Plan of Doxiadis Associates

Even today, the legacy of Doxiadis in Iraq is considered noteworthy and historic. Doxiadis is considered to be the most significant international urban planner to work in Iraq, and he introduced the first feasible comprehensive plan for the City of Baghdad in 1958, along with plans for eleven other Iraqi cities. The Doxiadis Master Plan for Baghdad followed the plan by Minoprio, Spenceley, and MacFarlane of 1956, which was considered to be unachievable. In July 1958, a military coup occurred in Iraq, and Doxiadis was fired, cutting short subsequent planning efforts by the firm.

1.3.2 The Comprehensive Development Plan of Polservice

In 1967, Polservice, a Polish firm, was assigned to propose a master plan for the City of Baghdad. In July 1968, a new government came to power in Iraq, and a second request was made to Polservice. The new study was for the metropolitan area. “The Comprehensive Development Plan for the Year 2000” was completed in 1973. The Polservice plan remains the last formally adopted plan for Baghdad. No plan developed after 1973 has been adopted by the Mayoralty of Baghdad (MoB).

1.3.3 The Japanese Consortium of Consulting Firms (JCCF) Plan for 2001

In July 1979, Saddam Hussein took over as president of Iraq with his dream to revive the glory of Baghdad. Since the Polservice plan did not meet the policymakers’ vision to bridge the gaps between various constituencies and integrate the communities of Baghdad, and also, with the new vision of Saddam Hussein’s government, a new plan for Baghdad was commissioned. The project was assigned to JCCF by the MoB. Plans were to address three different scales: Central Iraq, Greater Baghdad, and a Master Plan for the City of Baghdad. Though highly qualified JCCF team worked very hard throughout the 1980s to develop the Integrated Capital Development Plan (ICDP), the study was not completed because of the Gulf War that started in 1990 and the associated United Nations embargo of Iraq. Unfortunately, in the late twentieth and early twenty-first centuries, Iraq experienced wars, an embargo, turmoil, and an insecure environment. The challenges facing the urban sector have been immense, and the period of challenge intensified as the JCCF plan was being finalized.
1.3.4 Baghdad Comprehensive City Development Plan 2030

In 2007, the Baghdad Comprehensive City Development Plan 2030 (CCDP) was awarded to Khatib and Alami, a firm from Lebanon. The plan builds on the Polservice study of 1973 and the 1983 study of Rusafa (Bianca, et al. 1983) in which JCCF participated. This plan is the post-Iraq War plan, but it has not been adopted by the MoB. The future of this plan is uncertain at this point, but the data contained in it is a substantial update on current conditions in the city.

1.4 REBUILDING BAGHDAD TODAY

Building Baghdad up from the ashes of many years of war and turmoil is a priority for the Iraqi Central Government, given that Baghdad is the national capital. Local policymakers and urban planners seek planning that secures the welfare of the people of Baghdad. Rebuilding the historical areas of Baghdad and upgrading urban services for the entire city are high on the agendas of the central and local government. Accommodating an ever-growing population with housing, services, and amenities is an important component for a functional city.

The urban environment in Baghdad has been deteriorating for many decades. Especially in the historic heritage areas, structures, public services, and infrastructure are severely damaged. In addition to the effects of wars and unrest, the historic districts have been deteriorating for nearly a century due to the lack of policies to conserve the fabric of the historic areas. The urban fabric across the entire city must be assessed both for restoration of what once was there, but also to determine where new residents might live. This research will consider the changing nature of Baghdad’s urban fabric, as evidenced by the four plans created since the 1950s.

Today, it is evident that the national leadership is serious about reconstruction and rehabilitation of the country after so many years of dealing with the domestic consequences of international conflict and internal struggle. The challenges are enormous, however. The overarching question asked in this dissertation is whether knowledge and approaches from past plans for Baghdad can inform the efforts to plan the future of Baghdad today.

1.5 RESEARCH SIGNIFICANCE AND QUESTIONS

In many ways, Baghdad is similar to other Arab-Islamic cities. Urban planners working in historic Arab-Islamic cities face challenges in integrating the older urban fabric with modern Western-style development. As an outcome of the ‘culture shock’ between modernity and
tradition in the Arab-Islamic cities, these cities face challenges, in part due to adoption of Western institutional frameworks that may conflict with continuous cultural ties and a strong sense of community. For example, Western political, economic, and educational systems may conflict with the community culture and beliefs of the residents of these cities (Bianca 2000). One result is that many traditional buildings in Arab-Islamic cities were left to decay or were purposely obliterated as the cities developed, while modern Western style developments with high-rise buildings and wide roads spread at a rapid pace. Baghdad is not alone in its planning challenges, and this makes a case study of Baghdad useful to other Arab-Islamic cities.

This study is focused on the urban planning in Baghdad over the past half-century. Since the 1950s, population pressure has been fairly constant, only interrupted during times of conflict, and, even then, not necessarily interrupted very much. How the four international plans anticipated and addressed the increase in the population, density, and, accordingly, proposed alterations to urban form can possibly inform land use planning decisions today. This study analyzes, evaluates, and compares the four plans. The results will help Iraqi urban planners and policymakers to plan for the development of Baghdad as the strengths and weaknesses of past approaches are assessed.

Academic literature on recent Baghdad city planning is sparse given the unsettled nature and safety concerns of the region. Available literature about Baghdad was reviewed for this study and is discussed primarily in Chapter 3. The relative scarcity of previous studies and the challenges of collecting new data make the planning documents studied in this dissertation particularly valuable. The plans are a source of information on a topic that is otherwise addressed in a limited way in Western academic literature.

This study addresses the following research questions:

1. How does Baghdad’s history contribute to our understanding of its current planning challenges and identity? What planning trends and issues found in other Arab-Islamic cities can inform planning in Baghdad?
2. What is the historical context of the twentieth and twenty-first century plans? Who were the international planners, and what expertise/point of view did they bring to Baghdad?

3. What were the primary physical planning strategies employed in the four plans, and how did the plans address population growth?

4. What lessons do the previous plans for Baghdad offer the city today? Are any of these lessons transferrable to other Arab-Islamic cities?

1.6 THE PERSPECTIVE OF THIS RESEARCHER

As a researcher, I bring a personal history to this study of Baghdad. I lived and worked in Baghdad, and I have the personal connection to the place, history and people. I completed my master degree from Baghdad University – Institute of Urban and Regional Planning. In addition to my personal observation, during my study time I did several field trips to different sites designed by international planners addressed in this study. The study would help the urban planner, policymaker and researcher to evaluate the international urban planners work and lessons learned from this set of plans may be useful for the rebuilding of Baghdad today. I recognize that my experience introduces some degree of bias into this research, but I have addressed this to the extent possible by basing the study on plan analysis and related data.

1.7 SCOPE AND LIMITATIONS

This study is limited to the analysis of four comprehensive plans created for the City of Baghdad between 1958 and 2018. There has been little opportunity to interview people in Baghdad or to receive firsthand accounts from all of the consultants involved in creating the plans, especially considering the time period addressed. The study methodology is document analysis. Inability to travel to Baghdad to gather information in person has also been a limitation. These limitations have been offset in part due to personal connections with professionals in Baghdad, and this is discussed in Chapter 4. A literature review covering Baghdad and planning in Arab-Islamic cities was used to situate the Baghdad plan analysis within a broader context.
CHAPTER 2: HISTORY AND TRADITION IN BAGHDAD

A city’s history is ever present. The legacy of the past informs the present. It must be taken into account when planning for a city’s future. The significance of the past is, perhaps, even greater in Baghdad, where the sense of a glorious history ameliorates some of the hardships of the recent past and present. Much of academic literature on urban planning in Arab-Islamic cities addresses tensions between tradition and modernity. Traditional urbanism in these cities is rooted in history. This chapter addresses key factors in the history of Baghdad that create a sense of heritage and tradition among the residents of the city. Chapter 3 focuses on the modern part of the timeline, and it includes characteristics of Arab-Islamic cities and their relationship to Baghdad. Placing Baghdad in the context of both its history and its present regional neighbors provides the background for examination of past urban plans and projections of the lessons that can be applied to future planning efforts.

2.1 A BRIEF OVERVIEW OF THE HISTORY OF BAGHDAD

Baghdad is located in the region that was once Mesopotamia, just north of what was the ancient city of Babylon and between the Tigris and Euphrates Rivers (Figure 2.1). The level of sophistication achieved by the ancient Sumerians and Assyrians thousands of years ago in urban and cultural affairs is hard to parallel, even in modern times. Both civilizations are particularly known for literary and artistic achievements. Later, the Babylonian king, Hammurabi, codified a legal system that included a list of “consumer’s rights” (Zharkenova and Kulmakhanova, 2015). Baghdad was the largest multicultural city of the medieval era, and it was the center of learning during the Islamic Golden Age. Modern Iraqis see themselves as the inheritors of this historical legacy.
Architecture and infrastructure in the ancient Mesopotamian cities was remarkably advanced. The city of Sippar (25 km south of Baghdad at present day Yousifiya) was of special religious significance. Recent excavations have shown Sippar to have a purpose-built library linked to the temple, and waterborne sewerage system dating from around 1400 B.C. (Sousa, 1948 & Sousa, 1949).

In the period between 700 to 600 B.C., advances in the techniques of irrigation had created a comprehensive reticulated network fed by water transferred over long distances. There is evidence of a weir built on the Euphrates near Falluja, which produced a commercial waterway to the Tigris at Ctesiphon. There was also a system of defensive dykes on the northern side from Falluja to the marshes north of Aqarquf and Baghdad. These defensive systems were engineered so that they could flood extensive areas to the north and so hinder enemy movements (Adamo and Al-Ansari, 2020). The present day Saqlawiya Canal is a legacy from these
developments.

Wide-ranging improvements to this irrigation system continued after the Islamic advance under the Abbasid Caliphs (A.D. 750-1258). Most remarkable of all the ancient water arteries was the Nahrawn Canal and Samarra Canal. This was built on the east bank of the Tigris from Samarra to Kut. Its route is still clearly marked by its dry bed and piles of spoil. The extensive area it once irrigated is now desert. Other noteworthy canals on the west bank of the Tigris included the Ishaki and Dujail that led to Baghdad (Sousa, 1949).

2.1.1 The Arab conquest

The Arab conquest of this region occurred in 636 A.D., when the Persian Empire was defeated. During the second Arab Muslim Caliphate Omer’s reign, Mesopotamia became “Iraq”, and Arab Muslims founded two new cities, Basra and Kufa. Kufa later became the capital of the Arab and Muslim world under the fourth Caliphate Ali (Simons, 1994). Basra is located 540 km south of Baghdad and is the second largest city in Iraq, and Kufa is 250 km southwest of Baghdad.

Following the advance of Islam, a major pilgrimage route developed from Persia to Mecca through Baghdad and Kut. It was at this time that central Iraq’s settlement pattern began to approximate that of today. Commercial and administrative considerations were important in defining the role of the city, but, in addition, the significance of religious shrines came to assume great and lasting significance. Kerbala, Najaf, Aahdamiyah, and Khadiyah are examples of this.

In 747 A.D., the Abbasids (who derive their name from ‘Abbas” – an uncle of the Prophet) defeated Umayyad Caliphate at Damascus and founded their first Caliphate in Iraq. Baghdad was not the capital until the second Abbasid Caliph, Al Mansur, established the city in 762 A.D.

During the Abbasid period, central Iraq assumed importance as an international trade crossroads. From Aleppo, trade followed the Euphrates and the Saqawiyah canal to the Tigris, and on to India. When Al Mansur’s Round City, Baghdad, was founded on the Tigris River (perhaps to enjoy the cooler microclimate produced by the lakes that are immediately to the north), its main port was Ctesiphon.
The unparalleled magnificence of Caliphate period came to an end with the attack and sacking of Baghdad by the Mongols in 1258 (Simons, 1994). Their ultimate act of vandalism was the destruction of the irrigation system that made the country rich. Iraq had to wait until the time of “petrodollars” to acquire the resources to correct this.

2.1.2 Trade and agriculture

In addition to spreading the religion of Islam in Iraq, the Arabs controlled Baghdad on the basis of trade. Baghdad, after all, was located on a major route of the historic Silk Road. It could be said that the Arabs showed little interest in agriculture. Under later Turkish rule, little thought was given to investing in basic infrastructure or maintenance. During the Ottoman period, repeated floods gradually destroyed the fragile agricultural irrigation systems. Neglect of agricultural infrastructure made trade even more important.

The opening of the Suez Canal in 1869 marked the beginning of new era in the economy and urbanization of Iraq. Prior to the construction of the Suez Canal, Baghdad had a position as an important trade city between the continents. After 1869, Baghdad lost its key position with the decline of the overland routes. Import and export patterns changed, and railroads were built from Basra and Mosul to Baghdad through central Iraq towns (e.g., Mahmudiya, Taji, Baquba, and Hilla). The importance of transportation by river and rail to the south was enhanced with the loss of the Ottoman Empire in WWI, which was followed by massive investment in Basra and access to the Persian Gulf. The settlement pattern of central Iraq shifted again in the late 1940s, in response to the upsurge in automobile use and paved roads. Rail towns in central Iraq began to lose their importance.

The focus of Iraq’s development plan in the 1950s, created through the Iraqi Development Board (IDB), was the rehabilitation of the agricultural base and hydrological control of the Mesopotamian Plain. These changes were funded through increasing revenues from oil.

The Tigris and Diyala Rivers contributed to the expansion of the arable land, while the Euphrates River played a major role in increasing agricultural production. A review of this history suggests that, while modern urban development tends to occur with road accessibility as the axis, seen in the corridor pattern, the land-based rural settlement structure in Iraq occurs with
water routes acting as the axis. Without a rural development strategy that takes into consideration the water system, it is not possible to optimize the land’s productive capacity.

The construction of a flood diversion weir at Samarra in the mid-1950s came at a time of massive rural to urban migration and the establishment of people’s government, following establishment of the Republic of Iraq. Once the danger of flooding had been mitigated, the spatial growth of Baghdad gained momentum.

2.1.3 Baghdad’s traditional urban form

The timeline presented in Chapter 1 addresses events in Baghdad from the early 1900s through the present. With a focus in this chapter on the tradition side of the tradition-modernity tension in Baghdad, the historical overview provided here is brief, and it serves as context for the discussion of urban form that follows.

2.2 THE FOUNDING OF BAGHDAD AND THE SIGNIFICANCE OF THE ABBASID CALIPHATE

Al Tabari (839-923 A.D.), a famous Arab historian (Al Tabari, 1967), told us that, on a summer day, Caliph Al Mansur came to the area of the bridge (pontoons), crossed the Tigris River at the present site of Qasr Al Salam, prayed the afternoon prayer, and met with people to receive their advice about the site of his new city. Among the people he met were Christian monks; one priest advised him that it was documented in one of their ancient texts that a great king would build a new city on the farm next to the monastery, called Al Mubarak (The Blessed).

According to Al Tabari (Al Tabari, 1967), Al Mansur spent the night there (by the monastery) and awoke the next morning, having passed the sweetest and gentlest night on earth, and everything pleased him. Then he said, “This is the site on which I shall build. Things can arrive here by way of Euphrates, Tigris, and network of canals. Only a place like this will support the army and general populace.” On July 23th, 762, Al Mansur established the City of Baghdad, saying, “This is indeed the city I am to found, where I am to live, and where my descendants will reign afterwards.” Al Mansur laid the foundation of his new city, and commissioned the construction of the circular City of Baghdad under his supervision. Al Mansur liked the location and believed that Baghdad would be an impeccable capital for the Islamic
The site for the City of Baghdad was selected west of the Tigris River and situated at the point where the Tigris and Euphrates Rivers are closest, considered the most fertile region in the country. The location for the city was carefully selected. Many urban planners admire the site of the city as it is almost in the exact middle of the country and roughly in the center between the East and the West, strategic for the trading routes, including the Silk Road, with the two rivers used for transportation. The abundance of water in an area with a dry climate made the location an outstanding choice.

Security issues were a priority in selecting the location of Baghdad. The Tigris and Euphrates Rivers protected the city. From the east, the Tigris River protected the city from the Persian Empire (Iran), which required 18 days to travel, and, from the west, the Euphrates River protected the city from Umayyad (Syria), which required 30 days to travel.

In addition to the rivers, a citadel surrounding the city was designed for protection. The city’s form and shape was in a defensive military style. The entrances of the city were designed in L-shape with four babs (gates); each gate faced the direction of a major city. Bab Sham faced Syria, Bab Kufa faced Kufa, Bab Basrah faced Basrah, and Bab Khurasan faced Iran. Figure 2.2 shows the circular shape of the design of Baghdad and the L-shape of the four entrances.

Al Mansur finalized the plan for the city and assigned a budget for the project. About 100,000 masons, laborers, and skilled people responded to his call and came from many different parts of the Arab-Islamic Empire to participate in building the new city. For the next twelve and a half centuries, Baghdad developed into the geographic, economic, cultural, and political capital of the country of Iraq and its central region, with the exception of sixty years when the capital moved temporarily to Samara.
Figure 2.2 The Round City of Baghdad (762 A.D.) and L-shaped gates (Jawad and Susa 1952).

The round shape used in the design of the new city, Baghdad, was widely used by Sumerian cities such as Urok and Ur, traditional Roman military camps, and Persian cities (AlSayyad, 1991). The plan demonstrates a magnificent concept (Figure 2.3), very carefully designed to make personal residences, treasury, and the congregational shrine as secure as possible. The plan was composed of three concentric rings with four gates. The inner was reserved for the Caliph, the middle ring for trusted people (useful in an emergency) and the outer ring for the Caliph’s bodyguard. The outer ring was carefully divided into four quadrants with interconnection between them. Commercial uses and ordinary private residential areas developed outside the circle. Al Mansur later abandoned the Round City, as soon as he felt secure enough, to live in a palace just outside. Three bridges led over the Tigris to suburbs on the other side that became sites for the luxurious palaces of later Caliphs.

Figure 2.3 Illustration of the Round City (Al Waili, 2017)

Figure 2.4 shows development outside the walls of the Round City. Baghdad expanded on both eastern and western sides of the citadel to the approximate size of five square kilometers by the year 1883. The eastern part outside the citadel constituted ten percent of the area of the
city at that time.

Figure 2.4 Development of Baghdad in Abbassid Caliphate (Ihsan 1977, Al Waili, 2017).

The heritage of the Arab-Islamic Orientalist Caliphate mythology exists in the city’s urban design and architecture, but, moreover, in the mentality of people of Baghdad, as it was a capital of the Arab-Islamic world for many centuries (Figure 2.5). The people of Baghdad are rightly proud of their past history and rich heritage.
The City of Baghdad, as we see it now, must be observed as a part of its historical global heritage. The Abbasid Caliphate built Baghdad in the 8th century as its new capital, and the city became the foremost city of the Arab and Muslim world for five centuries. Baghdad was the largest multicultural city of the medieval era and was the center of learning during the Islamic Golden Age. Baghdad grew from a small town to become the world’s largest city, estimated to have as many as half million inhabitants, just fifty years after it was founded (Al Waili, 2017).

The House of Wisdom, a center for learning of almost mythical importance, was a great example of the Golden Age of Baghdad during Abbasid era. The House of Wisdom was where scholars saved ancient knowledge and gave us the Renaissance. Of course, not all scholars were Arabs; many were Persians, Indians, and possibly Europeans and Chinese. Not all were Muslims; many were Christians and Jewish. This was a period when philosophers, scientists, theologians, mathematicians, musicians, and all sorts of scholars went to Baghdad to study. It was a place where all creeds, cultures, and religions were tolerated in the spirit of free and rational inquiry.

Al-Mustansiriya Madrasah (Al-Mustansiriya School) is an ancient theological school,
which was established in Baghdad, Iraq in 1227 A.D., during the rule of the thirty-seventh Abbasid Caliph Al-Mustansir Billah (r. 1226-1242). Al-Mustansiriya Madrasah was saved from the Mongol invasion of 1258 on Baghdad, and stands up-to-date as a distinctive and prominent landmark in Baghdad cultural and educational history of the golden Abbasid Caliphate time.

Al-Mustansiriya Madrasa construction lasted for six years, and the school was opened in 1234. It is considered a precursor of modern universities and one of the oldest universities that still stands from the medieval era. It remains a symbol of the accomplishments of the Abbasid Caliphate.

2.3 THE STRUCTURE OF ISLAMIC CITIES

The traditional urban form of Arab-Islamic cities holds deep meaning for many people, but tradition has been displaced and not replicated in newer construction in most parts of the Middle East. Over the past half-century in Baghdad, historic structures have been demolished or have become deteriorated due to lack of upkeep or changes in use. Even though the traditional structures are disappearing, an understanding of their history is important for planning decisions being made today. Understanding the traditional form of Arab-Islamic cities would allow planers and policymakers to analyze, evaluate and make appropriate decisions by adapting the international plans on the historical part of the city.

The main characteristics that distinguished the traditional Arab-Islamic city were the Friday mosque and sahan (courtyard), bazaar or suq (market), Baha (public space), Madresa (School), Hamam (public baths), irregular fabric, irregular pattern of zikaks (streets), haras (residential quarters), and finally the citadel.

2.3.1 The Mosque

The mosque represented the main physical structure of the Islamic city where the Muslim communities worship the Lord “Allah” and perform the prescribed prayer rituals. The most important architectural requirement is a clear demarcation, or an enclosure, with the front line perpendicular to the direction of Qibla (Mecca). In order for Muslims to communicate with their spiritual center across time and space, the believers stand in rows facing Qibla. Therefore, the Qibla wall constitutes the main architectural feature of the mosque, defining the positions of the prayers (Hakim, 1986).
The development of the mosque, at least in early times, was based on a prototype of the Prophet Mosque in Medina and the Umayyad Mosque in Damascus. In the early years, the mosque was, on one hand, a reminder of the tradition of the first religious community center formed by the Prophet, and, on the other hand, a reference to the typology of the Roman basilica and maybe more especially in terms of the associated political and social institutions (AlSayyad, 1991).

The mosque was where civic congregation took place on Fridays, and it usually offered not only a large hall, but also sometimes a place of historical tradition. In addition, it often served as a center of Islamic studies or an Islamic school.

Traditionally, the mosque represented the main landmark of the Islamic city. It was the first iconic building to be planned, designed and constructed in the city, and all the city functionalities were woven into, centered on, related and connected to the location of the mosque. In addition to the main purpose as a religious place to practice the Islamic faith, the mosque constituted the power and political establishment, constitutional institution, educational facility, and community center. Therefore, the mosque acted as a place where Muslims performed their Islamic rituals, and it functioned as a city hall, public meeting place, seat of the judge (kadi), and educational center. All these institutions were not developed as separate entities.

In early days of Islam, the mosque was a public facility representing a complete range of civic affairs in the city. Later, it lost some of its scope, mainly the political function, and was merely focused on social and religious affairs. This shift happened when ruling dynasties became involved in military power. Therefore, a political leadership was established that divided state leadership (military power) and local urban government (AlSayyad, 1991). The construction of the mosque and its maintenance was funded by a religious endowment established by the ruler, or his family member or other generous supporter. This endowment was and is still called waqf (plural awqaf). The properties of the mosques were and still are organized by Awqaf (a ministerial body to organize religion affairs).

The most noteworthy social implication of Islam was the strength of its ritualized living pattern combined with the need for many formal institutions. The goal of a certain prescribed
pattern of life was to provide a person with peace, rest of mind, and welfare in this and in the next world.

Traditional Islamic cities had no municipalities compared with the Western World. The most important institution in the Islamic city was the Friday mosque, as it was the prime public building not only for religious functions, but also political and social functions. In cases of conflict, people abstained from praying or closed the market, and in both cases it was a clear warning to the ruler (Bianca, 2000).

The large courtyard of the Friday mosque served as a center for whole urban structure and was considered to be an extension of the hall of the mosque. The integration of the mosque courtyard with its functions with the surrounding buildings was fundamental to the design of the traditional Arab – Islamic city. Most of the historical part of the Islamic cities, the commercial activities and social facilities, were adjacent to the praying hall and closely related to the mosque and its associated functions such as the madrasa (school) and jurisdiction. The courtyard could be used for prayers whenever needed, and might be used sometimes for informal functions as well (Bianca, 2000).

Most traditional Islamic cities followed an organic pattern and were designed to combine religious and social institutions. The mosque was integrated in the social life and the architectural fabric of the Islamic city, and it achieved comprehensive civil functions. Arab-Islamic cities were once designed so that all the urban fabric of the city centered on the mosque, and the street network led to the mosque. All these lanes were connected to the focal point of the city, the mosque, in a curved design to make it a surprise and a moment of amazement for pedestrians to face, all of a sudden, the mosque, the symbolic icon and the most significant structure in the city and the worshipper’s destination.

The mosque symbolism constituted the basis of design for the Islamic city. The large courtyard of the Friday mosque was considered as the primary open space of the mosque as well as the city and was usually connected to the suqs, or markets, and was accessible from different sides through a number of entry gates. Once one passed the threshold, which protected the ritual purity of the mosque hall, the central courtyard was easily entered from the suqs either directly or through the prayer hall (Hakim, 1986).
Today, with contemporary urban design that includes high rise buildings surrounding the mosques, there are changes in the physical balance and visual harmony of Islamic cities. The symbolism of the mosques has disappeared with modern urban design (AlSayyad, 1987).

At the beginning of Islam, the mosque was the first physical structure to be erected in a city. It was the symbol of power in the city and represented the entity of the city. Later, the caliph palace became the representation of power and the main symbol of the city. The caliph palace replaced the mosque in terms of the centrality of location. Nonetheless, the mosque remained the most significant social structure in the city, and all the city design was based on its location, and the city fabric was designed accordingly.

It is worth mentioning here that, when the mosque and Dar al-Imarah (the house of the governor) or Dar al-Khilafa (the house of the caliph) were disconnected, the politico-religious complex was driven into two distinct distant structures, and the functions of the state and religion
in the Muslim cities were disconnected for many years to come. An example of this situation is the location of the mosque in the garrison town of Basra, which was at the center of the town adjacent to the Dar al-Imarah. In contrast, a few miles separated these structures in the City of Cairo (AlSayyad, 1991).

2.3.2 The Suq (Market)

In general, suqs in the traditional Islamic city were designed in a linear arrangement, which produced the ubiquitous suq structures of long shopping alleys, which can be simply divided into interconnected individual segments. The suqs, like the residential quarters, were safeguarded by gates and could be closed at night (Bianca, 2000).

Suqs were designed along the main spines connecting the city gate and the heart of the city, accompanied by parallel alleys and cross-links in the central area. Suqs were subdivided into sectors, with each selling some specialized goods, allowing buyers to go to a single location and have different choices to meet his or her demand.

The main spines of streets (which might be called central arteries today) led from the gate to the heart of the city, and they became narrower as they entered the central markets. The spines were lined within a multitude of shops, taking the commercial advantage of the pedestrian movement. In addition to offering continuity between the central suqs and the gates, these lines of shops and the caravanserais behind served as a shield to the adjacent residential district, keeping them free from undesirable intrusions (Bianca, 2000).

Small gates were placed between the rows of shops, and these marked the entrances to the residential district clusters. Elaborate narrow alleyways, internal passages and gateways followed, all before individuals would reach a house’s threshold. These structures formed a transition sequence, a kind of domestic communication system to help filter the flow of pedestrians. The real change in the networks came with the shift from public to the private space. Urban form managed the transition between public and private space, and this was very much essential in the life of the Arab-Islamic city. It was an excellent tool for balancing the antagonism of open and closed space, public and private areas, and male and female realms that kept the organism of the Arab-Islamic city alive. The transition was often achieved by winding lanes and also by buffer spaces controlled by gates and thresholds. The market and the residential
district were placed adjacent to each other, sharing the enclosures back to back, but without direct contact in a system allowed each to function independently (Bianca, 2000).

2.3.3 The Public Bath (Hammam)

The public baths were also a major part of the Islamic city. Indeed, the public bath was an integral part of any Islamic city. The Hammam functioned significantly in preparing worshipers for the Friday prayer. The Hammam, along with the mosque and market (suq), were the most important urban facilities of the Arab-Islamic city. The three amenities shared religious and social functions, serving as a meeting place for the community of both sexes. Some Hammams were for men’s use only, and others, which were integrated in the residential quarters, were for popular entertainment for women and children in daytime, and for men’s use in the evening. The North African Arab Muslim historian, Ibn-Khaldun, Arab geographers and legal doctrines defined the Islamic city as such: “a city must have a congregational Friday mosque and it must have sug (market / chief bazaar) nearby and public path (Hammam)” (Abu Lughod, 1993).

2.3.4 The Streets

Islamic city streets were designed with small lanes and alleys (zukaks) passageways. The lanes were curved and convoluted with blind alleys or dead-end courts. The design of the Islamic city lanes created defensible space, showing the importance of security in the design of Islamic – Arabic cities. With its blind spot design, it was surprising to any stranger. This resulted in the physical appearance of a social fabric that defends itself. A defensible space is a perfect solution to crime prevention in urban design for residential neighborhood environments.

Furthermore, traditional Arab-Islamic cities designed with such alleys were an environmental solution, giving shade to pedestrians. Due to changes in the section of alleys, the air pressure changed and ultimately the air circulated more freely throughout the city lanes and houses. In 2005, a study was published on the air flow circulation in the urban historic structure of Karbala, Iraq. Changes in the fabric of the historic part of the city, in which a large part of the old city was removed and the pattern of street network was also altered, led to a significant effect on the speed and behavior of the air flow circulation (Alobaydi, et al., 2015). Such studies help contemporary urban planners to study, assess and evaluate the benefits of changes in the fabric of these old historical centers.
Traditional design of narrow lanes created a healthy social environment. Since the passageways were narrow, the design gave proximity to passing pedestrians, and therefore, the eye contact levels were higher and eventually the social communications were greater. Figures 2.7 show the pattern of the lanes and the proximity of houses and structures in different three Islamic cities.

![Image of urban fabric in Fez, Tamentit, and Saudi Arabia](image)

Figure 2.7 An aerial view of the urban fabric in Fez (Morocco), Tamentit (Algeria) and a village in Saudi Arabia showing similarity in their geometric complexity

**Source:** Ben Hamouche, 2009

### 2.3.5 The Residential Quarter

The traditional Arab – Islamic city conceptual principles were based on the distribution of volumes, relationships between void and structure, and interaction between the mosque and its function with the surrounding urban fabric (AlSayyad, 1987). The general principle of urban form in the traditional Arab – Islamic cities was organic, with repeated enclosure of voids by interrelated solids, in which avoiding wasteland, and all component of the urban fabric were tailored to the need of residents, offering them protection and identity. It turned out to be instrumental in creating a dense, intertwined urban fabric in the typical Arab – Islamic cities (Hakim, 1986).

Abu Lughod underscored that Islam was not the only reason for the urban form, but it was an important factor in shaping Arab – Islamic cities. Nevertheless, Islam contributed in
numerous techniques (Abu Lughod, 1993).

The vernacular architecture of Islamic city came as a perfect response to the living conditions of both the natural and social environment, based on long experience with local building materials and appropriate technique of climate control. In this regard, the best example was the courtyard, which offered private social space and an environmental solution to the residents in long, hot months. The courtyard house goes back to the Sumerian city of Ur (2000 BC), which responded perfectly to this concern (Bianca, 2000).

Based on the area of the house, the area of the courtyard was designed. Even with modest form, the courtyard made an important contribution to the social and environment quality of life in Arab – Islamic cities. Smaller gardens could be easily integrated into the courtyard of individual houses. The good relation between neighbors of the Islamic cities, both richer and poorer, enhanced solidarity and shaped the social and physical fabric of the residential quarters.

The various components of the physical urban system was based on graded articulation, such as excluded and included spaces, inside and outside or private and public space. For example, the courtyard of a house was a private space for the house, but it was considered as an outside space to the rooms around it. The residential alley was outside to the house, but considered inside the residential quarter, which mostly surrounded by walls and gates. The significance of this design lies in the fact that each contradiction was overcome by the integration into a larger unit in the hierarchical plan. Ultimately, this created a successful amalgamation of individual spaces into larger wholes without any losing individual identity (Bianca, 2000).

This particular arrangement of the house design with the courtyard could be observed in most Arab – Islamic cities. The courtyard constituted a basic unit of urban design. The courtyard house was preferred in the cities of Iraq, Iran, the Gulf States, Syria, and North Africa. All doors and windows of the main rooms were focused on the hub of the courtyard, which was often marked with a fountain. Indeed, the upper edge constituted the primary window of the house, orienting the vision and mind toward the skies.

Private homes In Arab-Islamic cities were once designed to have a certain degree of
sacredness, which was unique in urban design, so we may say that sacredness was spread all over the urban fabric as a whole. A few steps allowed easy interaction between the mosque and the market, and this accomplished the transition from the secular to the sacred spheres (Hakim, 1986).

The residential Islamic neighborhood was shielded from the main streams of public life. The houses often shared walls with courtyards. The inner part of the house was protected against visual intrusion from the street or neighboring buildings. The access from public to residential quarters was usually broken into successive hierarchical sections, which increased privacy. Sometimes dense neighborhoods swallowed the street space and changed it to private access corridors. Dead-end alleyways, gates and thresholds were favored practices to achieve this protection (Bianca, 2000).

The residential neighborhood was generated and sustained by micro-communities, often of the same clan, sharing the same tribal origin. In general, these neighborhood were self-sufficient, independent social units sharing and maintaining the same facilities such as the mosque, hammam, and public oven.

In the Islamic city, the houses were attached to each other and the fabric was cohesive. Parts of the walls were given to the neighbors, and in most of the cases they are clan (family members or relatives). In 1945, George Marcais, incorporating the ideas of William Marcais, noted that there was differentiation between the residential and nonresidential sectors in Islamic cities that created a unique morphology. The residential sectors were often dedicated by ethnicity (Abu Lughod, 1993).

Another reason for the morphology is that most of the properties (houses) were inherited from ancestors and divided between members of a clan. This might explain to us the relationship of relative people living in a neighborhood. Furthermore, the irregular pattern of these cities was influenced by Islamic urban law which governed, for instance, the location of entrances, windows and walls, rights of air and sun, and so on (Hakim, 1986). Awqaf played a significant role in shaping the Islamic cities. Physically, the endowed properties were excluded from the alteration and were protected and saved over time from transformation, and the urban fabric was exempted from changes and subdivision. These properties became landmarks in the Islamic
cities. Their income was able enough to cover all maintenance of the property and the urban space. This may explain to us why the mosque plots did not change over centuries compared to the other plots of Islamic cities.

The privacy of the houses in the Islamic city was given considerable attention, starting with the locations of the main gate, which was not facing the other neighbor’s main gate, with bent entrances designed to create visual blind spots (Hakim, 1986). Most of the windows of the house were opened to the courtyard inside the house, resulting in privacy. Open space was inside the house, and there were no such spaces outside the houses of Islamic city. The courtyard provided for social life and a family atmosphere for gathering, having food and fun together.

The traditional Arab-Islamic courtyard was designed as an ideal response to the Islamic social order. It was the family private space where the family and their extended families socialized daily. The courtyard designs were to enhance the social life with love and leisure. In fact, this represented the keystone of building the positive nucleus of the social bond between the Islamic communities.

The courtyard offered climatic and environmental solutions. For example, the walls prevented the dust storms and allowed more controlled climatic conditions at the center of the house. It provided shade during daytime and stored cool air that collected during the night. In some hot cities, wind catchers (malqaf or badgir) were added on the roof to collect cool breezes and drain them into the lower rooms. The circulating air then cooled the rooms of the house.

Additionally, the courtyard functioned as an environmental buffer with its a yard and sometime with a fountain to lessen the heat. The air streams flowed from street network to the badgirs, which were placed above roof surface. In order to increase the benefits of the cool breezes during long hot summer months, they frequently placed the badgir facing the northeast direction, which is the prevailing wind in Iraq. The badgir was designed to circulate the cool air through the badgirs shafts to the basement (sirdab) and the move to the courtyard through narrow windows made for ventilation and cooling purposes (Alobaydi, et al., 2015). It was an architectural and urban planning solution designed to modulate the long hot summer days in many regions where Islamic and Arabic cities were located.
Most of the materials used in building houses were local and suitable to the terrain and climate of the city. The buildings were two to three levels to accommodate the extended family, and the architecture was based on Islamic art, including arches, domes, minarets and Shanasheel or Mashrabiya (an oriel window enclosed with carved wood latticework located in the second level of the building or higher). In Islamic architecture, the Shanasheel and balconies projected from the street front side of houses, providing privacy to women in which they could peer out and see the activities below in their neighborhood while remaining invisible.

2.3.6 Public Space

Public space was differentiated according to its corresponding specific use such as mosque, madrasa, market and caravansaries. The open space in the residential quarter was designed for the residents of the neighborhood for well-defined social purposes.

To understand traditional cities in Arab – Islamic cities, many studies have been done on social spaces and gender segregation (Lapidus, 1969; Hakim, 1986; Abu-Lughod, 1993). Other researchers studied symbolic representations and the production of meaning, as opposed to structural processes and institutions. It is clear from these studies that Islam inspired urban form and use of space in Islamic societies (Ardalan and Bakhtiar, 1973; Saqqaf, 1987; Noe, 1993), as well as property ownership and control (Akbar, 1988).

AlSayyad (1987) showed how Muslim designers used mass and void during the medieval Islamic city era. The study emphasized design approaches showing the Islamic identity and revealed the rich heritage of Muslim people. Studies in some streets of the old part of the Islamic cities showed that there were significant relations and exceptional sequential planning between mass and openings. One of the main differences between the traditional Islamic city and the modern city is the relationship between mass (building) and space. In modern cities, the building and blocks are surrounded by space, while in the Islamic cities the mass represented the greatest part of the city, and buildings surrounded the space. Due to mass usage of the automobile, the design of streets in modern Islamic cities focuses on allowing accessibility and comfort of movement, ignoring the identity of the Islamic traditional design (AlSayyad, 1987).

2.3.7 The Citadel

Most of the Arab-Islamic cities were once designed with a citadel. The citadel was a
defensive design widely used in the old historical cities. The citadel was used to help in protecting the cities against foreign invasion.

It is uncertain that the early design of the Islamic city was the result of any precise Islamic principles or any certain planning philosophy. There were several characteristics of plan arrangement that might mislead us in understanding their value, such as the open space between Khutat and Turuq, or passageways, which might have acted as barriers to separate the tribes (AlSayyad, 1991).

Knowing the relationship of the garrison town’s typical elements may help us to understand the origins of Arab Muslim planning concepts and will help us to decode its symbolism. Neither the mosque nor the Dar al-Imarah (the governor palace) was meant to be the permanent structure and seat of the government respectively. They appeared late in the 8th century. The residential quarters were designed geometrically, but not necessarily orthogonally divided, according to the ethnic and tribal basis. Each neighborhood shared common social features with tight bonds of social ties. Since the garrison towns were established as army bases, this is might explain to us that these towns did not have wall gates or citadels (AlSayyad, 1991). The conventional war became out-of-date, and this allowed the removal of the city wall and opened wide the doors for sprawl development in the form of suburbs.

2.4 SUMMARY OF HISTORY AND TRADITION OF BAGHDAD

For more than twelve and half centuries Baghdad was a capital city for Iraq, and, for five centuries during the Abbasid Caliphate, it was the capital for the entire Arab and Islamic region. Baghdad enjoyed a rich history. The heritage of Baghdad is an asset, which is not for the people of Iraq alone, but should be shared with the entire world. The citizens of Baghdad have the right to be proud of their past rich history, and many are keen to preserve their legacy. The chapter that follows will be about the modern era and Westernized international urban forms in Baghdad.
CHAPTER 3: PLANNING ISSUES IN THE MODERN ERA

The Ottoman-German alliance during World War I led to the first wave of Westernization in the City of Baghdad. German engineers designed Baghdad’s first modern, Western-style street (Al-Rashid Street) in 1916. This was the beginning of what has been a century-long series of initiatives to upgrade and expand the physical infrastructure of the city, with a special emphasis on automobile transportation. Western urban planning and design standards and models were brought to Baghdad by Britain and later by international consultants hired by the Iraqi government. After Iraq became a self-governed republic in 1958, Iraqi leaders sought Western expertise to further develop the City of Baghdad. Academic literature identifies a tension between the historical character of Arab-Islamic cities and modern, westernized architectural, planning, and urban design styles. The four plans that are the basis for this dissertation research reflect the push and pull of the West and the East, with consultants drawn from Greece, Poland, Japan, and Lebanon. Some keys to understanding the Baghdad urban plans lie in the region’s modern history and in the literature that explores the planning issues of modern Arab-Islamic cities. This chapter, therefore, briefly addresses the history of Western-oriented planning in Baghdad and then summarizes the academic research pertinent to Baghdad city planning.

3.1 HISTORY OF MODERN URBAN PLANNING IN BAGHDAD

Western-oriented planning in Baghdad largely followed the model that is sometimes called Haussmannization, a reference to the creative destruction that took place in 19th century Paris when the Emperor Napoléon III directed his chief officer, Georges-Eugène Haussmann, to oversee a massive urban renewal program that replaced wide swaths of the urban fabric of Paris with the wide boulevards and other noteworthy public spaces of the city that we know today.

Haussmann set a standard that has been both admired and reviled around the world, depending on one’s perspective. National leaders and city bureaucrats alike in the early and mid-twentieth century sought to replicate the destruction-in-pursuit-of-modernization with mixed results. The greatest losses were to historic resources and culturally significant forms of the urban fabric.

Haussmann, enjoying the support of Napoleon III, was able to incorporate many bold ideas into the reconstruction of Paris intended to improve the lives of all Parisians (Carmona, and
Camiller 2002). Most prominent among those ideas was improving the street network by widening the width of existing streets, building new streets of varying scales, and devising a strong zoning regulations system, inclusive of effective land appropriation laws. In 1860, Haussmann expanded Paris’ original 12 “arrondissements municipaux” (administrative districts) into twenty such districts arranged in a clockwise spiral (often compared to a snail’s shell configuration, beginning in the middle of the city, with the first on the Right Bank of the River Seine). Along with the structural reorganization, Haussmann instituted the present zoning regulation system to control building heights, enforce authorized building materials for use as facades, command that building configurations conform to certain guidelines, and provide for the clustering of building groups into comfortable urban spaces within the buildings. Without interfering with the esoteric debates with architects over specific building designs, Haussmann succeeded in creating the modern city of Paris that is admired worldwide for its superior beauty out of what had been a disorganized medieval town. Paris would be known forever after for its reorganization of an urban morphology system rather than simply the reconstruction of an old urban place. It is understandable that Paris would become an aspirational model for the world.

The history of Haussmannization in Baghdad started in the beginning of the twentieth century, near the end of Ottoman rule, with the arrival of the German engineers. Although there was strong resistance, led by the Sunni Awqaf, against the obliteration of the urban fabric in Rusafa, a historical part of Baghdad, Al-Rashid Street was constructed. It was the first straight street in the city. A British traveler, Richard Coke, wrote that in just one night a gang of demolishers demolished about 700 houses supervised by German military engineers (Saliba 2015). The name of this street was originally Khalil Pasha Jada Sa (General Street), or Jada Sa (New Street). This street was built for a military purpose, to link and facilitate a rapid movement between the area of Bab Al Muadam in the north where different government and military facilities were located and Said Sultan Ali Area in the south. In 1921, after Iraq became a kingdom and King Faisal became a monarch of Iraq, this street name was changed to Al Rashid Street (which today has the same name), as a memorial of the 5th Abbasside Caliphate Harun Al Rashid, who ruled from 786 to 809, during the peak of the Islamic Golden Age (Pieri, 2015).

Just after construction of Al-Rashid Street, the Kingdom of Iraq under British Administration was established. The British administrators brought their long experience in
governing colonies and their proficiency in urban planning. During this time, Iraq began in earnest its efforts to build the country as a modern state. Although the first urban planning legislation was based on Ottoman regulation, nonetheless the new legislation is associated with Anglo-Indian urban design (Raouf, 1985). Adoption of new Western street width standards led to the obliteration of traditional urban morphology and the city fabric. One result was the loss of most of the traditional narrow passages (zukak) that gave Baghdad its character and charm.

The British planning model extended to housing and neighborhood design. Six categories of design were planned to accommodate detached and semi-attached residential houses like the garden city example of Ebenezer Howard, which was first defined in the 1902 book, Garden Cities of Tomorrow (1946). Today, this influence can be seen clearly in the neighborhoods of Karada, Saadoun, Adhamiyah and Waziriya. Yet, such plans were just formal impositions, not highlighted by a social reform agenda. Under new legislation, community space was transformed to public space controlled by the central administration (Pieri, 2008).

In 1932, Iraq became an independent state, and the Baghdad capital witnessed rapid growth due to mainly rural-urban migration, better life expectancy, and increased economic opportunities. Prior to statehood, in 1927, the first oil well in Iraq had been excavated at Baba-Gurgur, just north of Kirkuk. This created prosperity for the young nation, even though most of the revenues went to the Turkish Petroleum Company (TPC).

During the middle of the twentieth century, extensive international urban planning technical help was sought by the Iraqi national government. With the help of the World Bank, the Iraqi administration hired international urban planners and consultants to redesign the City of Baghdad and other major cities of Iraq. Before July 1958 when an army coup led to the overthrow of the British monarch, Iraq was aligned with the Western Allies and against the USSR – Egypt (Communist Axis) (Theodosis, 2015). Therefore, Iraq was supported by the United Kingdom and United States in terms of politics, military, economic, and strategic planning (Baghdad Pact 1955). Iraq was a young state with booming oil revenues and a good administration supported by experienced and skilled Western institutions. This support allowed the country to begin social reforms, develop education and infrastructure, and modernize the cities. Many young Iraqi architects and engineers graduated from reputable universities of the
West and then went back home and participated in building the country and especially the City of Baghdad. A Western education became the privilege of success and prestige for the new local elites, and the new internationally trained professionals returned to participate in the Westernization of Iraq.

In 1950, the Iraqi Development Board (IDB) was established to meet the country’s development challenges. The IDB was a strong and powerful government body with the responsibility to plan, invest, and modernize the state, supported by the United States-led World Bank. IDB board members were distinguished Iraqi ministers, such as finance, planning, and public work ministers, and other highly qualified experts with international experience. The Prime Minister of Iraq chaired the IDB. In other words, the West supported Iraq in a way that was similar to the Marshall Plan in Europe after World War II, except that this support was for the purpose of development instead of war recovery, and Iraqi oil revenues funded it.

In 1958, the coup lead by General Qasim occurred, and Iraq became a Republic. After three decades of British and American influence in and support for Iraq, Qasim aligned the country with the Soviet-Egypt axis. In 1968, the Ba‘ath Party seized power through a coup. Four years later, Iraq nationalized the Iraq Petroleum Company (IPC) that had been run by a U.S. and European consortium. The foundation for the next five turbulent decades was set.

In 1979, Saddam Hussein became the president of Iraq and the head of the ruling Ba‘ath Party. He began to execute his own ruling policy based on the Ba‘ath Party's socialist principles, with the help of abundant oil income accelerated by the second oil price hike. Saddam Hussein had a nationalistic dream to lead the Arab nations and to revive Baghdad to its Golden Age once again. Several major planning initiatives began in 1980. Previous urban development had been attentive to the peripheries and suburban neighborhoods, with less attention paid to the core of the city. President Hussein ordered more Haussmannization in the city, and Baghdad became a workshop. Examples of new development include Haifa Street (involved companies from Germany, Netherland, Korea, and so forth), the Al Salhia Building Complex 10 that is close to the Green Zone (International Zone today), and Karadat Maryam, the presidential and administration neighborhood in Karkh. These projects would have continued except that the war with Iran started in 1980, and it lasted 8 years. Government resources went to the battlefields and
many projects were left pending.

President Hussein ordered considerable attention to the transfer of community spaces to create monumental public space. Many open spaces with historical monuments such as the Unknown Soldier and the Arch of Victory were executed during this time. Creation of these monuments responded to Iraqi identity, symbolism, philosophy, and policy, but not to actual urban need (Pieri, 2015).

Beginning with the First Gulf War, also known as the Iran-Iraq War, Iraq has experienced forty years of turmoil and disruption, interspersed with periods that were relatively quiet. Urban planning became an impossible task, and the result is that the last official comprehensive plan for the City of Baghdad is the Polservice plan of 1973. Two other plans were completed, but not formally adopted, after 1980, and they are included in the analysis presented in this dissertation. Given the context of the past forty years, the completed, but not officially adopted, urban plans of Baghdad contain valuable information on the status quo of the times and values articulated by decision makers. Many of the same problems addressed in plans since 1958 remain, even as new challenges have arisen. The purpose of this dissertation is to tell the urban planning story of these critical decades through the plans created for Baghdad. The long periods of disruption have meant that few accounts of Baghdad urban planning in the late twentieth and early twenty-first centuries exist.

3.2 KEY THEMES IN PLANNING LITERATURE FOR ARAB-ISLAMIC CITIES, INCLUDING BAGHDAD

The Arab-Islamic culture of North Africa and the Middle East includes unique expressions of urbanism. This does not mean that Arab-Islamic cities are all alike; they each have their own unique characteristics. Nevertheless, there are some traits held in common, and an understanding of Arab-Islamic cities more generally can inform the study of Baghdad city planning. It is also true that scholarship addressing urban planning in Baghdad is somewhat limited due to the city’s recent history. The broader scholarship of Arab-Islamic cities can be used to inform the study of Baghdad’s particulars, and it will be used to develop a framework for examining the four comprehensive plans of Baghdad that are the principal subject of this research.
3.2.1 Defining Arab-Islamic cities

Before discussing the Genesis of Arab Muslim Urbanism, I would like to give a brief definition for Islamic cities and Muslim cities and what are the differences between the two. The Islamic city may be defined as a city that is built according to Quranic and Prophetic principles and teachings. The Muslim city may be defined as a city where the Muslims live. According to these two definitions, today we actually see Muslim cities rather than the Islamic cities in most of the Muslim world (Jamalinezhad et al., 2011). Islamic or Muslim cities are difficult to characterize because they were created out of a variety of forces and circumstances. In this regard, I emphasize that it is not only Islamic cities, but also Arab-Islamic cities with a focus on the region.

AlSayyad (1991) provided detail on Islamic urban form, recognizing that there are two types of settlement: planned cities like Baghdad and Cairo and spontaneous settlement such as the garrison towns of Basrah and Kufa. The planned cities are the only true representatives of Islamic planning concepts. At the time the garrison towns such as Kufa and Basrah were established when Muslims took over existing well-established towns and cities. This transformation followed a consistent pattern, which was part of an unselfconscious program from caliphs to advocate the Islamization of the city fabric such as Damascus and Cordova. As the garrison town grew, the form changed according to the will of the governor, rather than the Islamic religious principles (AlSayyad, 1991).

The forms of the new established capitals such as Baghdad and Cairo were not representing Islamic ideals, but were physical expressions of symbolic power with Islamic touches (mosques). In fact, they showed the power concept of the politico-religious authority embodied in the system of the caliphate. During their golden age, these capitals attracted thousands of people from the entire world and were over-populated within a short time of their establishment. Therefore, they did not take enough time to develop as capital cities.

According to AlSayyad (1991), Muslim cities existed by virtue of interaction between a numbers of different groups that made Muslim urban society. This is might be true in the case of early Arab Muslim cities more so than at a later date. The form of the Arab Muslim city was also a reflection of this structure. In the formation of the garrison towns, the institutions of Islamic
urbanism were not fully developed, and the design of these garrison towns was more a representation of a process of arbitration and power sharing than any established Islamic institutional structure. But when the capital cities were established, the urban institution of Islam had fully developed. The form of the capital cities was representing the caliph power and institutional authority (AlSayyad, 1991).

The early cities of Islam, which were built or occupied by Arabs – Muslims, were initiated as Islamic, and became increasingly Arabized. These cities were modeled by regional context and local political circumstances. The change in the form of the Arab Muslim city was a reflection of the changing nature of this particular group of people and their emergence as new people on an old land in an ever-changing world.

Bianca (2000) discussed that in the 1950s most of the Third World countries including the Arab-Islamic states got independence from European countries and had established their political self-government body, either through revolutions or peaceful agreements. Indeed, local people replaced most of the civil servants without questioning the adapted system and many central problems were avoided. So the question arises, how were imported Western techniques and approaches adapted to local needs? Ultimately these developing independent states were somehow forced to continue their pre-established economic pattern, which is reliant on the international market. Furthermore, the Western education became the sign success and prestige for the new local elites, which they participated of transforming the Westernization to their local nations (Bianca, 2000).

The socio-economic change brought by the Industrial Age can be observed in the transformation of the existing historic cities. Changes in the urban fabric of these cities usually happened as a part of natural evolutionary process, but the new development was of unprecedented speed and enormous scale. Additionally, the new development did not involve full concepts to bring together the spiritual, social and material concerns within the local cultural framework.

The outcome of this disruption was the disappearance of the all-inclusive focused sense of presence in man’s daily life. The gap between the past and future was opened up, pulling the present apart from many of its indispensable local merits. Unfortunately, the past became a part
of history, along with science, curiosity and romantic longing. The future was based on new hopes and plans with ideals of progress, but the results never reached the indefinable goal. Thus the built environment was subject to these two contradictory polarizations between the conservationist and modernist (Bianca, 2000).

The strength of many Arabic - Islamic cities lies in the local social life of the communities that reside in the residential historical city centers. Although it is often poor, facing a lack of facilities and infrastructure services due to the exodus of its former bourgeoisie residents and replaced by rural immigrants, yet strong bonds of social solidarity are maintained based on the affinity to the traditional culture, which is modeled by the old urban structures. The weaknesses of these cities reside in the division of the cultural identity and the uncritical Westernization of the new ruling class, which supports institutional structures, administration procedures, investment priorities and technical approaches that have an impact on the rehabilitation of the historic cities and even accelerate deterioration and obliteration of the urban fabric. The history of turmoil between nations in the region exacerbates these conditions.

Pieri (2008) discusses the conceptual clash between the pre-modern historic center and the periphery of modern neighborhoods in Baghdad. Pieri studied several historical and political contexts that revealed the connection between modernity and identity in the City of Baghdad during the twentieth century to be unoriginal. Pieri (2008) defined the means and confines of architecture and urban planning in Baghdad that developed to express the Arab and Iraqi identity (Pieri, 2008).

Indeed, there are no ready answers to solve the problems that exist in many historical Arab-Islamic cities, but the best solutions appear be based on the right mix of uses and complementarity between the old and new city centers, with encouragement of interdependence rather than antagonism. The design of transitional areas between the two, old and the new parts is needed to provide functional integration, while securing physical variation. The physical characteristics of the remaining historical parts of the old cities, such as the walls, the gates, and the narrow lanes, need to be protected against automobile traffic, and, in order to ease transportation, public transport is a common recommendation.

Bianca (2000) underscored that, in order to achieve a balance between the opposite
forces, urban planners and policy makers should be cautious in adopting modern development which impacts the physical and social life of the historical part. Also, at the same time, very restrictive conservation policy may prevent the city from fundamental development (Bianca, 2000).

There were two options for new development in these cities. One involved superimposing the new city on the old historic fabric by cutting the old fabric with new large roads and sites for civic buildings. The other involved setting up new residential quarters on virgin land. The median French solution of twin or parallel cities allowed both to coexist close to each other, side by side. We can witness several good examples of this urbanization policy in many cities that were under French colonial administration, such as Damascus, Aleppo, Fez, Rabat Marrakesh and Tunis.

Pieri (2008) emphasized that we should stop debating these dichotomies: traditional versus modernization/westernization, East versus West or Arabians and Iraqi identity. Instead, we should focus on the cross-cultural issues, and also address the colonizers’ objectives and the local actors’ objectives (Pieri, 2008).

With the increasing migration from rural areas to cities and with booming oil revenues in the 1970s, the socio-economic aspects of the society were affected in most of the Arab-Islamic cities. This led to new demand for residential units. In modern designs, there were changes in the architectural features and the design philosophies of the small neighborhood unit from organic shape to geometric design, from pedestrian-oriented type to vehicle-oriented style, which had broad effects on social space.

Al-Thahab et al. (2016) concluded that privacy plays a significant aspect in reinforcement of social interactions, which, in turn, increases the ability of space to achieve a more sustainable and secured residential environment. This research concluded that there is a desperate need for heritage planners in the Muslim Arab cities, and that space and community should be the core of the design. Open space has an impact on land use pattern, building densities, and the mix of land uses across the city.

Bianca (2000) concluded that a revised approach to urban planning that balances historic
preservation with new development does not mean that we discard any development or that we advocate conservation at any cost. Instead, it is to propose suitable and appropriate structuring principles, which can be revised, modified and prolonged. The urban planner should meet the needs of the social groups and the requirements of the administration and help bridge the gap between the two. Finally, before incorporating the modern into the historical fabric, it should be well examined to see the consequences and determine whether the intervention responds to human needs (Bianca, 2000).

3.2.2 Regional identities of Arab-Islamic cities

Oweiss (1988) discussed that Ibn Khaldun (1332-1406), the Arab philosopher and sociologist who wrote the well-known book that was translated into many languages, Muqaddimah Ibn Khaldun (The Introduction of Ibn Khaldun), wrote that, in addition to geographic and environmental factors, the growth of cities is attributed to economic and cultural factors and what services and utilities that the city can offer. He emphasized that the development stages of such factors have great effects on the growth of major cities (Oweiss, 1988)

Abu –Lughod (1987) questioned if Islamic cities were similar, and also if the religion of Islam influenced the city form. He asserted that there were unique forces that were the drivers that created traditional Islamic cities. Understanding the social life, the role of boundaries among residents of the neighborhood, which can be either physical or social, informs our comprehension of the differences between traditional and contemporary design and the role of densities of the Arab - Islamic cities.

Al Hammad (1988) discussed the fact that major Arab urban centers have seen incredible growth and development, especially their capitals and major cities such as Alexandria, Algeria, Amman, Baghdad, Beirut, Cairo Casablanca, Damascus, Khartoum, Kuwait, Riyadh and Tunis. At least two of these cities, Baghdad and Cairo, are mega cities (10 million inhabitants and above). The growth and development are complicated because of:

• Urbanization problems
- Administration and management problems originating from their particular historical deep-rooted setting, including social, cultural, economic, political and environmental factors.
- The centralization of political and administrative policy and services such as education, health care, social, cultural, welfare, financial and recreational.
- Limited job opportunities

Al Hammad (1988) underscored that the rapid development occurred because of the urbanization problem (rural-urban migration), high birth rate, and administration and management problems such as the lack of job opportunities, industrialization and the centralization of policy decision making, and services (education, health care, social, cultural, welfare, financial and recreational). Such explosive growth poses urban problems. Today, most of the major Arab cities including Baghdad are facing these problems, and they need to do urban renewal, balanced development, high-rise housing, care of the squatter settlements and development of sound master plans (Al Hammad, 1988).

Further new development and growth might lead to unbalanced growth between regions. Indispensable services and utilities are located in the capital and major cities, and today large cities are suffering from over-extending their limited services and utilities.

Ben-Hamouche (2009) discussed the urban fabric of the traditional Arabic - Islamic cities as being very complex. Morphological complexity varies from city, depending on their age; in other words, the complexity of the city fabric is a reflection of how old the city is. This is a result of interaction between the physical settings of cities, the tradition of the communities and legal tools that originated from the Islamic law Fiqh.

3.2.3 Planning challenges facing Arab-Islamic cities today

Bianca (2000) discussed planning challenges facing Arab-Islamic cities today. Due to the historical background, appearance, lack of technical and institutional capabilities, and complex physical and social rehabilitation problems, the rehabilitation of the historic parts of Arab –
Islamic Cities has not been a priority. Whether it is whole demolition of the old historic city or its deterioration, the main problem is with the decision makers who are alien to the cultural tradition of their own societies, and with lack of technical support and institutional tools to demonstrate a viable model. Adopting the grass-roots level of traditional cultural patterns and avoiding the risk of superficial transfers or dependence on foreign principles might help in solving the problems of the historical cities. Such processes carry the promise and may contribute to bridge the gap between the tradition and modernity (Bianca, 2000).

With reference to the urban renewal today, most of the major Arab cities are facing this problem and they need to re-think and introduce multidisciplinary and multi-institutional urban tools to overcome and bridge the huge gap between the rich historical heritages, which need preservation, and the future, contemporary design. Collaboration between different city administrative entities and institutions is immediately needed. Housing problems are aggravating major Arab cities due to urbanization and migration from rural areas. Growth is unplanned, and this puts pressure on the resources and utilities, which are inadequate in these major cities. High-rise buildings and use of local materials are examples of solutions found in the literature.

Additionally, the peripheries of most of the major Arab cities have squatter settlement. Without sound master plans, all the above solutions are impracticable. Also, a legal framework for urban development and urban planning is recommended. The shortage of finance and other development resources in some of the major cities is a persistent issue; taxation and other tools of finance are suggested.

Meikle (1987) compared experiences in two major Arab capitals, Baghdad and Cairo. She was involved in a direct aid funded project in Egypt from 1974 to 1982 (Meikle, 1987). Meikle (1992) also, worked in Iraq as a sociologist in an urban settlement in the 1980s with the Japanese consultants that produced the Integrated Capital Development Plan (ICDP). In the writer's point of view, some plans were suitable, and some were not. Meikle pointed out the similarities of these two countries, each with dominant capitals in the settlement hierarchy in terms of size, with old and rich historical heritage, urbanization and growth. The two are Arab and Muslim countries sharing the same political and social cultures based on ancient civilizations. The two countries have similar centralized institutions located at their capitals, which encourage migration to their
capitals. Meikle showed that Baghdad had grown quickly, with the population increasing 4 - 7% yearly, relative to 3+% in the rest of the country. She highlighted the reasons behind this growth, which encourages migration to the capitals. The study concluded that the ICDP indicated the significance of the contextual and dynamic variables on design performance, and that this might provide an opportunity to predict and thus plan for the resolution/management of potential conflict. This could be achieved by reexamining the conflicting goals of sub-groups (Meikle, 1992). Comparing between the two major historical Arab – Islamic cities and showing the two capitals serious urban problems, such as population increase, expansion of the city, the need for job opportunities, and the concentration of financial and administrative services is a major contribution of Meikle.

Al Hammad (1988) concluded that the urban problems facing the major Arab cities are similar. It was recommended that all problems to be tackled together because they are related to each other and that addressing one problem would not help in solving the entire problems. Al Hannad suggested that this could be achieved through cooperation between different administrative departments. Formation of multi-institutional committees in the urban major cities was considered to be immediately essential (Al Hammad, 1988).

Ben-Hamouche (2009) examined rapid demographic growth and the increase in the use of private automobiles that impacted the traditional districts of historical Arab – Islamic cities. Ben-Hamouche asserted that it is possible to overcome the antagonistic debate between tradition and modern development by reinterpreting tradition in the light of modern needs and allowing the modern development to serve the notion of culture and urban continuity.

The introduction of new architectural models into a different cultural contexts has great impacts. The Western type of development was alien to the Arab- Islamic cities, people and environment, and it produced an architectural disruption in the physical environment. New development should address local customs and human behavior, and the architecture should be fitted to the users themselves.

Bianca (2000) discussed that developing countries were adapting the modern movement, as unquestionable sign of progress, regardless of its appropriateness. Policymakers still take for granted the validity of the foreign philosophies and the unverified unfashionableness of their
own traditional urban heritage. The conceptual debate between the traditional design and modernity continues, and it is widening, taking into consideration a new factor, the environmental sciences. Modern urban planning tends to design buildings in a vacuum and to produce isolated blocks, causing a loss in important qualities. Individual buildings do not contribute to the definition of public space and private space as related to the corresponding community activities (Bianca, 2000).

Today, most Muslim countries are adapting to universal international modern techniques of urban planning and development (Ben-Hamouche, 2009). These techniques were inherited from their colonial rulers, and, after independence, many Muslim and Arab countries sought the consultancy and advise from international firms. Therefore, these urban planning tools were imported into a system that is more deep-rooted and incorporates local custom, values and practices. In order to meet the demands of western regulation and administration, sometimes practices were copied and implemented irrespective of the characteristics of the Islamic Arabic city and its rooted legal heritage.

During the colonial period, there were many efforts to combine modernity with traditional design, but most of the efforts failed because they used Islamic art out of context. This can be overcome if the prevailing division is openly acknowledged and not overlooked or masked. Testing pragmatic solutions and taking lessons from actual field work would help to make these cities viable and create understandings between tradition and modernity in urban planning (Bianca, 2000).

3.2.4 Planning challenges facing Baghdad today

In the late 20th century, as socioeconomic activities were becoming diversified, urban structure in general was gradually moving from “monocentric” to “polycentric”. Accordingly, primacy of a capital city was relatively declining. Sub-center and satellite urban centers of the capital cities have been developed not only as population centers, but also sharing primary functions with the Central Business District (CBD) area to grow as uniquely characterized satellites. In this way, a capital city expands its city limit over the suburban area to form its own metropolitan area and becomes a “Mega City”. At the end, the City of Baghdad was not an exception.
This was not only the case of Baghdad. It was happening in many developing countries of the world. This vigorous urbanization phenomena mainly caused by internal migration became the worldwide trend in the middle of the twentieth century. Therefore, there was an imminent question to establish a viable planning standard among politicians and planning professionals concerned about mass migration flooding into existing communities. The urban planning and design choices have direct consequences on the city. The main objectives of urban design are to order the development of the physical characteristics of the city as it grows with the aim of creating an urban environment that is aesthetically attractive and physically comfortable, vibrant and efficient.

The strategies of the urban design amalgamate and organize how development proposals, whether public or private, at the scale of individual buildings or public infrastructure networks and facilities, will affect the physical make-up of the city. Urban design is concerned with the aspects of the city that are public and includes urban or public spaces, the spatial corridors created by streets including street facades and sidewalks, the public pedestrian domain including sidewalks, alleyways, pedestrian nodes, parks, piazzas and suqs. The concept of “neighborhood,” which is a basic human habitation unit, and efforts to ensure basic human needs are also components of urban design, all of which should be addressed within the context of the city as a whole.

Pieri (2015) shared a brief outline of the history of Baghdad where urbanism was mostly imposed from above, first by colonial powers such as the Ottomans and the British, and then later by the Iraqi government with their political and ideological agendas. Pieri mentioned that Baghdad’s urban context of today is divided between two contradictory extremes, a deteriorated and neglected historical center dating to the pre-modern era and the large-scale of peripheral modern neighborhoods. Pieri addressed urbanism post-war of 2003 and presented a sectarian map of Baghdad, based on the 2030 Lebanese master plan, which limited its heritage survey to Polservice plan, and the study of Bianca team (Pieri, 2015).

Finally, Pieri underscored that, despite the challenges of sectarian and social struggle, there remains a social mix of different people in the heart of Baghdad, which may turn out to be important to modern social peace for the future of the capital (Pieri, 2015).
Pieri (2008) mentioned that an impressive historical myth has been masking the capital city of Baghdad. Given this, the author questioned “can a city become modern and westernized, losing its oriental Arab – Iraqi quality, without losing its identity”? Today, Baghdad’s urban modernity is the vulnerable sum of composite history and a composite identity. Understanding Baghdad’s twentieth century architecture and urban form would be helpful to understand the Baghdad’s urban context of the past, present and future.

The tensions between tradition and modern urban planning and urban form exist throughout the Arab world; they are not unique to Baghdad. In the City of Baghdad, rebuilding after years of war, there remains a challenge to bridge the historical heart of the city with the peripheral development that surrounds it. The historic core has been ravaged by years of neglect, but parts of it remain intact and are vital to the cultural identity of Baghdad’s residents. Rapid population growth, continuing through the war years, has led to informal settlements at the edges of the city and increased density in neighborhoods like Sadr City. Baghdad still lacks a city plan to guide its reconstruction. Such a plan would guide urban development toward this balance of historic preservation and modern construction to house the growing population.

Despite lacking a recently adopted plan, Baghdad has been the subject of four noteworthy planning efforts since the middle of the last century. In this dissertation, these four plans are studied and compared. In the next chapter, the methodology that guided this historical review is explained.
4 CHAPTER 4: RESEARCH METHODOLOGY

Authors often delineate qualitative research methodology from quantitative methodology (Creswell, 1994). However, Ragin (1987) characterized a key distinction when he said that quantitative scholars work with few variables and many cases, whereas qualitative scientists rely on a few cases and many variables. In this study, I take a qualitative approach, studying four cases (four plans) and a wide array of variables contained within each.

Denzin and Lincoln (1994) defined qualitative research as “multimethod in focus, involving an interpretive, naturalistic approach to [the] subject matter.” This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomenon in terms of the meanings people bring to them. Qualitative research involves the study, use and collection of a variety of empirical materials - case study, personal experience, life story, interview, observation, and historical, interactional, and visual texts – that describe routine and problematic moments and meaning in individuals lives. Creswell (1998) defines the qualitative approach as being “an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting.”

Creswell (2013) expressed that the best way to understand a qualitative study is to review carefully the way the research data were collected. In this chapter, I will discuss the qualitative methodology that I adopted for my research. The first section will discuss historical and archival methods. Section two will examine the comparative case analysis. I will address plan comparison in section three.

4.1 HISTORICAL AND ARCHIVAL METHODS

A common research methodology in urban planning research is the analysis of planning documents, a form of content analysis based in historical and archival research methods. It might also be considered case study analysis, with the individual plans being cases. Qualitative historical research is a methodological approach that employs qualitative instead of quantitative measurement and the use of primary historical documents (in this case, plans) or historians’ interpretations for the purpose of theory development and testing.
As Odell (2001) described historical research, a case is “a single instance of an event or phenomenon.” Ragin (1992) explained that these instances must be “similar enough and separate enough to permit treating them as comparable instances of the same general phenomenon.”

There are guidelines for researchers to lessen the foremost problems associated with qualitative historical research, such as investigator bias and unjustified selectivity in the use of historical source resources. These guidelines allow scholars to improve the quality of their historical research. How does the researcher choose from the historical record the resources that will best help one to develop or test theory, or even simply describe a set of events, in a particular case or small set of cases? Clear writing of qualitative historical research based on a selective, critical reading of sources that synthesizes particular bits of information into a narrative description or study of a subject is essential.

Historical research focuses on the analysis of primary and secondary sources of information. Odell (2001) noted that, in historical research, a case is “a single instance of an event or phenomenon.” Ragin (1992) explained that these instances must be “similar enough and separate enough to permit treating them as comparable instances of the same general phenomenon.” Multiple plans for the City of Baghdad, developed at various points in time since the middle of the twentieth century, meet this definition of cases.

An important step in the research process is to select the historical source materials. This is an unquestionably vital step in the analysis as the historical date becomes a source of material, proof of manifest and hidden events. The following subsection discusses the foremost problems faced by qualitative academics as they begin to choose source materials: unwarranted selectivity and investigator bias.

4.1.1 The Selection of Source Materials

The selection of source materials for a research project must guard against claims of unwarranted selectivity and investigator bias. This is an inevitable part of qualitative research, and, in fact, all studies in the social sciences should be carefully examined for these problems. One of a researcher’s main goals is to reveal that the choice of primary and secondary source materials was made to lessen the possible contrary effects of selectivity and bias. Odell (2001) described if a scholar fails to do this, the research is subject to criticism.
Lustick (1996) addressed “How are social scientists, intent on using historical episodes to test their theories or to elaborate their typologies, to choose among differing accounts of the past?” According to (Collier and Mahoney, 1996) selection bias arises when “some form of selection process in either the design of the study or the real-world phenomena under investigation results in inferences that suffer from systematic error.” However, all historical research encompasses some degree of selectivity, whether of primary or secondary source material, as well as the possibility of bias. The solution to these problems is to validate the selection of materials and minimize the various categories of bias that selection unavoidably involves.

In this research, original planning documents created by different planning consultants for the City of Baghdad constituted primary source materials. The sample of plans created for Baghdad since 1950 is 100 percent. All four plans were collected and analyzed. This has the effect of eliminating the problem of selection bias.

The other problem to avoid in this type of research is investigator bias. One way that this bias is confronted in this study is to disclose the history of the author’s association (my association) with Baghdad city planning. Another way to address this is to cross-reference conclusions with interpretations of other scholars of Arab-Islamic cities. Ultimately, as Gaddis (2001) noted, historians usually acknowledge the problems posed by bias and selectivity “and then get on with doing history as best we can, leaving it to our readers to determine which of our interpretations comes closest to the truth.”

The other research category in which this study fits is comparative case analysis. Comparative case analysis is discussed in the following section.

4.2 COMPARATIVE CASE ANALYSIS

The significance of plans is an important field of research among planning scholars. Plans are precious because they can summarize concepts for the future, manage and control urban development, and assist as communicative signals about values and intentions that can influence a wide range of community conditions (Kaiser and Godschalk 1995; Hopkins 2001; Berke and Godschalk 2009). However, plans have been critiqued for failing to live up to their promise of being realistic, complete, and attainable (Altshuler 1967; Friedmann 1993; O’Toole 2007).
Neuman (1998) emphasized that regardless of the growing consideration and benefits to the field of planning process, the plans themselves remain fundamental to the field and are worthy of analysis (Neuman 1998; Lyles & Stevens, 2014). Comprehensive plans stand the core of the urban and regional planning. Yet, Berke (2009) discussed that despite the importance of comprehensive plans to the profession of city and regional planning, there is a gap in knowledge about the quality of plans, as they are not routinely evaluated against best practice standards. Berke discussed plan quality evaluation, an emerging methodology for assessing plans. Also, planning scholars have reviewed the evolution of the planning concept, the dimensions covered, and the principles and criteria used.

Local comprehensive plans play an essential part in guiding and regulating urban development (Kaiser and Godschalk 1995). Countries such as Holland and New Zealand have adopted national legislation mandating that local plans and implementation actions integrate key principles for sustainable land use (Beatley 1999; Berke et al. 2002). Adopted plans have wide-ranging powers to influence environmental justice, quality of life, economic opportunity, disaster resistance, transportation efficiency, infrastructure costs, and many other important aspects of community life (Berke, Godschalk, and Kaiser 2006; Bullard 2007; Burby and Dalton 1994; Burby et al. 1997; Knaap, Ding, and Hopkins 2001; Meck 2002).

Berke and Godschalk (2009) discussed that only methodical evaluation allows us to identify the plans specific strengths and weaknesses, to review whether their overall quality is good, and to deliver a foundation for safeguarding that the plan reaches a desirable standard, how well plans realize their objectives and how well planning processes have been applied. We evaluate plans according to up-to-date standards of good practice. By not evaluating our plans and planning processes, we actually miss a precious opportunity to realize how to improve the plans. Schon (1983) discussed that the spirit of an occupation, such as city and regional planning, is its capacity to established and implement high standards of practice. Good consultants learn from reflecting on their experience and on the quality of their work.

Baer (1997) carefully assessed how plan evaluation works and endeavored to answer the question of how you would know a good plan if you happen to see one. He tackled both modernist and postmodernist matters, reviewed available criteria, and suggested a terminology
for plan evaluation. He recorded that the evaluation will vary according to the type of plan under consideration, which can include plans as visions, blueprints, land use guides, solutions to current difficulties, responses to administrative requirements or mandates, process-oriented activities, and practical arrangements intended at refining legal or statutory bureaucratic frameworks.

Four plans for Baghdad are evaluated in this study. These plans were developed at very different points in the city’s history, spanning a period of approximately sixty years. None of the plans were developed by local planners; they are all the products of international planning consultants. In terms of plan quality, they are all high quality, reflecting the best practices of their times. In terms of scale and planning topics addressed, the four plans are very similar, and they make good cases for comparative analysis.

4.2.1 Sample selection

There have been only four plans produced for Baghdad in the past sixty years. The plans evaluated in this dissertation represent a 100 percent sample.

4.2.2 Validity and Reliability

Validity and reliability of research are of great significance to the outcomes of any scientific research. Moreover, as Dornyei (2007) stressed, validity and reliability measures serve as assurances of research results. Validity indicates the degree to which a study reflects the specific concepts that it aims to investigate. Reliability is a measure of consistency, indicative of whether the research method produces the same results if the study is repeated.

In this study, validity is enhanced by the use of planning literature to identify concepts that are then used to examine the plans for Baghdad. This aids internal validity, degree to which a study is actually calculating and what it is supposed to measure (Berg 2007). External validity responds to the question of generalization of findings. As is common in case study research, the situation in Baghdad is unique. The findings of this research cannot readily be generalized to other cities, but there is some basis for generalizing to other Arab-Islamic cities. The literature review includes many examples of commonalities, and differences, between Baghdad and other Arab-Islamic cities, and the limits of generalizability can be drawn from that research.
4.3 SELECTION OF THE STUDY SITE

The twentieth century had witnessed enormous changes in the modern history of urban design in Iraqi cities in general and in the City of Baghdad in particular. Some changes are due to the remarkable increase of urbanization (increase in population of cities, mainly Baghdad), others are due to tremendous increase in the usage of automobile, and, of course, other associated impacts such as economic and social aspects which changed the morphology and the urban fabric of the Iraqi cities. This had led the policy makers in Iraq to look into solutions for the aggravated problems. The approach chosen was to hire international urban planning consultants to redesign the City of Baghdad and other major cities of Iraq. This was especially true in the middle of the twentieth century when extensive international urban planning technical assistance was sought.

Throughout the twentieth century, four different urban plan designs were presented to the City of Baghdad by different international planning firms to categorize, control and organize the urban land uses in the City of Baghdad. Each of these plans was related to the planning consultants’ background, school of planning, philosophy, themes and approaches that the consultants sought to introduce to the City of Baghdad.

4.3.1 Comparative plan review and content analysis

This research was carried out in two phases. The first phase involved the literature review and plan collection. The second phase was a comprehensive study involving a thorough comparative plan review and analysis of four international plans: the Doxiadis Master Plan of 1958, the Comprehensive Development Plan for Baghdad 2000 by Polservice Consulting Engineers of 1973, the Integrated Capital Development Plan (ICDP) of Baghdad 2001 of Japanese Consortium of Consulting Firms (JCCF) of 1990, and the Baghdad Comprehensive City Development Plan 2030 by Khatib & Alami of 2018. The research aims to collect, study, evaluate and analyze the urban planning history in Iraq, and precisely in the City of Baghdad from middle of the twentieth century until the present.

Data collection for this project was challenging. Even the City of Baghdad does not have all four plans in their possession, in part because of the fact that official adoption of all four plans had not occurred. In 2016 and 2017, I began the process of locating the planning documents. I made several attempts to locate the information by contacting my old, now retired, professors,
former peers and a wide range of contacts in Iraq at the University of Baghdad, Institute of Urban and Regional Studies, University of Technology at Baghdad and the Mayorality of Baghdad (MOB) to obtain the documents. I endeavored several times seeking their help to support me with the documents.

In order to make comparison between the four plans, the hardest part was to locate the four documents. The time period of interest is considerable, over sixty years. During that time, many unprecedented events happened in Iraq, such as revolutions, wars and turmoil, and no agency, including the MOB, has all of the documents. Moreover, most of the documents were published before the digital era and are available only as hard copies. My ex-colleagues assisted me with scanned maps and some scanned, but unclear, documents. Therefore, I decided to find other alternatives to locate the documents. In the spring of 2018, Ruth M. Owens, the Senior Assistant Librarian at the Moon Library (SUNY-ESF), met with me to discuss options available through the library system. The Doxiadis plan was acquired in this way.

4.3.1.1 Doxiadis Master Plan 1958

In April of 2018, contact was made with the Doxiadis Association (DA) to inquire about the availability of the 1958 Master Plan of Baghdad, which was published by Doxiadis Associates. Was it possible to obtain a copy of the maps and drawings of the Master Plan for the City of Baghdad, 1958 from your archives? These materials were not available through the usual mechanism of interlibrary loan. Through a direct request to the Doxiadis archives, these materials were obtained. I requested the maps and drawings of the Master Plan of Baghdad from Doxiadis Association. I obtained this plan in pieces, specific sections I requested, and I am not sure that there is one complete document available.

The Doxiadis master plan is located in the “Report on the Development of Baghdad.” It was the best document available to answer the research questions, including: What were the policy prescriptions for dealing with the population growth in Baghdad? How were density and infrastructure issues addressed? What parts of the city was targeted for future development? The three documents received from the Doxiadis Association are:

1. Report on the Development of Baghdad
   Periodical Report NO 3
Tentative Suggestion for Discussion on Circulation Problem
Document DOX- QA 90, 14-2-1959

2. Report on the Development of Baghdad
   Periodical Report NO 4
   Tentative Suggestion for Discussion
   Document DOX- QA 91, 14-2-1959

   Periodical Report NO 5
   Tentative Suggestion for Discussion
   Document DOX- QA 95, 20-4-1959

The DA also provided a limited number of digital images. DA does not provide copies or reproductions of entire files or collections. In late April of 2018, I filled the request forms and started communicating with DA Archives directly. The reply from the Archives indicated that the requested studies were not yet digitized, and that the DA would begin that process soon in response to my request. I received the requested documents one month later.

4.3.1.2 The Comprehensive Development Plan for Baghdad 2000 by Polservice Consulting Engineers 1973

The 1973 Comprehensive Development Plan for Baghdad 2000 by Polservice Consulting Engineers was obtained from Massachusetts Institute of Technology (MIT) through interlibrary loan. I scanned the entire book for later analysis. After several visits to the Landscape Architecture Computer Lab and with the assistance of Deb Storrrings, I scanned the maps in color. This scanned document is the basis for the analysis of this particular plan.


For much of late 2017 and early 2018, I tried to obtain this document from Iraq through my contacts with the Mayoralty of Baghdad (MOB) or with other former peers and friends, or from Japan, but all my attempts failed. Due to the Gulf War of 1990/1991, the Japanese Consortium of Consulting Firms (JCCF) office was closed, and no document were available even through the MOB. In April of 2018, the ESF librarian directed me to the website of Tobia Architects in Toronto, Canada, a firm that worked on the Integrated Capital Development Plan
(ICDP) with JCCF. Through subsequent contact with Tobia Architects, I learned that they did not have a copy of the plan, but Ms. Nadia Tobia offered to contact colleagues of hers from the time of the project and other colleagues in Baghdad who may know how to get the material. Unfortunately, Ms. Tobia did not have a copy with her in Canada and not aware if there was a digital copy. She forwarded a request to several of her colleagues those were working with her on the same project in the past and asked for their assistance.

In that same month, April of 2018, Ms. Tobia introduced me to Mr. Yasuhiko Yamada, a Japanese planner who was the Director of the Japanese Consortium of Consulting Firms (JCCF), a consortium of seven consulting firms that created the 1990 plan. For the development of the ICDP, Mr. Yamada was the head of the consortium through the many years of plan development. Currently, Mr. Yamada lives in Vancouver, Canada, and he extended his help. I wrote to Mr. Yamada, explaining the kind of information that I needed and inquired about the availability of the reports.

Yasuhiko Yamada has been working as a development consultant in the fields of regional planning, urban planning, and economic sectors, such as tourism and community development. The bulk of his professional career has focused on overseas consulting services to foreign governments. Most of the consulting activities throughout his career were undertaken as a core member of Japan City Planning, Inc. (JCP), established in Tokyo in 1967 together with his brother Sohiko Yamada, architect. After JCP closed its doors in 1991, Mr. Yamada has been working as an independent consultant, mainly assisting his sister, Sonoko Nagai Miles, on projects in North America. Establishing contact with Mr. Yamada was a turning point in my research.

Following email contact, Mr. Yamada replied that, “I’m glad to know that Iraqi researchers are interested in the Master Plans once projected for the great capital city of Baghdad including our ICDP study.” Mr. Yamada suggested that we speak discuss the project and how we might cooperate. On May 3rd, 2018, I had the first phone conversation with Mr. Yamada. Mr. Yamada had lived in Baghdad for about 10 years while the ICDP plan was being developed. Our discussion that day was fruitful, and there have been many subsequent discussions. The first part of the plan that was shared with me was the table of contents. Since ICDP work was suspended
at the Draft Final Stage, the documents that I analyzed from this planning effort were draft copies. An YGG staff person created digital copies of the plan and sent them to me in November of 2018.

4.3.1.4 2018 Baghdad Comprehensive City Development Plan (CCDP) 2030

Since the 2018 Baghdad Comprehensive City Development Plan (CCDP) 2030 by Khatib & Alami of Lebanon was the most recent plan, it was a priority to obtain. Indeed, it was the hardest task to obtain this latest plan even though it is existed in a digital format. Since the Mayoralty of Baghdad (MOB) had not approved the study, and the plan was not officially published or available. I knew that the plan had not yet been released, but it had been discussed in two academic papers published in 2015. Contact with the Lebanese Landscape Association President who worked on the Landscape Planning and Strategic Intervention section of that plan yielded no positive results. In Jan of 2018, Dr. Jala confirmed that she was landscape planning consultant to the Baghdad CCDP 2030. The lead consultant was Khatib and Alami, and Dr. Jala was not at liberty to share data and maps. She asked a few days to enquire at Khatib and Alami as to who is heading the team. Dr. Jala did establish a connection to Khatib and Alami, but the reply was polite, but negative:

“The CCDP 2030 project is still ongoing and the client did not approve it yet, and we are obliged to the contract, which restricted the consultant from passing any material since it is the property of the client.”

Despite numerous attempts to acquire this plan in 2018, mostly through personal contacts in Baghdad, it was not until February of 2019 that I received the complete plan. On February 17, 2019 I received the full document of Baghdad Comprehensive City Development Plan (CCDP) 2030.

Finally, in early 2019, I had obtained all four plans: Doxiadis 1958, Polservice 1973, JCCF 1989, and CCDP 2018 that I needed to do the comparative. I would say that I am the only individual/firm who has all the four plans. Even the MOB does not have the entire set.

In the next chapter, all four plans are reviewed. Key concepts are identified, and the plans are compared to one another.

Baghdad’s population growth has been the focus of all of the planning studies produced in the modern era. In any urban planning studies, population projections are considered to be one of the most fundamental factors, because population growth itself suggests the future course of urban development of a city. Therefore, in planning process, the population analysis is the first step for the planners to be carried out. Planners are concerned about the impact of the city’s changing population on the ability in order to provide services to citizens. All plans created for Baghdad since the Doxiadis plan of 1958 have focused on how to accommodate a growing population, and this common trait serves as a basis for plan comparison.

In urban planning, attention has also shifted to the socio-economic profile of the population. Planners study changes in composition of the population in order to plan for education, health care, social services, infrastructure, and economic development projects. Various data and information acquired by a household survey, such as number of residents, gender, age, level of education, marital status, income, and living arrangements provide planners with the type of information needed to plan for residents’ diverse needs.

Density planning is considered one of the major studies of urban planning. Many scholars have theories about optimum densities for a community and city. In fact, there is no optimum standard for population density as it tends to be culturally specific. There is no any “carrying capacity” for density planning. Various factors, such as building technology for high rise architecture and planning trends such as compact growth and mixed use development, shift acceptance of higher densities. In Baghdad, accommodating significant population growth in a dry climate with limited expansion possibilities has meant increasing density within the existing urban footprint, for the most part. Traditionally, though, Baghdad was a relatively low density city. Density and population growth provide two important ways to assess the plans produced over the last half century.

In the remainder of this chapter, I will present the key components of the four Baghdad plans and conclude the chapter with a comparative analysis. The plans will be assessed according
to the following dimensions:

- Drivers of planning at the time of plan creation
- Recommended spatial configurations for new residential areas
- Evaluation of plan results, including extent to which plans were realized

5.1 THE MASTER PLAN OF DOXIADIS FOR THE CITY OF BAGHDAD 1958

In the middle of the twentieth century, the government of the United States waged a cultural and political battle to halt the progress of communism, subsidizing, among other proposals, urban development to influence international politics. Modern urbanism was a powerful tool of “soft-power” aimed to endorse worldwide American values and principles.

The attempt to counter communist influence was supported by the Iraqi government, the British establishment, and the oil companies that endorsed urban development plans. It is worth mentioning here that the Ford Foundation provided the main explanation for the success of the Doxiadis Association’s (DA), as it countered the difficulties of the local experiences and planning in developing countries (Theodosis, 2015).

5.1.1 Minoprio plan - 1956

The Doxiadis plan of 1958 came shortly after a plan developed by the British consultants, Miniprio, Spencely, and MacFarlane. The Greek planner, Constantinos Doxiadis, who was contracted to develop a housing plan for Baghdad, was not comfortable with the circular British master plans of the Minoprio firm. He criticized the growth of modern cities based on ring roads, and even criticized the opening of diagonals as unsuccessful responses to the problems shaped by urban growth (Tyrwhitt, 1976). As Doxiadis always emphasized, the grid plan originally developed by the Greek urban planner Hippodamus was considered to be the only design that is able to give the city a rational structure and accommodate the automobile (Grammenos, et al., 2008).

In August 1955, the Greek planner traveled to London and met with the British architects in order to learn more information about their design and take it into his consideration for the DA project for Baghdad (Doxiadis, 1955). Figure 5.1 shows the Master Plan for Baghdad, 1956” by
Minoprio, Spencely, and MacFarlane of London.

Figure 5.1 The Master Plan for Baghdad, 1956” by Minoprio, Spencely, and MacFarlane, Architects and Town Planning Consultants, London. Markings on this map are by Frank Lloyd Wright (Frank Lloyd Wright Foundation)


5.1.2 Ekistics - Dynapolis

The first line of Doxiadis’ book on architecture reads, “I can find no better way to describe our cities than as an urban nightmare” (Doxiadis, 1963). Doxiadis saw cities as nightmares, but nonetheless encouraged a complete scientific analysis and a naturalist approach to urban growth management that could address and propose solutions to urban problems. His book, *Ekistics*, also begins by the words “crisis” and “disaster,” emphasizing that “human settlements are no longer acceptable for their inhabitants”, failing on economic, social, political,
technical, and aesthetic grounds (Doxiadis, 1968).

Doxiadis was one of the most prominent internationally known planners of the Modernist era. He advocated for a scientific approach to urban planning that would unite the two different cultures of planning, that is, the sociological perspective with the calculative spirit of mathematics and statistics. Through this union, Doxiadis believed that the problems of a growing metropolis could be addressed.

“Ekistics” is what Doxiadis called his concept of the science of human settlement. Doxiadis’ vision of Ekistics which later became “Dynapolis” (meaning dynamic city) (Doxiadis 1957; Doxiadis Associates 1960; Doxiadis 1975; Doxiadis, 1970). The new paradigm of the dynamic "polis," or Dynapolis, proposed the expansion of new urban sectors along a prearranged axis that linked the existing center to the fringe. Consequently, the DA master plan for the City of Baghdad was based on the Dynapolis theory. The center was expected to grow, and, in order to reduce transportation impacts in the historic areas, development of new areas of metropolitan services and facilities was recommended.

Furthermore, the DA plan for Baghdad advocated an idealized scenario called Dynametropolis, which is a balanced case between the old parts of the city and the new areas, and proposed growth along the other three directions of the rectangular pattern, albeit at a slower pace. In the view of DA, this design would allow “the natural growth of the city without allowing the new additions to break up the already existing pattern” (Tyrwhitt, 1976). Indeed, the Dynapolis was Doxiadis’ proposal for preserving the old part of the city in a harmony with the unavoidable development of the urban fabric.

Doxiadis articulated the Dynapolis model for a rapidly urbanizing world that seemed to be disorderly and beyond control. The disorder was due to the aggravated and increasing problems of urban centers with unplanned sprawl on the outskirts and ongoing demographic growth (Theodosis, 2015). Doxiadis stressed that Dynapolis instead, had “no limits” and studied the city as a whole. Whereas the Linear City planned a longitudinal expansion by adding units to the end of each band without growing any wider, the Dynapolis design grew as a parabola with an extended axis. As Doxiadis concluded, there are no linear cities but only linear solutions for specific areas (Llewelyn, 1967).
5.1.3 DA Master Plan for Baghdad 1958

While Doxiadis was a Greek citizen, he was educated in the United States, and he adapted the American school of planning (typical grid system) to his work. He is also known for adding Greek touches to his plans, through the addition of elements like playing grounds reflecting an Olympic Greek philosophy. In his plans, the streets are wide and perpendicular to each another. In all his twelve Master Plans for the City of Baghdad and other eleven Iraqi cities, his fingerprints were clear.

In general, the Doxiadis Association (DA) Master Plan for Baghdad was focused on giving substantial consideration to the influence of the river axis, possible physical development and regional setting of the city, construction of main highways and railway system, opening new canals, community groupings and the creation of an expandable public sector.

5.1.3.1 Tigris River Axis

The Doxiadis master plan highlighted the significance of the Tigris River for the future development of Baghdad. The river axis in the plan was very clear, as shown in Figure 5.3. The DA plan emphasized the river as the main axis of the city’s development.
The Tigris River generates microclimatic effects, mitigating the arid climate through which it passes. The river institutes the only means of the natural recreation, enjoyable sights, and growth of vegetation in the desert. It also allowed movements of people, goods and services between the two banks. The river is considered the first highway in Baghdad. Therefore, DA advocated that Baghdad should develop along the river axis. The Tigris axis was already set, and any future plan should be grounded to it, according to the Doxiadis plan. As shown in Figure 5.3, development was concentrated on both sides of the river, following the direction of the Tigris (Doxiadis Association, 1959).

5.1.3.2 Physical expansion of Baghdad

The DA master plan for the City of Baghdad was based on the Dynapolis theory. The plan proposed growth along three directions of the rectangular pattern to allow the natural growth of the city. According to the plan, future development would take place mainly to the west, south and east of Baghdad to accommodate the increased population of the city. To balance further the development dynamics between the older center of Baghdad and the new development, the ideal case scenario called Dynametropolis planned development along the other three directions of the rectangular pattern, albeit at a slower pace (Theodosis, 2015).
Figure 5.3 The Guidelines of the Master Plan for Baghdad. DA Monthly Bulletin January (1960).

5.1.3.3 Highways in DA plan

Since the city was built on level ground in the desert, the main road connections established in the plan observed the principle of the hexagonal pattern. However, some of these roads already existed in Baghdad. There were roads to the northwest (Mosul), northeast (Baquba), southeast (Kut), south (Hilla) and west (Ramadi). To complete the hexagonal pattern, Doxiadis suggested developing future settlement beyond the Diyala River and connecting it to the capital with an eastern road.

In the other words, the DA plan was focused on upholding the highway network outside the city, while adjusting the inner roadways to fit the basic concept of the grid road network design. As shown in Figure 5.3, aside from these five main roads, DA anticipated a 6th road leading towards the east, which might be developed in the future (Doxiadis Association, 1959).

5.1.3.4 Community groupings

A key part of the Doxiadis master plan for the city of Baghdad was the idea of community groupings. A community grouping was to be well-proportioned and related to the importance of the settlement. A Class I community represented the smallest group of about 10 to 20 houses of similar income (a block of houses). Class II encompassed three to seven Class I communities of homogenous economic status. Class III community comprised several Class II communities in addition to some basic services such as an elementary school. The mixed income groups constituted the Class IV community, which was meant to be a somewhat self-sufficient unit with a market, mosque, public bath, administrative offices, health center, schools, teahouse / coffeehouse, playground, park and so forth. Doxiadis named this group ‘community sectors’ or neighborhood (Mehalla). The community sectors were designed to accommodate 7,000 to 10,000 people. Due to migration and other management and administration problems, lack of new development and an increase in population due to high growth rate in the City of Baghdad, today these neighborhoods exceed 16,500 people each.

Communities of Class IV were framed by secondary roads and shut off from through traffic, and they were meant to be easily crossed by foot. The community sectors were the basic elements of the DA urban plan for Baghdad. This neighborhood concept was a planning module incorporated into the grid design. The concept of “neighborhood” was a basic human habitation
unit that ensured basic human needs, set in a grid system with Greek touches, such as the Olympic ground/playground embedded with local culture (mosque and public bath) (Doxiadis Association, 1959, Pyla, 2013). Figure 5.4 shows the neighborhood design of Doxiadis for the 1958 Baghdad Master Plan.

![Figure 5.4 Model of Community Sector Class IV Community (neighborhood) by Doxiadis in Western Baghdad, 1958. Constantinos A. Doxiadis Archives, Sector 10, Slides 9601@ Constantinos and Emma Doxiadis Foundation. Source: Pyla, 2013.](image)

Class V communities involved a group of community sectors with estimated population 50,000 to 100,000 people. The center of the communities of Class V was meant to be related to a major highway. However, principal roads coupled with service roads framed Class V communities (Doxiadis Association, 1959, Pyla, 2013). Figure 5.5 shows the design of Doxiadis plan for Western Baghdad (Karkh).
Doxiadis’s idea of a Class VI community was an integrated and complete urban center. The functional breakdown of the city was into major homogenous and integrated communities. Five Class VI communities constituted the plan for Baghdad. The set of Class VI communities, each designed to host about 500,000 people, would have accommodated over two million people after 20 years, approximately three times larger than the population of Baghdad in 1958. The boundaries of these communities were physical features of high importance such as the river, canals, and the main highways connecting the capital to the cities of Damascus, Mosul, Baquba, Hilla and the airport. Indeed, the community groupings were the principle factor taken into consideration for the DA planning of transportation (Doxiadis Association, 1959; Pyla, 2013).

Employment opportunities were also meant to be integrated into Class VI communities. With public buildings and services, recreational facilities, and business and commercial uses
nearby, the plan was meant to facilitate a rational solution to overcome transportation problems that would arise due to continuous movement of people between their residences and workplaces. Most industry would be placed near the Tigris River on the northwest and southeast ends of the city, while major commercial and business areas were planned along both sides of the main highways. Figure 5.6 shows the five Class VI communities numbered 1 to 5:

![Diagram of Class VI communities](image)

Figure 5.6 The 5 Class VI communities


The last category, the Class VII community, was comprised of the public sector, including functions of highest order, which represented the city as whole. Class VI community no. 1 included government buildings, such as the Prime Minister / Presidential office, Parliament House, Ministry of Planning and so on, while Class VI no. 3 included municipal functions, such as the Mayoralty of Baghdad, Baghdad University and Baghdad Medical City (Doxiadis Association, 1959; Pyla, 2013).

The DA master plan of 1958 was designed on an area of 500 km² to accommodate over two million people. The master plan provided area for further expansion, not only for the residential sector, but also for the public and commercial sectors too. The DA plan anticipated that Baghdad would soon become a metropolitan city serving a well-developed state, and it
anticipated that the present rate of development would continue.

Due to recent wars and turmoil in Iraq, national censuses have not taken place since 1997; previously, they were usually done every ten years. Preparation from Ministry of Planning for the 2020 national census is ongoing, but it remains uncertain. Estimates suggest that the population in Baghdad is currently over eight million. As the population in Baghdad has increased three to seven percent annually, it is almost doubling every twelve to fifteen years. Today, fourteen municipalities of forty Qada (sectors) and 486 communities (neighborhoods) comprise the City of Baghdad.

During my postgraduate study years (1997-2000) at Baghdad University, Institute of Urban and Regional Planning, I had several field trips to sites that were developed as a result of the DA plan. I personally witnessed the design of Doxiadis for the first neighborhood that he designed in the City of Baghdad (Dor Alsood in the west of the capital). I also visited other neighborhoods and sectors planned by Doxiadis, such as Western Baghdad and Sadir City.

5.1.4 The Iraq Development Board (IDB)

In 1950, the Iraq Development Board (IDB), a quasi-governmental organization, was established to plan and implement a wide-ranging program of modernization using seventy percent of the national oil revenues (Marefat, 2007). The IDB was founded after the Iraqi government made new successful contracts with the oil companies where Iraq’s share increased to 50 percent. The establishment of IDB was supported by United Kingdom and United States. The Iraqi Prime Minister chaired the IDB, with Executive Members comprised of a few distinguished ministers.

The Development Board incorporated two foreign consultants as Executive Members, namely, Michael G. Ionides of Britain and Wesley Nelson of the United States, who in 1957 was replaced by the Point Four Program Administrator Clifford Wilson (Marefat, 2007). Jacob L. Crane (1955) introduced Doxiadis to the Development Board in 1955, at a time when Crane was officially associated with the Greek firm.

In 1952, an iconic Iraqi architect Rifat Chadirji joined the IDB technical division, and he proposed a list of modern architects to the Minister of Planning (Marefat, 2008). As Ionides
explained, Iraq at that time had good engineers and architects, and the technical section of the IDB was fairly competent. They only needed “people with the overall view of the problem who could define policies and inspire the implementation of a major program” (Ionides, 1959; Doxiadis, 1955).

Accordingly, Frank Lloyd Wright, Walter Gropius and TAC, Gio Ponti in collaboration with Valtolina-Dell' Orto, Studio Alvar Aalto, José Luis Sert, Le Corbusier and Oscar Neimeyer were entrusted to design different state buildings in Baghdad (Azara, 2008; Pieri 2012). Mentioning the above cases is intended to augment the background for considering Doxiadis’ involvement in the planning history of Iraq. The Greek planner, in fact, was an exceptional among the western planners and consultants contracted out by the IDP. Ultimately, Doxiadis increasingly gained the admiration and confidence of the Iraqi officials.

Doxiadis believed that housing projects were the engine of any economic development, and should have high priority in national planning. In Doxiadis’s opinion, a housing construction program should have the first priority in national planning, which would in turn enhance the economic development. “[T]he administrative problems, the economic problems and the technical problems should only be seen as aspects of the one big problem” (Doxiadis, 1958).

In order to enhance the public’s trust of the Iraqi government, the Doxiadis housing program was used as a propaganda tool for socio-political reasons. The plan included not only building the structures of the neighborhood, but also the communal life within it. Housing is a persistent concern in Baghdad, extending to today. Habitat (2010) published a study that estimated the need for about 2 million dwellings in urban Iraq by 2016, or about 200,000 dwellings per year for the next ten years or about one dwelling every 45 seconds of the working day. It is estimated that the City of Baghdad alone might need more than a million housing units to meet the increasing demand in the real estate market.

Undoubtedly, the plan of Doxiadis posed difficulties to blend communities of different economic status and ethnic groups with different customs and practices. It is worth mentioning here that the transition was not as natural as conveyed in the official reports and publications. As Pyla (2008) concluded, “despite all the research and analysis of the locale, what prevailed most was an aesthetic imperative of standardization, which left little opportunity to contemplate a
more cultured conception of the human subject or to conceive of urban development itself as a cultural process tied to the locale.”

5.1.5 DA planning philosophy and critics

Doxiadis sought from the beginning to have his plan for community elements and facilities reflect the majority population of Muslims in Iraq. Therefore, Doxiadis’s planning philosophy argued to maintain the human scale and traditional appearances of the developing societies where he worked. Based on his philosophy, cities and societies were amalgams of native and international elements, and therefore architecture and planning should express both, instead of reproducing only Western standards (Doxiadis, 1959; Pyla, 2007).

DA advocated for rich syntheses that included diversification of housing types based on combinations of standard elements. Although Doxiadis’s classification scheme was a way for designing space based on different scales and facilities, its hierarchy involved a system of social ordering that transitioned from low-income sectors to high-income sectors. Therefore, the DA plan classified and segregated sectors by different classes of income, in spite of the government of Iraq’s vision to integrate the Iraqi society and build a national amalgamation based on unity and shared ethos (Pyla, 2007).

To shed light on some of the details of the 1958 plan, I will analyze three features: the Gossip Square, the Army Canal and Sadir City. The Army Canal and the Gossip Square were the greatest contradictions in Doxiadis’s work and theory, and where we may precisely examine the relationship between theory and practice. Architectural elements and infrastructure works, for example the opening of the Army Canal, were used as social barriers (Pyla, 2007).

5.1.5.1 The Gossip Square

The “gossip square” was a community space for groups of about fifteen houses of the same class, located at the end of the respective housing row and alley (Doxiadis, 1957). The “gossip square” was intended to accommodate local culture and habits in the module of the “human sector”. Gossip squares were meant to mimic places in traditional neighborhoods where unplanned gatherings or informal meetings were took place, mostly between women in communal settings that had a degree of privacy to them. The name was successful in portraying the scale, casualness, and use of a public space that was much different from Western public
squares. In *Ekistics*, the gossip square was called “a modern substitute for the traditional gathering places of tribal life”, and it even predicted that it would facilitate the transformation of the village dweller into an urban dweller.

The Government of Iraq’s vision was to remove sectarian and tribal divisions and to promote a shared national identity and pride. DA sought to encourage a slow mixing of social classes and to support gradual transition of people from family to national life. The ultimate goal was the creation of ‘happy and safe surroundings for people to live in.” Later, DA changed the name from gossip square to “community square of first degree.” Thus the change of term from the firm’s chief leader would signal a change in the symbolic, spatial, and social meanings of those squares (Theodosis, 2015). Figure 5.7 shows three gossip squares in western Baghdad.

![Figure 5.7 Three Gossip Squares in western Baghdad.](image)

Figure 5.7 Three Gossip Squares in western Baghdad. Constantinos A. Doxiadis Archives, Archive Files 23970 © Constantinos and Emma Doxiadis Foundation.


5.1.5.2 The Army Canal

DA anticipated that Baghdad’s population after 20 years would be doubled (would be about 2 million people). Accordingly, the increased populations would not be able to live close to the Tigris River. DA designed the Army Canal and the Police Canal to bring water benefits close to more residents of Baghdad, to create a microclimate solution with vegetation and greenery, parks and open spaces, a positive climate impact in the long summers and in the arid
seasons of Baghdad and to give beautification to the urban landscape. The canals were encouraged by the flood control and irrigation system, a very old practice in the Mesopotamian region. The DA plan was meant to be integrated with the region’s history and be in harmony with the natural landscape.

As shown in Figure 5.3, the plan proposed the construction of two canals running from north to south, crossing the entire City of Baghdad. The Army Canal is in eastern Baghdad (east of the Tigris River), followed by another canal identified for future development, and the Police Canal is on the west side of the city. These canals were developed in addition to the Washash Canal, which was already present since the Abbasid era. Ultimately, the only canal that opened according to the DA master plan was the Army Canal.

In order to create a microclimate solution to the arid conditions and to ground the master plan using the infrastructure as a landscape architectural element, DA designed a system of canals and parks far from the Tigris River, a feature of pronounced historical significance for the development of the city (Doxiadis, 1960). Critics point out that DA tried to blend the master plan with the landscape and with the existing city, but the visual impact and enormous scale of his grid design pattern was alien to the surrounding landscape.

While Doxiadis, who is considered as the father of Ekistics, which was the cornerstone of Doxiadis’s claim to scientific planning, devoted most of his career and life to advance a scientific method for international urbanization both as a theory and practice for planning, the most common critiques address inconsistencies between the two parts (Madanipour, 2010). Doxiadis’s claims of preserving the human scale and local cultural character contrasted with the homogeneity of the “human sector,s” leaving his plans open to criticism. These criticisms apply to other Modernist plans as well.

5.1.5.3 Sadir City

Alternately called Thawra, Saddam City, and Sadir City, the housing district on the east side of Baghdad is one of the most debatable features of the DA Master Plan (Doxiadis, 1960; Mahsud, 2010). The Army Canal, the one canal from the 1958 plan that was implemented, isolated Sadir City and led to its transformation to a congested district of poor Shiite residents, whose numbers exceeded architectural and design expectations. As the Sadir City district
deteriorated, it was further segregated and finally ghettoized. In the same way that modernization theory unsuccessfully addressed the transformation processes of developing nations, Doxiadis’s plan failed to offer a new paradigm instead of the Western one. Doxiadis is often considered to be the planner of low-rise high-density urban blocks that turned to nightmarish ghettos. The DA “promises” for “a happy and harmonious” urban environment disappeared. In his defense, Doxiadis emphasized that plans for public spaces in cities of developing countries were hampered by development incorrectly planned with big roads that required a “higher cost of land, higher cost of development, [and] higher cost of maintenance”, which in the long run resulted in incomplete, dirty, and insecure public spaces (Theodosis, 2015).

In a different direction, Doxiadis saw the transitional space between private and public uses, which was introduced by narrow roads that served only a limited number of houses, in the cities of the East as a benefit. Doxiadis suggested using this design for organizing blocks of different sizes and added that “only narrow streets can have some shadow which will allow the people to circulate in them with certain comfort” (Doxiadis, 1955).

5.1.5.4 DA plan critics

Doxiadis was harshly criticized by many Iraqi architects and urban planners because the DA design did not preserve the urban heritage and failed to take care of the old fabric of Baghdad. In theory, Doxiadis’s strategies were to pay a great deal of consideration to the historic center, but, as an asset, it was hardly visible in terms of his design. The DA plan obliterated the old quarters and damaged the morphology of the city.

Additionally, the Master Plan focused on new development and expansion of the city at the peripheries to absorb the rapid increase of population. This was an easier process than offering a real conservation plan solution to the core of the city with its rich heritage.

The DA master plan for the capital was rectangular in shape, and therefore it has been criticized because it changed the founded round shape of the city. The patterns of the street were gridded, which is also criticized by pro-traditional Arabic Islamic cities advocates. Furthermore, the Dynapolis paradigm was often questioned due to its rigidity as a plan and the imposing feature of the endlessly repeated communities.
Nevertheless, the execution of DA master plans for twelve Iraqi major cities including Baghdad was a remarkable achievement for the Doxiadis Associates. Regardless, he was criticized by many Iraqi architects and urban planners for copy-and-paste designs and for not taking into consideration the characteristics of each city as a separate case.

The July 1958 revolution was not only a change of regime, but it was a crucial change for international planning consultants, especially British architects. The winds of political change swept away the ties with Iraq’s colonial past, and they also impacted the work of Doxiadis. Not only the Master Plan of Baghdad was affected, but also two months later the contract for the Civic Center was canceled (Azara, 2011).

The Western Baghdad development project, slum clearance, and other infrastructure projects in the DA plan were already underway in 1958. Notably, the most essential needs of infrastructure and facilities for the City of Baghdad, such as the sewerage, water and electricity supply system, had been undertaken (Theodosis, 2015). The Greek passport helped Doxiadis to remain for a while in charge after 1958 military coup and allowed him to execute most of his plan (Pyla, 2008).

5.1.6 DA Achievements in Iraq and International Expansion

Despite the criticisms of the DA work, especially in the City of Baghdad, given the available capacity, resources and facilities of that time in Iraq, in my view Doxiadis did a noteworthy job in the urban design for the modern City of Baghdad. Indeed, it was a remarkable job for DA, and his master plan for Baghdad 1958 became the model for other international master plans. His perspective was clear for the community (neighborhood), sector (Qada) of communities and the entire city, including its future development. Implementation of the DA master plans for the other major Iraqi cities was remarkable as well.

Throughout the three years of DA projects in Iraq and, more precisely, by the end of 1958, three villages had been established from scratch, 2790 housing units had been built, and 3007 more houses were under construction. The neighborhoods were successfully furnished with the necessary facilities and infrastructures such as streets, water supply networks, sewerage and electricity and most of their public buildings were completed (Theodosis, 2015).
The new Iraqi government was pragmatic, and, for the sake of the people’s welfare, they continued to implement most of Doxiadis’s plans in spite of Doxiadis’s removal (Xatzopoulos, 2009). After these first successful international projects in Iraq, Doxiadis Associates expanded in different parts of the world, with 27 international offices. By 1959, DA had office branches in Baghdad, Karachi, Beirut, Addis Ababa, Khartoum, and Washington D.C.

Doxiadis used the Dynapolis model in most of his new town and urban projects. Doxiadis redesigned many capitals and major cities particularly in the Middle East, including Baghdad, Tehran, Istanbul, Riyadh, Beirut, and Khartoum. Certainly, the most ambitious and complete realization of his model to date is Islamabad. DA had commissions for urban planning projects in different parts of the globe, including development proposals for Washington D.C., the development of Detroit, Athens, and Caracas.

In the next section I will examine the Comprehensive Development Plan for Baghdad 2000 that was completed by the Polish consulting firm, Polservice (BCDP) in 1973. This was the first urban plan completed after the Doxiadis plan, and it remains the last adopted plan for the City of Baghdad. The other two plans that will be analyzed in this dissertation were never formally adopted by the MOB.
Figure 5.8  The Master Plan of Doxiadis for the City of Baghdad.

5.2 COMPREHENSIVE DEVELOPMENT PLAN FOR BAGHDAD 2000 BY POLSERVICE (BCDP) 1973

The country of Iraq and its capital city, Baghdad, experienced continuous high growth of population throughout the 1960s and 1970s. This was mainly due to internal migration, stemming from active social mobility. Iraqi society was changed by the military coup and subsequent unstable power changes.

Socialist urban planning concepts were incorporated into master planning under a “planned economy” framework. The planned economy concept was the core policy mechanism of socialist countries. In the early 1970s, Iraq’s socio-political climate was leaning toward the socialist system. Under these circumstances, the Polservice master plan was prepared in 1973 for the year 2000, following some previous work by Polservice in 1967.

The master plan of Polservice emphasized a round urban form, different from the rectangular DA master plan, placing the Tigris River in the middle of the plan with a round-shaped CBD in the center area, and fringed with a beautiful green belt. The urban area was well regulated with a single-use zoning component. It was a true copy of the master plan of Moscow in the Soviet Union, and Krakow, the old Capital of Poland. This stereotypical master plan was very different from the existing state of the City of Baghdad.

5.2.1 Population

Polservice (1973) took a regional approach. They divided Iraq into three regions: northern, central, where Baghdad is situated, and southern. In 1970, the population in the central region constituted about 57 percent of the country’s population. In 1974, approximately 64 percent of the population were listed as living in urban areas. The study anticipated the population of Iraq in the year 2000 would be 21 to 26 million people, and the urban population would be 75 to 80 percent, that is, between 15 and 20 million people. The United Nations estimated that the central region’s population for 2000 would be 10 to 12 million people.

The BCDP report underscored that long-run population projections are only estimations, since population increase and distribution processes result from many variables, changing interdependently. Many possible variants of population growth in the city of Baghdad were
considered in the Polservice plan. The extreme variant, which was based on a population increase between 1965-1970 by over 530,000, or about 1/3 of the 1965 Baghdad population. In other words, in this projection, all of the urban population of the central region would be concentrated within the City of Baghdad and its vicinity. This was not recommended by Polservice, and they gave it as a warning forecast, stressing:

a) Extreme pressure on the city’s central functions. By the year 2000, the estimated population would be around 6 to 6.5 million, and that would have a negative impact on the city.
b) Excessive population in the second and third variants would be in the outer parts of the central region with varying influence on the inner city.
c) Restrictive measures should be undertaken to examine carefully the effect of the population of the central region.

5.2.1.1 The Development Zones

Based on the relationship of the city and region, Polservice (1973) distributed the population of Baghdad according to the following principles (Figure 5.9), taking into consideration that the plan estimation for the travel time acceptable limit is one hour:

A. The Inner City with a radius of 12 to 15 km. This area is defined by one-hour travel time to the City Center using public or private automobiles.

B. The Suburban zone with a radius of 15 to 25 km. This area is defined by one-hour travel time using rapid mass transportation, such as rapid railway. Both the Inner City and the Suburban zone form Greater Baghdad, which are served by the same City Center.

C. Buffer Zone with a radius of between 25 an 50-60 km from the City Center, in which the travel time exceeds one hour. This area should be well preserved against any further large developments to avoid excessive pressure on Inner City service centers. In order to pull the excessive population, the urban concentration should be:

I. Located more than 50 to 60 km, reasonably far enough to deter daily commuters from the City of Baghdad, but not within the Buffer Zone.

II. Located within areas not more than 100 to 120 km from the City Center, near enough to allow infrequent visits to the City of Baghdad within reasonable travel time.
5.2.1.2 The population distribution

Polservice (1973) and the United Nations estimated that the population of the Central Region of Iraq would be 10 to 12 million people by the year 2000, as shown in Figure 5.10. The plan addressed the following population distributions in each zone:

a. In order to avoid deterioration of the living conditions in the Inner City zone “A”, the Inner City should not grow more than the holding capacity, which is approximately 4 to 4.3 million people.

b. With the two ribbons development selected, the Suburban Zone “B”, would accommodate 2 million people. The population of Greater Baghdad should not be more than 6 to 6.3 million.

c. The Buffer Zone “C” should be saved for agriculture and recreation, or for activities related to these two, with small planned towns and villages with a total population between 0.5 to 1 million people.
d. The southern and northern concentrations in Zone D would accommodate 3 to 5 million people.

Figure 5.10 Central Region Development 1972 - 2000


5.2.2 Future Development

Based on their analysis of physical, geographic, economic and historical development, Polservice (1973) proposed an expansion of new growth northwards and southwards from the Inner City as shown in Figure 5.11. The capacity of the Inner City was projected to reach the maximum infill in 1985. From 1985-2000, population would overspill from Inner City to other areas, and thus new development areas were needed. The BCDP study foresaw that the City of Baghdad in the next 25 years would change from concentric city to the linear pattern of a great
conurbation. Furthermore, the plan recommended immediate study for the metropolitan region plan, starting with infrastructure and transportation projects.

![Greater Baghdad - Suggestions for Development](image)

**Figure 5.11 Greater Baghdad – Suggestion for Development**


### 5.2.3 Polservice Planning Concept

To reduce the increasing pressure on the city center, Polservice (1973) suggested the establishment of city sub-centers located at the peripheries of a so-called “Motor Box”. The Motor Box was intended to absorb part of the traffic directed to the city center and served the northern and southern districts of the city.

The Polservice neighborhood concept was not based on the number of the inhabitants in a neighborhood, but on the walking distance to primary schools and other facilities of daily use.
The neighborhoods were designed with an approximate area of 50 hectares each, with the primary base nucleus of residential structures in an area of about five minutes walking time, or about 250 to 300 meters, from primary schools, playgrounds, shops and daily facilities, and not more than 800 meters from a bus stop. The number of inhabitants of each neighborhood varied between 4,700 to 23,000 people based on the type of housing and densities. The kindergartens and secondary schools would serve more than one neighborhood.

The road patterns were based on a 1500 x 1500 meter grid that represented a cell, and each cell had four neighborhoods separated from other cells by green belts or arteries as shown in Figure 5.12. Community centers served several cells, and several communities formed a city district that would be a self-contained part of the city. The number of people varied depending on the location, class, green belt and other land uses.

Figure 5.12 Neighborhood and Community Model


5.2.4 Densities

The aim of the Polservice plan was to accommodate twenty percent of the total population of the Inner City (4.3 M) in multi-family houses and eighty percent in single family houses. Of the twenty percent, 12.5 percent, or about 680,000 people, would be in concentrated
housing developments, and 7.5 percent, or about 180,000 to 200,000 people, would be in scattered development. The average density in the new single family residential areas was projected to be 165 people per hectare, while in older single family residential areas density was 138 people per hectare. Polservice (1973) distributed the population of Baghdad by socio-economic groups, despite the intention of the policymakers to integrate the population of the City of Baghdad with a goal of restructuring and amalgamating the society.

5.2.5 Sub-centers and districts

Polservice (1973) divided the City of Baghdad into nine districts. The plan proposed to have four city sub-centers and seven districts by the year 2000 as shown in Figure 5.13. The distribution was two sub-centers and four districts in Rusafa, and two sub-centers and three districts in Kharkh. The plan was an unbalanced proposal for city development. It created unequal conditions on each side of the Tigris River. Any unbalanced situation might lead to unexpected effects on infrastructure, commuting time and other negative urban consequences. Any future development should redeem the gap between the two sides.

Figure 5.13 City and district centers

5.2.6 Polservice Highways, roads and streets network.

Polservice (1973) structured the transportation plan on the highway, road and street network as shown Figure 5.14. The study suggested a new highway to serve Rusafa parallel to the Army Canal, which was built in the early 1980s, and a similar one in Kharkh. To facilitate traffic and reduce time travel, the study suggested ring roads for the City of Baghdad.

![Figure 5.14 Street network](image)


5.2.7 Pros and Cons of the Polservice Plan

For two-thirds of the year, the wind direction in Baghdad is from the west and northwest. Therefore, the proposed location of the Green Belt was excellent to avoid the dust storms on the capital that usually occur in summer (an average of 22 times/year) (Polservice, 1973). The Polservice plan was beautiful, attainable and approved by the Government of Iraq (GOI). Nevertheless, there were a number of issues with the plan, such as:
A. Insufficient initial material and data  
B. Absence of a regional plan  
C. Absence of an adequately developed planning legislation system  
D. Lack of uniform and subsequent implementation policies of earlier plans (e.g. Minoprio, Doxiadis)

Criticisms of the Polservice plan are the study-planning concept was based on socio-economic framework. Thus, the plan did not meet the requirement of the GOI to unite the people of the country and bridge the differences between the societies. Also, the plan was unbalanced, and obviously the population distribution was unbalanced too. The plan did not give real solutions for the current and future exacerbating urban problems in the City of Baghdad. The historical areas of Rusafa and Kharkh were not given special consideration for conservation.

Polservice (1973) predicted the population of the City of Baghdad, the metropolitan area and the central region in 2000. However, the study was for the City of Baghdad only, without the metropolitan area. Any comprehensive study for the City of Baghdad that does not include the metropolitan area is deficient because the two areas are adjacent and related, and there are millions of people commuting forth and back day-to-day to Baghdad from the metropolitan areas. Therefore, these two areas are connected, though administratively they are separated. Actually, the Green Belt became the best “saucer“ to absorb the un-controlled and illegitimate migrants. The regional and the metropolitan setting of the city were proposed and approved by GOI in the Master Plan of 1967. However, the Iraqi authorities have elaborated by themselves on the plan for the regional and metropolitan area of Baghdad.

Future development of Baghdad is preferred on the south, east and west sides, and not on north, because the northern side is fertile land and would be reserved for agriculture (orchards). The west and east sides are flat desert, and economically and environmentally are much better suited for new development.

For these reasons and others, such as the dream of the Iraqi new leadership to glorify Baghdad once again, making it as a pivotal capital in the Middle East and Arab countries region, the Polservice plan was halted, and the Japanese consortium was hired to meet the vision of the new government.

In 1979, the Non-Aligned Movement (NAM) summit was held in Havana and chaired by
Fidel Castro, President of Cuba. President Saddam Hussein, who had close ties with Castro, represented Iraq at the summit. At the Havana summit, it decided that the next NAM summit in 1983 would be in Baghdad. Accordingly, Baghdad became a workshop for international and national planners, architects and infrastructure agencies and engineers to redesign and rebuild Baghdad and beautify the capital. Unfortunately, in 1980, the war with Iran began, and it lasted for eight years. (The NAM meeting was moved to New Delhi.)

The Integrated Capital Development Plan (ICDP) of Baghdad 2001 by the Japanese Consortium of Consulting Firms (JCCF) will be discussed in the following section.

Figure 5.15 Polservice Master Plan for Baghdad


5.3 INTEGRATED CAPITAL DEVELOPMENT PLAN (ICDP) OF BAGHDAD 2001 BY THE JAPANESE CONSORTIUM OF CONSULTING FIRMS (JCCF) 1990.

The booming oil economy which began with the 2nd oil price adjustment in 1970s continued through the 1980’s despite the eight years of war with Iran. When Saddam Hussein became president of Iraq in 1979, and he promoted the Baath Party’s socialism in his own way. He had a great ambition to make the country one of the leaders in the non-aligned countries and the Arab World. The City of Baghdad witnessed heavy and massive infrastructure investments in every sector, utilizing abundant resources gained from the lucrative oil income.

One of the most crucial issues was to maintain “equity” over the country in order to
solidify the national unification among the divided ethnic and religious peoples. In so doing, disparity between Baghdad and the other regions was becoming a serious issue that could not be overlooked. Baghdad’s growth had reached a point of not being controlled. The overflowing population started to reside in the suburban area in a sprawled form that eventually made Baghdad’s capital functionally paralyzed.

Therefore, the most imminent issue for the Iraqi policymaker at that time was to control Baghdad’s growth. It was, hence, the scope of work for the ICDP Study to include formulating the Greater Baghdad Structure Plan, which is a tool to control Baghdad’s growth under the planning framework of the Capital Region, which is in conformity with the national urban policy directives.

There were two significant issues to be noted here. First, there was an administrative reform been taken to upgrade Amanat Al Assima’s (AAA) (Mayoralty of Baghdad) position in the government, bringing up the Mayor’s position as a member of the Ministerial Council and acknowledging the importance of urban management of the Capital City for the country. The Mayor became the cabinet member, not a simple head of a municipality.

Secondly, the government of Iraq wanted the master plan to be “operative,” meaning that it would control the vigorous urban development and lead those developments toward the targets and goals that the master plan indicates. The master plan was not to be a beautifully drawn picture. It must be a useful tool for urban administrators to use for their daily management tasks.

The Iraqi Ministry of Planning requested the UNDP of the United Nations to create a “Term of Reference (TOR)” for the preparation of a master plan for Baghdad. The request was to address excessive concentration of population in Baghdad itself with the formation of Greater Baghdad area.

Under these circumstances, the Integrated Capital Development Plan (ICDP) was initiated in the early 1980s. A key part was the Greater Baghdad Structure Plan, a tool to control Baghdad’s growth under the planning framework of the Capital Region, which would be in conformity with national urban policy directives.

The development goals aimed to slow down Baghdad’s growth by establishing a
complementary economy, to achieve equity and balance in the urban system, to develop a viable rural system, and to overcome disparities. The fact that there are no natural barriers in the flatness of the Mesopotamian landscape to inhibit sprawl presented particular management challenges for guiding urbanization.

5.3.1 The ICDP phases & Stages

The ICDP project was constructed into two phases. Phase 1 was taken at three planning levels: The Regional Framework, the Preliminary Land Use Plan of the City of Baghdad (PLUP) and the Greater Baghdad Structure Plan (GBSP), in three stages:

Stage 1: Determined and articulated policy options, which covered a range of alternative approaches to address sectorial planning issues.

Stage 2: Was formulated on the basis of the policy options and research guidance by the technical committee.

Stage 3: Included the elaboration of the Regional Framework, the Preliminary Land Use Plan and the Greater Baghdad Structure Plan. The Regional Framework is one of the reports and technical papers that were formulated within the context of stage 3 of phase 1 of the ICDP.

5.3.2 The Regional Framework

The scope of the Regional Framework was a policy for the Metropolitan Structure Plan and ICDP. The Regional Framework was to serve as a bridge to the National Development Plan. It would lay the groundwork for the Metropolitan Structure Plan, and study sector by sector development of Baghdad and the surrounding region. The first step of the Regional Framework was to provide a clear picture of existing conditions, trends and related problems, prospects, polices and plans of Central Iraq and its various sub-regions. Indeed, it was the creation of regional framework that was consistent with social and economic indicators.

Proposing a visible Master Plan to the City of Baghdad was not possible without including the Greater Baghdad. Metropolitan Baghdad was developing and attracting immigrants, and it had great impacts on the capital. The ICDP study was the first of the four Baghdad plans to focus on and include the Greater Baghdad and Central Iraq areas in their study.
5.3.3 The Greater Baghdad Structure Plan (GBSP)

Phase 1 of the ICDP study included the Capital Region Plan and Preliminary Land Use Plan (PLUP). The Structure Plan was legislated as a plan contributing to area wide administration of the metropolitan area. The JCCF plan divided the region into roughly three parts, which consisted of three concentric areas centered on Baghdad. The first area was Baghdad, with a radius of 12 to 15 km. The second area was Greater Baghdad, with a radius of 50 to 60 km. Third was the metropolitan area, with a radius of 100 to 120 km.

From urban geographical point of view, JCCF (1990) found Baghdad had a similar structure as Tokyo. The plan for Baghdad referenced the triple urban structure of Inner Tokyo (15-20 km with its mass transit railways), Tokyo Metropolitan Area (50-60 km) and Capital Region (100-120 km). It can be said that the plan had content comparable to the Japan’s Shin Zen SOU (New National Comprehensive Development Plan), in which a regional plan and a national plan were combined for the capital Tokyo.

Table 5.1 Three Concentric Areas

<table>
<thead>
<tr>
<th></th>
<th>Tokyo</th>
<th>Baghdad</th>
<th>Radius (Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner Tokyo</td>
<td>15-20</td>
<td>Baghdad City</td>
<td>12-15</td>
</tr>
<tr>
<td>Tokyo Metropolitan</td>
<td>50-60</td>
<td>Greater Baghdad</td>
<td>50-60</td>
</tr>
<tr>
<td>Capital Region</td>
<td>100-120</td>
<td>Metropolitan Baghdad</td>
<td>100-120</td>
</tr>
</tbody>
</table>

By cooperating with Jack Dangermond of ESRI firm who has since became the world’s number one authority in geographic information systems (GIS), an urban information system, which was called CADIS (Capital Area Development Information System) was introduced by JCCF to AAA in the ICDP study. The CADIS system design was completed in the Phase 1 study, however construction of the CADIS was left for the Phase 2 study. This urban information system would have been an indispensable tool for urban planning and daily urban management.

Based on planning theory and international and national experience, JCCF (1990)
examined Comprehensive Alternative Strategies (CAS) for the development of central Iraq in the form of the following concepts and strategies.

5.3.3.1 Alternative 1: Growth Pole Development Strategy

The Growth Pole Development Strategy intended to concentrate new development in two to three cities outside of Baghdad. The proposal was to select limited core resources in the metropolitan area and to select a core city with potential for growth, and then intensively invest in it for a short period of time. This would reduce the excessive concentration of population in Baghdad and gradually distribute development benefits to other areas. This concept promoted decentralization by concentrating development in Ramadi and Hilla.

5.3.3.2 Alternative 2: Urban Corridor Development Strategy

The Urban Corridor Development Strategy aimed at controlled, organized development along selected axes as defined primarily by major transportation routes originally designed by Doxiadis. It was already underway along five major roads radiating from Baghdad to the surrounding areas. Urbanization would be improved from a disorderly sprawl situation to a controlled linear urban area, and development resources would be invested to strengthen it.

5.3.3.3 Alternative 3: Dispersed Settlement Strategy

This strategy was to disperse urbanization throughout all the sub-regions of Central Iraq to both large and small settlements. This concept would bring development close to people and resources. The intent was to distribute development resources evenly to each component area in the metropolitan area, avoid excessive concentration in Baghdad and enjoy equal development opportunities in all parts of the area. Ultimately, it was probably the most desirable form of regional development and a goal of the other two concepts in the long term. In practice, however, it proved to be the least attainable and most expensive.

5.3.3.4 Delfi Workshop

Based on a questionnaire prepared by a team from JCCF, a Delphi workshop was held for three days at a Mayoralty of Baghdad facility, and it included thirty policymakers from thirteen Iraqi governmental institutions. Attendees studied three alternatives listed above as possible options for Baghdad (JCCF, 1990). Based on the GOI’s criteria to control the population growth in the capital and its metropolitan area and to have equity over the country’s development, the
JCCF plan endorsed the Growth Pole concept. In the Delfi process, Iraqi policymakers recommended the Dispersed Settlement Strategy. Ultimately, a modified Dispersed Settlement concept that took advantage of aspects of the Growth Pole strategy and the Corridor strategy was adopted. The idea was to select growth nodes, give them momentum through development support, and build on that.

The Greater Baghdad Structure Plan (GBSP) was a strategy to guide development. It was a tool for integration of several sectors of development, and it offered administrative options and principles. It included investment for economic activities in strategically selected places while taking into consideration the following:

- Improvement of land for urban uses in pre-determined places.
- Effective use of planning and land use controls.

5.3.4 Baghdad Metropolitan Population

JCCF (1990) listed the Baghdad metropolitan area as the 20th largest among developing nations and estimated by 2000 it would be in the top 50 overall. In 1982, the United Nations predicted Baghdad metropolitan’s population to be 12 million in 2000. During the period from 1977 to 1985, the population increase was estimated to grow annually at 5% compared with 4.5% in the AAA, according to the Greater Baghdad Structure Plan. Thus, metropolitization was already evident between 1977 and 1985. The estimated population growth for Greater Baghdad in 1985 was 1.18 million people, divided almost equally between urban and rural areas, with both undergoing rapid population growth due to urbanization.

Regarding the future population for the City of Baghdad, the main policy was to constrain further growth of the City’s population by means of strengthening the absorbing capacity of the Metropolitan Area with establishing the jurisdiction of Greater Baghdad. The area designated for the Greater Baghdad was almost identical with the existing area of Governorate of Baghdad. However, the JCCF plan delineated new boundary, taking into consideration the socio-economic aspect. Within the national guideline to achieve zero net migration to central Iraq and to hold the Baghdad population to 6.5 million in 2000, a target of 2.25 million was set for Greater Baghdad outside of the city.
5.3.4.1 Relocation Economic Activities

With the participation of Iraqi public agencies, the JCCF (1990) team carried out a survey. GBSP proposed the relocation of Baghdad’s economic activity program to the rural enclaves and siting new towns in the desert of central Iraq. The relocation of public sector agencies from Baghdad to the growth points was based on two priorities, functions important to move out and locations that were most appropriate as targets.

The study suggested the following priorities for relocation of public sector functions:

A. Agencies concerned with national security.
B. Higher education and research centers, and health care.
C. Agencies concerned with agriculture, mining, manufacturing, transport, and construction.

5.3.4.2 Constellation of Town Clusters

In addition to Baghdad, there were six cities in Central Iraq with populations between 105,000 and 222,000 persons: Najaf, Hilla, Diwaniya, Karbala, Ramadi and Baquba. There were also four cities with populations between 50,000 and 100,000: Falluja, Kut, Kufa and Falahiya. The development of these clusters of towns would result in relatively even spread of investment, jobs and population. The Constellation of Town Clusters were:

- Baquba, Khalis, Bahriz, and Hib Hib
- Abu Ghraib, Falluja, Garma and Saqlawiya
- Mahmudiya, Latifiya, Rasheed, and Yousifiya
- Iskandariya, Musayab and Sadat al Hindiya
- Suwaira, and Hafriya

5.3.4.3 Highlight of New Towns Program in Greater Baghdad

- Madain New Town of total population - 70,000-100,000 people with Sport City, International Fairground, and three GOI agencies.
- Rashid University Town of total population 50,000 people with University Medical College and 500-bed hospital.
- Naharawan Industrial Town with total population 20-40,000 people.

5.3.5 Preliminary Land Use Plan of the City of Baghdad (PLUP)

Since Polservice failed to meet the requirements of the GOI, and failed in organizing and controlling the vigorous development and expanded urbanization in the City of Baghdad at that time with their theoretical single land use planning theory, JCCF (1990) introduced the Preliminary Land Use Plan (PLUP) as a preliminary concept for restructuring Baghdad, by
which the plan was intended to increase the population holding capacity and to make real integration of societies. JCCF (1990) described four strategic areas for the City of Baghdad - City Center, Inner City, Outer City (Karkh and Rusafa), and the city edge as shown in Figure 5.16.

![Figure 5.16 The Geographic Extent of the Four Strategic Areas](image)


A number of settlements already existed close to the City of Baghdad. The development strategy was to actively promote the growth of these settlements as a main contribution to diverting pressure from Baghdad. The edge strategy sought to prevent Baghdad’s amalgamation with the towns of the inner ring of the metropolitan area as shown in the Figure 5.17.
Figure 5.17 The Relationship between Greater Baghdad Growth Centers and City Edge


In Figure 5.17, JCCF (1990) identified the minimum and maximum edge in relation to AAA boundaries, which showed the edges and existing and optional additions of land with regards to the AAA boundaries. As shown in Figure 5.18, 8,220 hectares of land mainly south and west of the city should be added to the AAA area. To the north on both sides of the Tigris, an equivalent area of land presently within AAA boundaries falls outside the area of minimum edge.
5.3.5.1 Service Spines

The JCCF plan’s preliminary concept, titled “Urban Spine Concept,” was meant to reorganize the urban structure by taking the existing round and radial roads and reinforcing their structural function by designing multi-functional and high density mixed use zones in concert with those structures. In the ICDP study, the service spines were considered to be a mechanism for reconstructing existing and emerging development in the mainly residential districts of the Outer City while, at the same time, providing guidance and control to future patterns of land use.

By using service spines, the plan could achieve absorption of increasing population and achieve more integrated urbanity at the same time. The difference between the JCCF plan, the
Polservice plan, and the Doxiadis plan was that the JCCF plan made the mixed use concept into a central land use planning issue, while Polservice was based on the classic single land use zoning theory (homogeneous zoning), and Doxiadis put an emphasis on community planning.

In many cases, the service spines can be seen as the rationalization of previous approaches to restructuring the distribution of non-city center activities, like the Polservice district center concept and resulting strip commercial designations originating from a High Committee resolution in 1983. There were two levels of spines, municipal and local, and each related to their respective Spine Service Areas.

5.3.5.2 Spine Service Areas (SSA)

Each Spine Service Area (SSA) embodied three sub-elements: Gross Residential Areas (GRA), municipal spines, and local spines. The extent of Spine Service Areas were generally defined by the radials of the metropolitan corridors, the peripheral border of the city edge, and the external limits of the Inner City. Where catchment area bordered the Tigris River, it alternated the Metropolitan corridor as shown in the Figure 5.19.

Figure 5.19 Outer City Spine Service Areas and Spines in Relation to other Outer City Strategic Area

In the service spine hierarchy, local spines followed the municipal spines. According to the JCCF (1990), local spines will typically be branches off the municipal spines and would serve the day-to-day needs of local communities. Unlike municipal spines, the local spines would not overlap or be parallel to primary public transport radials, but would trace a secondary course along the interface of contiguous local community service areas. The type and order of their associated land uses would reflect their smaller service population.

5.3.5.3 Three-Story Development

To absorb anticipated growth in Baghdad, JCCF (1990) proposed three-story development. Figure 5.20 shows where the location of the Spines/Spine Service Areas and Designated Three Story Development in the ICDP plan.


Municipal spines were the main structuring element of the Outer City and were intended to act as the principal focus of service facilities and functions for their catchment population. For
this reason, SSAs become the common denominator of the existing and future urban composition of the Outer City.

The municipal spines themselves were scattered between the metropolitan corridors and overlaid almost one third of the AAA-designated three-story commercial streets. These were selected since linear commercial development, even though being generally less efficient from a transportation point of view than clustered, is nevertheless an acknowledged local practice. In other cases, they extended along major arterial routes, which radiate from the city center as shown in Figure 5.21. JCCF (1990) showed that the three-story development (TSD) was over supplied in Rusafa, with 78 percent, compared with Karkh at 22 percent. Since the population share was estimated to be in the order of 40% and projected to increase to 50% by the year 2000, the plan proposed a possible freezing of development in Rusafa, while making additions to Karkh.

5.3.5.4 Nodes

JCCF (1990) advocated that typically commercial and public service facilities would be encouraged to cluster at high accessibility points along the system, particularly at the meeting point of municipal and local spines. At these junctions, multimodal public and private transportation systems would afford excellent access to other parts of the city. Such confluences of services, functions, and transport are termed nodes. Nodes vary in size, shape and intensity. Principally existing trading patterns, market area scale and the impact of transportation strategies would determine their relative importance. In turn, their hierarchy will determine the diversity, variety and specialization of the activities that gravitate to any one node.

Thus spines, although they are linear by definition, should not be equated with ribbon development as the intensity and type of development along them would be varied, and access and servicing of high intensity uses would be strictly controlled. Moreover, to ease pedestrian and traffic flow conflicts, a number of traffic management measures would be installed. These would include vehicle/pedestrian segregation at major intersections and activity nodes, on-street parking restrictions, off-street car parks and rear property access facilities.

A four nodal range was identified in the ICDP study: local, district, sub-center and AAA, the last having high level, non-basic administrative functions pertaining to a population range of
one-half million inhabitants or more. Sub-center and AAA nodes might, in some instances, occur where the spines enter the inner city from the outer city (JCCF, 1990).

While the district and local nodes would develop in close vicinity to lesser orders of the transportation interchange hierarchy. Ideally, district and local nodes would be located at the centers of gravity of their respective service areas. Loci would coincide with compatible levels of land use activity. Several functional components would determine the spatial organization of the SSA, and, in turn, the scale of SSAs would determine the relationship between the components as shown in Figure 5.21.

![Figure 5.21 Spine/Service Areas (SSA) - Spatial Organization and the Implications of Scale](image)


### 5.3.6 Population Distribution - Growth and Change

JCCF (1990) estimated that the Outer City contained over two-thirds of the total city population in 1985. ICDP projections for the Outer City, based upon its strategic role as the
major absorber of population, indicated that this share would increase to almost 75 percent by the year 2000. In real terms, this means accommodating in excess of two million inhabitants over the three five-year time periods. In other words, this increase in population represented half the total population of Baghdad in the mid-1980s. Efficient planned delivery of prepared urban land would be the key to achieving these targets.

The ICDP study showed that during the first development period (1985 -1990), the Outer City’s share of the incremental population peaks at 94 percent, of which about 80 percent can be expected to take place on the Karkh side of the city, reflecting its disproportionate share of potentially available land resources suitable for residential and community uses.

5.3.6.1 Land Supply

Gross residential lands would absorb population growth at densities ranging from 150 to 220 persons per hectare (average 185 p/ha). Overall, expansion constituted around 75 percent of all residential development to the year 2000. Amiriya and Shu’la constituted in excess of 50 percent of this in Karkh, with New Baghdad on Rusafa side adding a further 11.5 percent. Figure 5.22 displays the minimum, medium and maximum densities in the city in 1985.

Figure 5.22 Population Density 1985

In August 1990, the ICDP Study was unfortunately suspended because the 1st Gulf War began in the middle of the study, at the last part of Phase-1 when the Preliminary Land Use Plan (PLUP) was completed. The master plan of Baghdad was supposed to be created during the second phase based on the Preliminary Land Use Plan (PLUP) that was prepared in the first phase.

5.3.7 Transportation

In early 1980s, Scott Wilson Kirkpatrick Partners, a British transportation planning firm, proposed a Baghdad Comprehensive Transportation Study to the MOB. In order to reduce traffic congestion especially at peak hours and to have accessibility between other parts of Baghdad and to link the outskirts with the CBD, the consultant’s study suggested four ring roads, with a total length of 230 km. Only 87 km has been completed so far. The first ring road has a length of 22 km, and half of it is completed. The second ring road was 48 km, and only 16 km has been completed. The third ring road was meant to be 60 km, and 46 km is completed, while the fourth ring road was 100 km, and only 14 km has been completed. The study also suggested 96 bridges and flyovers, and only 29 were built. The estimated cost for the four ring roads with the bridges was about $1.5 Billion. Figure 5.23 shows the suggested four ring roads of Scott Wilson Kirkpatrick. Metro, monorail, and bus rapid transit were also proposed in the Baghdad Comprehensive Transportation Study.
The present situation of Baghdad, together with its metropolitan area, has been getting worse. Most of the issues laid out in the ICDP Study still remain valid, except to a more critical degree. The population of Baghdad City has reached 8 million or more. The actual urbanized area has expanded, crossed the city limit and formed ugly, uncontrolled and flavorless sub-standard urban development.

There are two options in front of the Iraqi policymakers now. The first option is upgrading the AAA’s status, and the AAA would be responsible for both the Greater Baghdad area and the Baghdad City area, and the other option is a newly created Authority that is responsible only for the regional matters, which can’t be handled with capacities of the local municipalities including the AAA, while they are administrating daily urban management.
5.3.8 **Urban Patio Concept**

The Urban Patio Concept was a JCCF concept to reform the existing Central Business District (CBD) area, given the impact of new insensitive developments that have destroyed precious archeological and historical assets and the old beautiful townscape. The value of the historical buildings and townscape will certainly increase as time goes by. These historic resources are national treasures and must be strictly reserved. In addition, CBD functions were increasing and getting more diversified as the capital grows. The JCCF plan recommended lessening the present CBD function because the existing CBD function was already out of date. New CBD functions, and Capital functions as well, would be distributed over the Urban Spines, and a round-shaped new CBD zone.

The Urban Patio Concept treated the existing CBD area as an Urban Patio surrounded with a high density, high rise zone in which the new CBD function would be accommodated. The Urban Patio is low rise and relatively low density with green space and mostly cultural and hospitality functions, such as theatres, National Opera House, museum, art galleries with a new Iraqi Studies Center, libraries, and book stores, together with hospitals, restaurants, and cafes. Those new functions would be either accommodated within the renovated old structures or in new buildings of traditional Arab architectural design.

The townscape and new building designs would be controlled with new planning and design codes, regulation and ordinances, which would be based on traditional design idioms. This reformed central area would require a strong and robust determination of the leadership. I think that this proposal remains realistic, and it could be realized by designating the Urban Patio area as a Special Economic Zone (SEZ), which would provide incentives for foreign investors.

The JCCF plan was based on the Japanese idea of Kukaku-Seiri, which means land readjustment. The purpose of the land readjustment method is to develop and improve the urban environment and infrastructure, such as the road network, river, sewage and drainage systems, parks, and so forth, so that ultimately the value of land will be higher. Also, the land readjustment method may provide sites for public facilities. This is a successful urban planning and economic development technique that has been widely used in Japan. About eighty percent of the existing urbanization areas of Japan were developed with the application of this method.
By adopting this method, Japan could recover quickly, and, in 1960, Tokyo could host the Olympic Game only fifteen years after the ashes of WWII disappeared.

In the following section I shall discuss and analyze Baghdad Comprehensive City Development Plan 2030 (CCDP) by Khatib & Alami 2018.

5.4 BAGHDAD COMPREHENSIVE CITY DEVELOPMENT PLAN 2030 (CCDP) BY KHATIB & ALAMI 2018

The Baghdad Comprehensive City Development Plan project (CCDP) was a study plan prepared by Khatib & Alami, an urban design firm from Lebanon, to redesign the City of Baghdad for the year 2030. The study was based on the “Comprehensive Development Plan for Baghdad 2000” which was prepared in 1973 by Polservice consultants, and the study of Bianca and his team for the conservation and development of the historical part of Rusafa in the early 1980s.

Khatib & Alami (2018) aimed to influence the city’s development with immediate effect, anticipating plan implementation by 2030. The CCDP plan addressed urban growth through creation of compact, mixed-use Transit Oriented Development, densification and intensification of the built fabric, and consolidation of satellite cities located on transportation corridors within a thirty km radius of the CBD. The CCDP study endorsed the application of urban design criteria at two levels:

- Applying control of new development
- Encouraging correctional measures in existing construction

In order to reduce errors that will have to be adjusted in future, control of new growth is critically pressing. Khatib & Alami (2018) showed the significant long-term consequences uncontrolled growth would have on the quality of life of Baghdad’s communities. The CCDP master plan study proposed guidelines for the city decision makers to implement in the future development of the city. The principles expressed by CCDP study would be translated into detailed urban design standards that architects, engineers and urban designers should use in the actual planning and design process. Indeed, the aim of these guidelines was to positively integrate and influence the three main functions of urban design in Baghdad: the visual, physical and social development functions.
The study was divided into four phases:

Phase I: Baseline report (Review of past experience, current status and trends).
Phase II: Development plan alternatives and outline strategies.
Phase III: Preparation of draft CCDP and action planning.
Phase IV: Finalization of plans and preparation for implementation.

In general, the CCDP urban design objectives were to:

- Improve the urban fabric and networks of the city to facilitate the development of a vibrant city, socially, culturally and economically.
- Support new development in present streets to be well matched in character and scale with the existing fabric.
- Keep or initiate a sense of harmony in the physical character of the street.
- Support active social communication by creating outdoor activities.
- Encourage the preservation and revitalization of the traditional and historic fabric.

Khatib & Alami (2018) offered a comprehensive development plan for Baghdad City which considered the city as a total environment, including its social, economic, environmental, administrative, and other aspects, while going beyond the built form to address the needs of its citizens. This wide-ranging vision addressed the growth of Baghdad from a new conceptual as well as technical viewpoint. The CCDP notion was to apply an advanced method to planning that efficiently integrated economic, political, physical and environmental revitalization elements of the city, and delivered strategies and actions to achieve the goals and objectives of the plan. The CCDP study utilized GIS technology as a powerful tool to analyze past and present conditions in Baghdad and to propose priority strategies that:

- Addressed mainly Baghdad’s role on the national, regional, and international scales.
- Included numbers of strategic interventions into the city fabric.
- Studied the relationship of Baghdad’s center to its immediately adjacent suburbs.
- Assessed the urban rehabilitation and design within Baghdad City.

The CCDP Planning Process followed the consecutive steps shown as:
1. Data Collection, issue identification and definition of goals and vision.
2. Generation and analysis of potentially feasible growth scenarios.
3. Selection of preferred growth alternative.
4. Plan development.
5. Elaboration of implementation strategy.

5.4.1 Baseline Population Estimates

To plan the future of Baghdad, it was vital to set the baseline of population for Mayoralty of Baghdad (MoB) and outline its growth scenarios. The present and forthcoming situation in Iraq and Baghdad depends on demographic and socio-economic influences such as the population profiles, household sizes, economic activities, labor market developments, growth trends, growth scenarios, and other key issues. During Phase I, the CCDP Study built on the census data that are from 1970 to 1997. The base and projected population by Ministry of Planning and Development Cooperation (MoPDC) - Central Organization for Statistics and Technology Information (COS) for 2007 was used for the Medium Term 2007-2010 Economic Planning.

The study showed that the existing city has a population of about 6.3 million, with approximately 3 million in the nearby towns within the metropolitan area of Greater Baghdad, from which many people commute daily to the capital. It was estimated that the population of Baghdad and the neighboring area would approximately double by the 2030 horizon year. This is mainly due to the recent population explosion in Middle East countries in general, and the City of Baghdad is not exceptional in particular. This has fortified the growing attractiveness of the Capital City Baghdad to an ever-increasing proportion of the Iraqi population, mainly the young. Table 5.2 shows the population growth trend in Baghdad, Greater Baghdad, Central Region and Iraq from 1970 to 2010.
Table 5.2  Population Growth Trend in Baghdad, Greater Baghdad, Central Region and Iraq from 1970 to 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Baghdad (K)</th>
<th>GR Baghdad (K)</th>
<th>Central Region (K)</th>
<th>Iraq (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970 (COS)</td>
<td>2,266</td>
<td>2,219</td>
<td>4,805</td>
<td>9,200</td>
</tr>
<tr>
<td>1977 (COS)</td>
<td>3,189</td>
<td>2,695</td>
<td>6,116</td>
<td>12,000</td>
</tr>
<tr>
<td>1987 (COS)</td>
<td>3,841</td>
<td>3,541</td>
<td>8,952</td>
<td>16,335</td>
</tr>
<tr>
<td>1997 (COS)</td>
<td>5,423</td>
<td>5,578</td>
<td>11,047</td>
<td>22,048</td>
</tr>
<tr>
<td>2007 (COS)</td>
<td>7,145</td>
<td>6,651</td>
<td>15,886</td>
<td>29,682</td>
</tr>
<tr>
<td>2007 (UNOCHA)</td>
<td>6,386</td>
<td>6,871</td>
<td>14,218</td>
<td>27,475</td>
</tr>
<tr>
<td>2010 (MoB)</td>
<td>7,717</td>
<td>8,700</td>
<td>16,021</td>
<td>34,392</td>
</tr>
</tbody>
</table>


In 1997, the average population density in Baghdad was 99 people per hectare (pph), and density increased to 127 pph in 2007. The highest density was in Sadir 1 and 2, which is home to over 1.3 million people with a density of 325 pph in 2007. Sadir City is an overcrowded municipality, and home to low income families, mostly migrants to Baghdad in the 1950s from southern Iraq.

Khatib & Alami (2018) showed three-population growth scenarios: medium, low and high. In the scenario of medium growth, the CCDP anticipated that the population grows at 3 percent for Iraq and 2.9 percent for the MoB up to 2010, and the rates would stay steady through 2015. Between 2015 and 2030, growth of Iraq would rise to 3.1 percent, and Baghdad would rise to 3.4 percent. In the scenario of low growth, CCDP predicted the population would grow at 2.9 percent for Iraq and 2.8 percent for the MoB between 2010-2015, rising to 3 percent for Iraq and MoB during 2015-2030. In the scenario of high growth, CCDP projected the population grows at
3.1 percent for Iraq and the MoB between 2011-2015, rising for Iraq and MoB during 2016-2030 to 3.1 percent and 3.3 percent respectively.

5.4.2 Basic Strategy in Phase II

At the end of Phase II, the urban growth strategies proposed in the CCDP (2018) would be implemented:

1. Adoption of Alternative II “Polycentric Model”, it was preferred choice to achieve the following objectives:
   i. Relieve pressure on the existing CBD.
   ii. Remove and re-distribute appropriate functions and land-uses from the CBD to secondary centers to be created at appropriate locations on the fringes of the city.
   iii. Transfer basic amenities and services closer to population centers.
   iv. Assign suitable functions for the CBD, rendering it more effective and attractive.
   v. Enlarge the connectivity of the newly created outskirt centers with the CBD.
   vi. Reorganize the CBD to enlarge its efficiency and advance its image as the central hub for cultural, administrative, financial and international functions.

2. Improve the image of the City of Baghdad as a world-class international city while conserving its identity and safeguarding and enhancing its unique urban fabric.

3. Combine and establish the transportation network (road, rail, mass-transit and air) and maximize its efficiency.

4. As a general rule a housing density of 200 – 400 (pph) shall be adopted.

5. Providing adequate green spaces and the safeguard of agricultural land are goals and objectives for the CCDP.

6. Restructuring, enlarging and consolidating the West and North–West green belt due to the high-level direction of wind throughout the year.

The strategy of the Khatib & Alami (2018), as highlighted the development plan for Baghdad 2030, was grounded on the following main mechanisms:

- Spatial distribution of future urban growth.
- Taking into consideration the future urban growth, the transport and traffic plan are to be designed accordingly.
- Conservation of historic urban fabrics.
- Safeguarding of the orchards as natural heritage and of agricultural land to form a green belt.
- Capitalization on the Tigris as the central urban feature and creation of a Green, Cultural and Touristic Corridor.

5.4.2.1 Urban Growth

Khatib & Alami (2018) addressed urban growth through the creation of compact mixed-use Transit Oriented Developments (TOD), increased density and strengthening of the built
fabric, and an amalgamation of satellite cities located on the Transport Corridors within a 30 km radius of the Central Business District (CBD) of the City of Baghdad. The plan proposed new growth poles in large areas of vacant land advantageously sited on vital transportation corridors connecting the CBD to cities outside the MoB. Some of these locations have already been reserved by the MoB for big development projects such as the 10x10 Sadir Development Project, the Rashid Camp Development Project, and Future City.

Medium to high density development, as well as mixed-use development, are fundamentals for land and public transportation efficiency. Khatib & Alami (2018) underscored that this growth will help in protecting the city’s identity, will not influence the existing urban fabric, will reduce the pressure on the CBD, and also at the same time will allow for an improved distribution of traffic throughout the city. The proposed CCDP Land Use & Growth Management strategy:

1. Remove the existing fragmented green belt.
2. To absorb future growth and ease pressures on CBD.

### 5.4.3 Creation of new strong polycentric urban centers within the MoB:

In order to absorb future growth and relieve pressures on the CBD, Khatib & Alami (2018) suggested the creation of new growth poles, or satellite centers, and what they called “strong polycentric urban centers,” as shown in Figure 5.24.

1. Al Saabiyat Financial District- Mixed use land use residential and commercial with high-rise building very high density.
2. Dehna- Hotels, Offices with Exhibition Center- Mixed use residential and commercial with medium to high housing density.
3. Education Node- Foreign tertiary education institutions with medium to high density residential.
4. Airport City- Tourism economic basis like resort, sports, golf course, leisure and cultural node with low-density housing.
5. Ouyerich Industrial Node – Relocation of industry land use from CBD to this growth pole, medium to high-density social housing, labor city, and Special Economic Zone (SEZ).
6. Bob Al Sham- Technology Development Zone (TDZ), special industry node, industry economic zone SEZ with medium density residential.
7. Sadir Development Project 10X10- very high density, residential with mixed-use urban center.
8. Central Business District (CBD)- Commercial, administrative and cultural tourism.
10. Dora- residential with mixed use residential

**Source:** Khatib & Alami (2018). Baghdad Comprehensive City Development Plan 2030 (CCDP), Baghdad. Unpublished study.

### 5.4.3.1 Densification and intensification of the built fabric:

Khatib & Alami (2018) noted that housing in Baghdad was mainly comprised of single-family houses, with an average residential density that ranged between 200 and 300 pph. Furthermore, in many areas of the city, the urban fabric was porous, as the presence of green fields, brownfields and built plots caused disruptions in the built fabric. A better-organized use of the land and a more coherent and compact built fabric was recommended by the plan to absorb part of the projected urban growth.

Based on a satellite image of 2011, residential land use constituted 270.08 km², representing 32.15 percent of the MOB total area of 840 km². In 2007, residential land use was 235 km², representing 27.49% of MoB total area. Public agencies have provided single family
and multifamily housing to their employees, but the major land use changes have been agriculture that changed to residential.

Khatib & Alami (2018) created new high to medium density residential zones on the peripheries around the Growth Poles to rationalize the uncontrolled urban sprawl that took place in these areas and to accommodate part of the future population increases. The CCDP considered the low density to be 200 to 299 pph, medium density to be 300 to 399 pph, high density to be 400 to 499 pph, and very high density to be more than 500 pph.

5.4.4 New Additional Area

To accommodate the growth of an estimated population of 1.4 million by 2030, Khatib & Alami (2018) proposed four new zones for new development. The CCDP-suggested zones were based on integrating the MoB surrounding areas as well as its existing land-use distribution. The four zones are defined by clear natural and man-made geographic features, and constitute a total area of 427 km2 to accommodate the aforementioned surplus population of 1.4 million people. Thus, the total area of the MoB, with four expansion zones, would become 1267 km2. Figure 5.25 shows the proposed new development zones outside the boundaries of the MoB.
Table 5.3 summarizes the areas, population, and residential densities of the proposed zones for expansion.

Table 5.3  Area & population and densities of the proposed 4 zones:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Area km2</th>
<th>Residential area km²</th>
<th>Density pph</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zone 1, Z1</td>
<td>104</td>
<td>14.64</td>
<td>200-450</td>
<td>1,056,573</td>
</tr>
<tr>
<td>New Zone 2, Z2</td>
<td>141</td>
<td>15.46</td>
<td>200-350</td>
<td>90,822</td>
</tr>
<tr>
<td>New Zone 3, Z3</td>
<td>151</td>
<td>14.11</td>
<td>200-250</td>
<td>92,417</td>
</tr>
<tr>
<td>New Zone 4, Z4</td>
<td>31</td>
<td>2.96</td>
<td>450</td>
<td>133,200</td>
</tr>
<tr>
<td>Total New Zones</td>
<td>427</td>
<td>47.17</td>
<td>200-450</td>
<td>1,373,012</td>
</tr>
</tbody>
</table>


An additional population of three to four million people can be accommodated within the MoB boundaries to bring it to around ten million in 2030. The four proposed expansion zones outside the MoB area would accommodate 1.4 million people. As shown in Tables 5.3 and 5.4, Khatib & Alami (2018) projected the population of Baghdad to be 11.4 M in 2030.
Table 5.4   Total Population Capacity:

<table>
<thead>
<tr>
<th>Area</th>
<th>Population in 2010</th>
<th>Additional Population 2030</th>
<th>CCDP Estimated Total Population Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MoB</td>
<td>6,132,000</td>
<td>3,872,680</td>
<td>10,004,680</td>
</tr>
<tr>
<td>Z1</td>
<td></td>
<td>1,056,573</td>
<td>1,056,573</td>
</tr>
<tr>
<td>Z2</td>
<td></td>
<td>90,822</td>
<td>90,822</td>
</tr>
<tr>
<td>Z3</td>
<td></td>
<td>92,417</td>
<td>92,417</td>
</tr>
<tr>
<td>Z4</td>
<td></td>
<td>133,200</td>
<td>133,200</td>
</tr>
<tr>
<td>Total</td>
<td>6,132,000</td>
<td>5,245,961</td>
<td>11,377,692</td>
</tr>
</tbody>
</table>


To accommodate new growth, Khatib & Alami (2018) proposed to remove the existing fragmented Green Belt and recommended a new location of the green belt as shown in Figure 5.26.
5.4.5 Transportation

To connect the CBD and the new growth poles, Khatib & Alami (2018) suggested implementing public transport network such as a metro rail, monorail, or bus rapid transit. Also, the CCDP recommended completing the four ring roads suggested by the Scott Wilson Kirkpatrick study. Furthermore, the CCDP proposed a fifth ring road, as shown in Figure 5.27, surrounding the growth area and linking to international expressways and major roads to achieve linkage between developed areas within the MoB boundaries.

An upgraded transportation sector is one of the major indicators of the level of physical and urban development of a city to meet the community’s ultimate objectives for sustainable socio-economic and environmental development. The CCDP holistic approach for the transportation strategy was adopting an integrated approach to all modes of transportation. Figure 5.27 shows the public transportation strategy as a whole (metro, monorail, BRT, park & ride facilities, and BRT drop-off stations at the outskirt of the CBD).
5.4.6 The CCDP maps for the land uses and population densities

5.4.6.1 Land Use

Khatib & Alami (2018) created maps for existing and proposed land uses (including the MoB with the new zones). See Figure 5.28.
5.4.6.2 Population Densities

Khatib & Alami (2018) produced three versions of maps for population densities, which were submitted in Phase IV Report. The maps were Existing Population Densities, Proposed Population Densities in Development Areas 2030 and Existing and Proposed Population Densities in Development Areas 2030 as shown in Figure 5.29.
Figure 5.29 Existing and Proposed Population Densities in Development Areas 2030

Source: Khatib & Alami (2018). Baghdad Comprehensive City Development Plan 2030 (CCDP), Baghdad. Unpublished study

5.4.6.3 Proposed Limit of the Urban Area

Khatib & Alami (2018) proposed limits for the urban area, which is a combination between the new proposed boundaries for the MoB along with the proposed green belt. In order to reduce the never-ending urban sprawl and forfeiture of agricultural land, the CCDP study proposed that the urban expansion should be controlled within this limit. Once the urban area is saturated, further urban growth would take place in satellite cities, first by strengthening existing urban nodes located within 30 km of the MoB.

5.4.6.4 Urban Public Realm Network

Khatib & Alami (2018) noted that Baghdad occupies an almost flat terrain. The prominent physical features that define its landscape were the rivers, canals, man-made lakes, parks, orchards, agricultural green belt, and the islands in the Tigris. The success and competitiveness of a city hinges on the quality of its public realm, which also fosters social interaction, quality of life, and well being. Because of the presence of the Tigris and other water
bodies, in addition to islands, the public realm in Baghdad is very diversified in terms of landscape. If properly structured, upgraded and beautified, it has the potential to make of Baghdad one of the most distinctive cities in the region.

5.4.7 The pros and cons of the CCDP

In 2006, the Baghdad Comprehensive City Development Plan (CCDP) was carried out at the peak of the sectarian uprising, which was hard for locals and harder for international professionals to work in the field. To work in an extraordinary atmosphere with an uncomfortable environment, warzone, and turmoil is a credit to CCDP team. By utilizing modern information technology, the CCDP contained detailed data and colored maps.

It is estimated that, for two-thirds of the year, the direction of wind in Baghdad is from the west and northwest. Therefore, the CCDP location of the green belt surrounding Baghdad would be successful, as it was with the Polservice plan. In this respect, it is worth mentioning that the violations upon the Polservice green belt in recent years were by both the public (institutional) sector as well as the private sector.

However, the CCDP has problems that have been pointed out with the data used for the master plan creation, and the Iraqi government has not yet approved it as a formal master plan. It has not been legalized, but it exists as it is. I have to point out the basic and serious flaws in the planning of the CCDP with the following points.

The first problem is the lack of basic data, which is essential to all planning tasks for predicting the future. Given the chaos in the country at the time of plan preparation, at the peak time of the sectarian uprising, the difficulties faced by planners are understood, but they cannot be overlooked in the planning work that will determine the future of the historic capital of Iraq. Much of the data was derived from previous plans such as Polservice (1973) and Bianca et al. (1983) study of Rusafa, which are outdated. Thus, it is necessary to ensure the quality of data by techniques such as additional surveys for supplementary updating.

The next issue is the prolonged disasters in Iraq, which has left deep scars in the hearts of the people as well as the total destruction of the land. There is a large crack between people of different ethnic, religion and sects in the country. In reality, those populations are divided in
different parts of the country including Baghdad. With the continued isolation of districts, the social situation is the most important task for planning work to consider the future of the country together with the restoration of the physical environment. The stability of Iraq depends upon the mutual reconciliation of the country’s ruptured population.

In planning the future, it is considered that the key challenge is how to promote interaction between the different mosaic-like “social segments” formed in the course of urbanization. The CCDP did not address any of the most important social issues. What you see there is a master plan textbook approach to a ‘modern city’ that has evolved peacefully in all urban issues. The plan shows no measures to rebuild the situation that has become dysfunctional due to the war.

Additionally, over the past 20 years, the world has undergone major changes during the absence of a master plan in Baghdad, and in particular the social change due to the “digitization” of all systems in the existing society within cities. The life of human beings has begun to change fundamentally, and this social change will continue to change societies at a considerable speed due to the advancement of innovations such as artificial intelligence, and in particular various aspects of human mutual communication.

In the city that forms its substance, the task of predicting future urban form is an indispensable planning task for creating a modern master plan. The related aspects cover all the major items of planning, such as the transportation network, land use, composition of living quarters and environmental conditions, so that conventional methods of urban planning are invalid.

In particular, the creation of a new master plan requires so-called “household surveys.” Recent changes in household structure have had a decisive impact on planning, especially in Baghdad, which has gone throughout forty years of turmoil. It is hard to say that it is essential to understand the household structure. The CCDP study showed a lack of attitude to address the latest social changes mentioned above, and a conventional master plan cannot address these most important issues. Any study for a master plan for Baghdad needs to include futurists and lifestyle specialists on this task within the planning team.
The CCDP plan did not use the recent developed technology to design an urban information system, which is indispensable tool today for urban management. The JCCP, for example, designed a regional and urban comprehensive geographic information system called CADIS at the early time of the GIS technology about 40 years ago. The study intended to utilize state of the art GIS technology, however, no GIS specifications were included in the CCDP master plan. The plan was created according to a textbook with beautifully colored pictures and figures without considering many critical issues that Baghdad is currently struggling with.

No clear prospect for community planning is shown in the CCDP, a contrast with the Doxiadis, Polservice, and JCCF plans. No real solutions to the CBD and the heritage areas are presented either.

Furthermore, to increase the area of Baghdad, Khatib & Alami (2018) proposed four new development areas outside of the Baghdad boundaries that require a new law to be signed by the Iraqi government and approved by the parliament. There are considerable debates on this issue inside Iraq, and most probably the parliament would not pass this law because most of the lands are private property.

As per the population growth rate scenario 2030, Khatib & Alami (2018) anticipated the population of Iraq would be about 60 million, Greater Baghdad would be 15 million, and Baghdad would be 11.4 million (a megacity). If we consider the percentage of growth in central Iraq is the same, which is around 57 percent of the Iraq population, then central Iraq’s population would be about 34 million. Any master plan study for the city of Baghdad does not include the Greater Baghdad and Central Iraq would be considered inoperative by the Iraqi authorities.

Finally, I still believe that there will always be a day to recall the glorious history of the World City where Baghdad once reigned as Abbasid capital and “City of Peace”. City memory is inherited as the gene of the country, and Iraq has the potential to create it. Although Iraq is a country created by borderlines artificially drawn in the colonial policy of Western countries in the early 20th century, Baghdad is located in the center of the Mesopotamia plain and is one of the most representative cities of the Arab World. The reconstruction of the capital city of Baghdad will greatly enhance the full potential of Iraq from the state of dysfunction due to unprecedented destruction to the future.
5.5 COMPARISON OF THE FOUR INTERNATIONAL PLANS FOR BAGHDAD

In this section, I discuss and compare the four international plans for Baghdad. Criteria for analysis include drivers of planning at the time of plan creation, recommended spatial configurations for new residential areas, evaluation of results including extent to which plans were realized and overall strengths and weaknesses.

5.5.1 Drivers of planning at the time of plan creation

In 1950, the Iraq Development Board (IDB) was established to implement a comprehensive program of reconstruction using 70 percent of the oil revenues. The establishment of IDB was supported by United Kingdom and United States. Modern urbanization was an influential instrument of “soft-power” intended to recommend Western values and principles worldwide. It was during this time that Doxiadis was hired to develop a master plan.

An influx into Baghdad of about one-half million migrants, mainly from the southern part of Iraq, was an alarm for the Iraqi government and the consultant. DA predicted within 20 years the population of Baghdad would increase by one hundred percent, and that the Baghdad population would be about two million.

After the military coup of 1958, Iraq’s socio-political climate shifted from the West to the East, leaning toward the socialist system. For the next two decades, the Country of Iraq and its Capital City, Baghdad, experienced continuous high population growth.

Socialist urban planning concepts were popular among Eastern European countries (Warsaw Pack countries), and were widely adopted in many communist capitals. The Planned Economy concept was the core policy mechanism of the Socialist/Communist countries. The Polservice plan came as a result of these circumstances. The Polservice plan for Baghdad was the outcome of a multi-year engagement, with a 1967 plan followed by more data collection and the update in 1973. So, the planning concepts, mechanisms and policies had shifted from a Greek consultant adapting Western urban planning concepts for Iraq to a Polish consultant adapting planned economy concept a little over one decade later.

The oil booming economy continued with the second oil price adjustment in 1979, and
throughout the 1980s, despite the eight years of war with Iran. When Saddam Hussein became president of Iraq in 1979, he immediately began efforts to capitalize on his ambition to make the country one of the leaders in the Arab World. A booming economy and the president’s ambition combined to create a mighty stimulus for Baghdad city planning in the 1980s.

For most of its modern history, Baghdad’s growth has been perceived as uncontrolled. For the past half century, the most imminent issue for the Iraqi urban policymakers has been to control and direct growth. Additionally, one of the most crucial issues has been to maintain “equity” in order to solidify national unification among the divided ethnic and religious peoples. Under these circumstances, the Integrated Capital Development Plan (ICDP) of Baghdad 2001 was started in the early 1980s.

The CCDP plan was assigned to the Lebanese consulting firm in 2007 at the peak of Iraq’s sectarian war. The aim of the CCDP master plan study was to influence city development with immediate effect, with anticipation of reaching its full potential by 2030. The control of new growth and the quality of life of Baghdad’s community were envisioned in the plan. This plan is the latest study with new, but still limited, data. The study showed that the existing city has a population of about 6.1 million, with a further 3.8 million approximately in the metropolitan area, for a total of about 10 million people.

5.5.2 Recommended spatial configurations for new residential areas

Doxiadis emphasized that the city must grow in typical grid system format on both banks of the Tigris River, following the general direction of the river. DA emphasized the importance of the Tigris River in the future expansion of Baghdad.

The DA Master Plan was attentive to offering considerable attention to the influence of the river axis, opening new canals, the creation of an expandable public sector and community groupings. The concept of “neighborhood” was presented as a basic human habitation unit that ensured basic human needs. Unquestionably, there were difficulties to blend communities of different economic standards, and ethnic groups with different customs and practices.

DA proposed growth along three directions of the rectangular pattern that allowed the natural growth of the city. The future development proposed to take place mainly in the west
side, south side and east side of Baghdad to accommodate the increased population of the city. There are roads to the northwest (Mosul), northeast (Baquba), southeast (Kut), south (Hilla) and west (Ramadi).

Doxiadis, a technocratic planner at the height of the Modernist planning era, was assigned his first international job in Iraq, and it allowed him an opportunity to test his theories. The proposal for Baghdad was aimed at suburban expansion in a grid layout with a highly repetitious form. Population growth would be directed to linear expansion areas following major roads that connected Baghdad to adjacent cities.

Dynapolis was Doxiadis’s suggestion for conserving the historical center of the capital in harmony with the inevitable expansion of the urban tissue. Nevertheless, preservation of the historic center as an asset was hardly visible in the DA plan.

Polservice took a regional approach to accommodating population growth. Polservice divided Iraq into three regions: North, Central (where Baghdad is situated) and South. In 1970, the population in the central region constituted about 57 percent of the national total. In 2000, the plan estimated that the central region would be home to approximately ten to twelve million people.

The Polservice study foresaw that the City of Baghdad in 2000 would change from concentric city to the linear pattern of a great conurbation. The study proposed the expansion of the new growth to northwards and southwards from the Inner City. To ease pressure on the city, the plan suggested establishing city sub-centers located at the fringes of a so-called “Motor Box”. The Polservice neighborhood concept was based not on the number of the inhabitants in a neighborhood, but on the walking distance to primary schools and other facilities of daily use.

The Southern and Northern concentration would accommodate three to five million people in the Polservice plan. Densities in the plan vary between 100 to 450 per hectare for single family housing and 240 to 500 inhabitants per hectare for multi-family housing. The aim of the plan was to accommodate twenty percent of the total population of Inner City (4.3 million) in multi-family houses and eighty percent in single family housing. The average density in the new single family residential areas was 165 pph, while in old single family residential areas,
density was 138 pph. Today, there are about four million people living in the metropolitan area adjacent to Baghdad in communities such as Mahmudiya (S), Abu Ghaib (W) and Al Taji and Al-Hussainia (N).

The Polservice study suggested a new highway to serve Rusafa parallel to the Army Canal, which was built in the early 1980s, followed by a similar one in Karkh. Polservice proposed a North-South railway to facilitate movement between the proposed new development and the city, but this was never built.

Today, Baghdad is pretty dense and contained largely in the same area, despite plans to regionalize, because no new substantial development areas have been added. Also, there are two separate state administrations: the MOB and the Governorate of Baghdad for the metropolitan area. Moreover, the population growth rate remains high due to continued influxes of immigrants from other parts of the country due to Baghdad’s concentration of services, quality of life and job opportunities. Four decades of the wars, turmoil, and civil struggle have been major causes behind this striving.

The JCCF took a regional approach to control the population increase in Baghdad and the metropolitan area. To achieve zero net migration to central Iraq and to hold Baghdad population to 6.5 million in 2000, a target was set for Greater Baghdad outside of the city of 2.25 million. The JCCF team presented plans for the growth of central Iraq in the form of the Growth Pole, Urban Corridor and Dispersed Settlement strategies. A Modified Dispersed model was chosen that combined the advantages of the Growth Pole and the Urban Corridor by choosing nodes, giving them momentum, and then building on that momentum. A number of settlements already exist close to the City of Baghdad. The development strategy was to actively promote the growth in these settlements as a main contribution to averting pressure on Baghdad, with town clusters such as Baquba, Khalis, Bahriz, and Hib Hib (N); Abu Ghaib, Falluja, Garma and Saqlawiya (W); and Mahmudiya, Latifiya, Rasheed, and Yousifiya (S).

The population of the City of Baghdad was 4.2 million people when the JCCF started its study. According to ICDP projections, it was anticipated that the Outer City would hold over two-thirds of the total city population in 1985. With nine million people, Central Iraq accounted for 58 percent of the total population of Iraq. Of this, 52 percent resided in the Baghdad
Governorate and 46 percent in Baghdad City.

The Greater Baghdad Structure Plan (GBSP) was a strategy to guide growth. The Plan proposed decentralization of new development and investment for economic activities in selected places, but at the same time further developed the Central Business District (CBD) of Baghdad. The plan proposed to relocate one-sixth to one-fifth of the public sector agencies from Baghdad, or about 30,000 jobs. This was intended to generate a population shift of 300,000 to 400,000 public sector employees to locations outside of the center of Baghdad.

The JCCF plan showed that 8,220 hectares of land mainly present to the south and west of city should be added to the AAA area. To the north of the city on both sides of the Tigris River, an equivalent area of land presently within AAA boundaries falls outside the area of minimum edge. The southern Mesopotamian Plain developed as the most densely populated area of Central Iraq. Ramadi has since become an important secondary city in this sub-region. Ramadi has grown as a heavy industry center, based on extraction and processing of construction materials, minerals, and processing of oil. It is also an important distribution and transportation center on Expressway No. 1 and on the railway linking Iraq to Jordan. The western quadrant has advantages of flat non-agriculturally viable land for urbanization and an excess capacity in infrastructure, which the outer two quadrants do not have.

The difference between the JCCF plan, Polservice plan, and Doxiadis plan is that the JCCF made the mixed use concept a central land use planning issue, while Polservice was based on the classic single land use zoning theory (homogeneous zoning), and the Doxiadis master plan put an emphasis on community planning. To increase the population-holding capacity, to restructure Baghdad, and to make a real integration of societies, the Preliminary Land Use Plan (PLUP) demonstrated the preliminary concepts used by the JCCF. The “Urban Spine Concept” was intended to reorganize urban structure. The Spines/Spine Service Areas and Designated Three Story Development mixed-use land uses in the ICDP plan were intended to absorb new growth in the city of Baghdad. The municipal spines were the main structuring element of the Outer City and would act as the principal focus of service facilities and functions for their catchment population.

The CCDP plan addressed the urban growth by creating compact mixed-use Transit
Oriented Development (TOD), densifying and intensifying the built fabric, and consolidating growth in satellite cities located on transportation corridors within a 30 km radius of the CBD. Baghdad occupies an almost flat terrain. The prominent physical features that define its landscape are the rivers, canals, man-made lakes, parks, orchards, agricultural green belt, and the islands in the Tigris. To absorb future growth and ease pressures on CBD, and to remove and re-distribute appropriate functions and land-uses from the CBD to secondary centers, the CCDP study suggested the creation of new growth poles or satellite centers and “Strong Polycentric Urban Centers” and infill plus nodes at the edges.

The CCDP guidelines aimed to control new development and encourage correctional measures in existing construction. The CCDP addressed Baghdad’s role on the national, regional, and international scales, but also studied the relationship of Baghdad’s center to its immediately adjacent suburbs. It included a number of strategic interventions into the city fabric, and assessed urban rehabilitation and design within Baghdad City.

In 1997, the MoB had a population density of 99 pph. In 2007, the density was estimated to be 128 pph, created as a result of new informal settlements and increasing numbers of people living in the same housing unit. The “general rule” of the proposed CCDP plan is 200 to 400 pph, a significant increase. The plan states that maintaining the character of the existing urban fabric is important, and yet the density is expected to be doubled.

The CCDP showed the population of Baghdad is about 6.3 million, and approximately 3 million in the metropolitan area. The population of Baghdad and the neighboring area will be approximately double by the 2030 horizon year, according to the CCDP plan. To accommodate the growth of an estimated population of 1.4 million by the year 2030, the CCDP recommended four new zones to the north, south, east and west, totaling 427 km2 in area. Thus, the total area of the MoB with the expansion of the proposed four zones becomes 1267 km2. The future urban growth and the transportation and traffic plan are to be designed accordingly. The plan suggested a radius for the City of Baghdad that would be 60 km. Also, the CCDP proposed to remove the existing fragmented Green Belt and recommended a new location for the green belt adjacent to and northwest of the existing one.

The plan proposed to combine and establish new elements in a transportation network
(road, rail, mass-transit), creation of new polycentric urban centers within the MoB, and creation of new high and medium density residential zones on the peripheries around the Growth Poles. TOD was a principal recommendation; transportation and public transit would be the drivers of form. The plan proposed bus rapid transit and a ring railroad. Also, the CCDP recommended completing the four ring roads that suggested by the Scott Wilson Kirkpatrick study from the 1980s. Furthermore, the CCDP proposed a fifth ring road for the capital.

5.5.3 Evaluation of results including extent to which plans were realized

The GOI had a stated vision in the mid-twentieth century to integrate Iraqi society and build a national amalgamation based on unity and shared ethos. The Doxiadis classification scheme for land use, with its hierarchical structure, involved a system of social ordering. Sadir City could be a typical case; the housing district is one of the most debated legacies of the DA Master Plan of Baghdad. The plan of the Army Canal has helped to isolate Sadir City, and accelerated its transformation to a district of Shiite poor living in a congested community. The DA “promises” for “a happy and harmonious” urban environment disappeared.

The DA plan was the first modern international plan realized for Baghdad. I consider it as the foundation among all international plans. The DA Master Plan has been blamed for the destruction of the old quarters and damage to the morphology of the city. Before the DA plan, there were only two modern streets in the historical center of Baghdad. Al Rashid Street was built in 1916, and King Gazi Street (today Al Kifiah) was built in 1936. With the grid pattern of streets, much of the historical urban fabric was demolished. Al Kulafa Street (today Al Jimhoria) is a typical example of the obliteration of the Rusafa historical center. The patterns of the street were gridded, which is also criticized by pro-traditional Arabic Islamic city design advocates. The plan looks alien to the surrounding landscape.

To absorb the rapid increase of population in the City of Baghdad, areas for new development and expansion of the city at the peripheries are easier in the planning process than offering real conservation solutions to the core of the city with its rich heritage. Despite the arguments about the DA work, especially in the City of Baghdad, if we compare the available capacity, resources and facilities of that time in Iraq, in my view Doxiadis did a noteworthy job in the urban design of the city.
From a planning point of view and environmentally, the Green Belt location proposed by Polservice was outstanding to protect the capital from the frequent dust storms. The water availability in the Green Belt area allowed the growth of vegetation and greenery. Indeed, it is a rich agricultural area, and one of the main sources of vegetables, fruits and dairy for the capital. This area hosts the College of Veterinary Medicine and the College of Agriculture of Baghdad University. Unfortunately, the Green Belt became the best “saucer” to absorb un-controlled and illegitimate development. As a result, it has been heavily fragmented.

Critics of the Polservice plan have focused on the socio-economic framework. The study could not bridge the gap of social disparities in Baghdad. The plan did not meet the vision of the GOI. Most of the urbanized areas were in the de-facto mixed – use land use, which largely deviates from the Polservice Single Land Use Plan. Though most of Polservice plan for Baghdad was realized, it proved incapable of leading Baghdad to the realization of many of the policymakers’ goals.

I may recommend that the future development of Baghdad should be on the south, east and west, and not on the north as Doxiadis suggested, because the northern side of the city is the location of fertile land and is an important reserve for agriculture (orchards). Areas to the west and east are flat desert and are economically and environmentally much better to develop.

The ICDP proposal for 2001 is considerably less complex, and it was designed to accommodate 2.5 million people. Between 1985 and 2015, nine of the ten clusters were intended to be relatively large satellites with diverse economies by 2015. Clusters closer to the capital would interact more with Baghdad. Examples of such clusters are Abu Ghraib and Falluja to the west, and Mahmudiya and Yousifiya to the south.

The ICDP’s strength is in its comprehensiveness and voluminous data (1980s), and the way it addresses population growth, with new clusters in the Baghdad metropolitan area and in the central area of Iraq. ICDP was the first comprehensive study prepared for Greater Baghdad and Central Iraq. The plan took a considerable time due to the 8 years of war with Iran, when frequent stoppages occurred. The plan was partially realized. Unluckily, the study was near its end, but was not completed because the Gulf War started in 1990-1991.
Ever since the suspension of master planning study of the ICDP, the situation of Baghdad and its metropolitan area has been getting worse in greater degrees. The long pause in social and economic development, with the constant population increases, negated all of the social capital formation achieved in the late 1970s and 1980s. Therefore, the issues identified in the ICDP have remained valid, except they are in a more critical state. The population of Baghdad City has reached about eight million or more. The actual urbanized area has been expanded, crossing the city limit, and it has formed an ugly, uncontrolled and flavorless sprawl.

The ICDP recommended an upgrade to the AAA’s status, so that the AAA would be responsible for both the Greater Baghdad area and the Baghdad City area. Another option was the creation of a new authority that would be responsible only for the regional matters. The ICDP also recommended an extensive reform of the existing CBD area to address the destruction of precious archeological and historical assets. With many years of wars, turmoil and civil strife, the historical heritage of the capital has been severely devastated. The JCCF introduced the idea of the Urban Patio that treats the existing CBD area as a unique central and protected space surrounded by a high density and high rise zone in which new CBD functions would be accommodated.

The CCDP was created in the extraordinary atmosphere of a warzone, at the peak of the sectarian strife in the first and second decade of the 2000s. The plan’s strength is in its comprehensiveness and voluminous data (2010s). It addresses population growth, infrastructure, cultural heritage, and green space. Despite not being formally adopted by the MoB, parts of the CCDP are likely to be used in whatever new plan is developed next.

The study proposed relocation of the Green Belt to an area adjacent to the existing Green Belt. The plan’s acceptance of the loss of the Green Belt in its current position is questionable. The current protected area has been infringed upon by development. What is not clear in the CCDP is whether the proposed Green Belt, located further away from the Tigris River, would have sufficient water to be a true Green Belt.

To increase the area of Baghdad, the CCDP proposed four new development zones outside the Baghdad boundaries, which would require a new law to be passed by the Iraqi parliament. Currently, there are considerable debates inside Iraq on this matter and most
probably the parliament would not pass this law. Some of the peripheral growth areas are apparently already being pursued by the MoB. For example, on page 111 of Volume 1-A (page 120 of the pdf), the 10x10 Sadir Development is called a “project committed by MoB.” The same language is used for the Rashid Camp Development. The plan is likely not the driver of these developments. Instead, the plan is probably just accounting for already-underway developments.

The present and forthcoming situation in Iraq and Baghdad depends on accurate demographic and socio-economic information, such as population profiles, household sizes, economic activities, labor market developments, growth trends, growth scenarios, and other key issues. Since the last Census in Iraq was carried out in 1997, many of the data used from previous plans are outdated; therefore, the population distribution is not addressed well in the CCDP plan.

Furthermore, no clear prospect for community planning was shown in the CCDP as it was in the Doxiadis, Polservice, and JCCF plans. No real solution to the CBD and the heritage areas was presented, and no upgrades of information technology for urban management were proposed.

Indeed, the stability of the city in the future will be based on reconciliation of the capital’s fractured population. The CCDP did not address any of the most important social issues. The CCDP’s study showed a lack of attention to address the latest social changes and dilemmas. Furthermore, there are no current organizational infrastructures in Baghdad to implement such a plan. Therefore, the MoB has not approved the CCDP yet. It is a more theoretical plan, not considered to be attainable. It is in political limbo - not formally accepted and not publicly available.
6 CHAPTER 6: CONCLUSION

In concluding this dissertation, it is appropriate, and indeed vital, to present recommendations of the relevant planning issues that need to be addressed in any forthcoming master planning study of the Iraqi capital of Baghdad. It is common knowledge that Iraq has suffered for more than four decades from regional wars and internal conflicts. As a result of this disastrous recent history, the country has been socially divided with both its urbanized and rural places experiencing devastating living conditions. Post-war reconstruction of the nation is the most important and, arguably, the sole target of the Iraqi peoples’ concern. Revitalization of the capital city and its surrounding metropolitan region is of equally vital importance, since the region hosts approximately sixty percent of the national population and economic activities. Moreover, reconstructing Baghdad is the only way to realize reconciliation of the deeply divided society.

As time has passed, the City of Baghdad and its metropolitan area have been continuously developing over the course of more than three decades without any legitimate plan in place to guide that development. During this period, the ICDP Study (Baghdad 2001) was suspended due to the advent of the 1st Gulf War, leaving the intended Phase 2 Study unfinished. While the ICDP study (Phase 1) was completed, the Phase-2 Study was suspended due to financial reasons and turmoil. Final client approval of the Phase 1 Study continues to be pending in formal terms.

During the last thirty years, the world and the region have changed - politically, economically, and socially. The huge social changes made in this period will require an aggressive and thorough re-examination of the conventional urban and regional planning study - its approach, its methodology, its planning standards, and its criteria for decision-making.

Learning from the past, the present moment is a good opportunity for the Iraqi people to build a beautiful and robust national capital to match or surpass its glorious past incarnation. To explore the dimensions of the next master plan for the City of Baghdad, this chapter looks ahead and makes a proposal for the next phase of planning. The pitfalls of the most recent plan can be overcome, and the need for a new plan is great. This proposal builds on the ICDP study.
1. Scope of the Next Master Plan Study

The scope of the next Master Plan is to cover not only the City of Baghdad, but its Metropolitan Area as well, designated in the ICDP Study as “Greater Baghdad.” The reason for this recommendation is two-fold:

a) According to a bold estimation, the population of the Baghdad Metropolitan Area in 2030 could become approximately 25,847,000 including the population of the City of Baghdad, with 11,400,000 comprising a portion of the existing population. Then, approximately 14,447,000 would be living in the Greater Baghdad Area. It is estimated that the population of the Baghdad Metropolitan Area in 2030 would be over 43 percent of the Iraq estimated population 59,439,000 (Khatib & Alami, 2018). If we consider the central region population of Iraq with the metropolitan area, the central region in 2030 could become about 35,600,000 (60 percent of the Iraq population). The important thing to note is that all of these projected inhabitants of the capital region will continue to be socio-economically interconnected and the recipients of administrative services by an integrated government organization;

b) It is envisioned the future capital functions will be very diversified and versatile as the society evolves. It is therefore difficult for this to be the sole responsibility of the City of Baghdad. So, it is expected that the Baghdad Metropolitan Area will share the responsibility for administering new capital functions together with Baghdad City - including relocation of certain existing capital functions.

In any case, any new metropolitan development planning study must be examined in coordination with the National Urban Policy and an updating of the Greater Baghdad Structure Plan of the ICDP Study.

2. The Future Image of Baghdad

Initiating a new Master Plan study for Iraq’s capital requires a clear goal and image of a future Baghdad. There is no question that Baghdad is the hub of political, economic, and social activities of the country. As discussed above, the future growth, decentralization, and de-
concentration of capital functions has to be shared between the City of Baghdad and its Metropolitan Area.

Then, what is the future role and image of the City of Baghdad? Baghdad is facing numerous urban problems that demand solutions – the constant increase of inhabitants, housing deficiency, deterioration of the existing infrastructure, a poor transportation network, and segregated communities. However, what is expected in any new Master Plan is to present to the people of Iraq a clear set of future goals that, when woven together, form a new image of Baghdad, and a “road map” to reach those goals and that image.

The City of Baghdad is to remain the spiritual core of the country in the future. In order to remain as that spiritual core, a number of the redevelopment measures need to be implemented, such as:

a.) Drastic Improvements of the present Central Business District (CBD) area

The present CBD area is too small to accommodate the future requirements of the CBD functions and, in addition, it is currently co-existing with the valuable archeological and historical remains requiring responsible restoration. In the course of the past three decades, the character and operational characteristics of the past business functions have evolved substantially. It is essential to make studies on the entire CBD role and function including relocation and re-organization of the future central business function. Conservation and restoration of the existing and un-protected historical assets and old townscape in the present CBD zone needs to be strictly maintained without fail. Those historical assets are essential for forming the future goals and image of Baghdad as an historical “World City.”

b.) Re-structuring the entire urbanized area

In order to re-shape the present urban fabric, connecting the present CBD area (Inner City) to the surrounding satellite urban sub-centers (District Centers) with a multi-modal transportation network will form an Integrated Urban Structure. It is one of the key development strategies of a new Master Plan.
The Ring Road concept proposed by Scott Wilson and the Metro mass-transit radial network, together with complementary medium transit will also be a part of the above-mentioned Integrated Urban Structure.

Revitalizing the present CBD area as the “spiritual core of the nation” needs comprehensive legislative control measures for land use, zoning, special building codes, and regulation. It also requires the legislative and economic provisions necessary and sufficient to attract vigorous investment both from domestic and foreign sources – and in accord with the development plan.

3. Key Planning Issues in the Next Master Plan

Among the various important planning issues for a new Master Plan, it is considered indispensable to address the following issues:

a.) Need for an Urban Morphological Approach

Current morphological trends should be analyzed carefully with a view towards their effect on the erosion of the historicity of this otherwise unique culture. Urban form that reflects the attainment of financial prowess and economic achievement of societies has always been a temptation throughout human history. However, the risk is that pursuing the fruit of a “casino economy” produces, at best, homogenization of place and the diminution of cultural identity. Reconstruction and rehabilitation of Baghdad demands the striking of a balance between reflecting the value of a lengthy past history together with the benefits offered by modern technology for inclusion in the development of a new Baghdad that celebrates its glorious traditions while enjoying new dynamism. This thought, and its accompanying reality, points us in the direction of the need for planners to pursue an urban morphological approach to planning for Baghdad.

b.) The Role of Technology on the Sense of Place

Any new master planning effort undertaken for Baghdad will require a thorough examination of the planning approach and primary methodology to be used, with planning standards and criteria, considering the technological innovations and social changes occurring in
the last few decades that have caused dramatic changes in the way people live their lives. The most prominent change in people’s lives, of course, is the effect of technological innovations in communications technology, information access, diurnal computer usage to conduct every human activity from primary education to shopping to professional work and other forms of commercial and social interaction. The new ‘virtual’ reality of the digital era has had a dramatic effect upon land use, transportation, housing typologies, community organization, recreation in the natural environment, utility infrastructure installation, healthcare delivery systems, and therefore the planning, development, and management of each. Any new master plan for Baghdad must take into account the effects of advanced, ever changing, technology upon the organization of “place.”

c.) Need of an Operative and Implementable Master Plan

As society is growing dynamically every day, any new master plan needs to be “operative” and “implementable” in order to cope with such vigorous urban dynamics. As for the former issue, development of a viable urban information management system is of vital importance, and for the latter question, comprehensive studies of an implementation system from the viewpoint of administrative, legislative, and financial aspects are required. Regarding an urban information management system, it is recommended that both the City of Baghdad and its Metropolitan Area be included in one integrated system.

d.) Containment Policy for the City of Baghdad

The future function of the capital should be sustained jointly by both the City of Baghdad and its metropolitan area administration. In this case, the City of Baghdad should be developed under a “Containment Policy” which is to administer urban development with policies that will:

- Minimize population increase and constrain urban expansion;
- Rationalize the present land use by relocating superfluous and/or redundant urban functions to the metropolitan area in an effort to maintain a compact city;
- Restructure the present urban fabric with a multi-modal transportation system to improve the functionality of the city;
- Engage in comprehensive renewal of the present CBD area to reform it as the “spiritual core” of the country by means of conservation and restoration of the archeological and historical
assets, and relocation of the central business functions into the newly formulated urban structure;
• Develop Baghdad as a prominent World City by introducing the apex of modern cultural functions.

e.) From Homogenized Land Use to Mixed Use

In the last three decades, people’s lifestyles in urban areas have changed dramatically. This has inevitably forced changes in urban land use planning, and rendered conventional homogenized zoning systems obsolete. Technological innovations have made it possible for people to live in the mixed-use system of land use organization. Mixed-use systems are extremely advantageous in building and maintaining energy efficient compact cities. Historically, mixed-use living is considered more efficient, congenial, and indeed, familiar with human nature, and it has been a common living style in Islamic society. Therefore, a mixed land use regime deserves high regard and extensive analysis in any forthcoming new master planning effort. The multi-story building with mixed land use design would help in solving the housing deficiency problem and would accommodate the burgeoning population in the City of Baghdad.

f.) Optimum Development Strategy for the Baghdad Metropolitan Area

It is recommended that the “Controlled Corridor Development Strategy” of the ICDP study be reconsidered in a new Master Plan. Its value is as follows:
• In order to make orderly and rational development of the area, the present sprawl development, along with the existing five corridors radiating out from the City of Baghdad to the surrounding areas, have to be reorganized given the prevailing uncontrolled poor conditions;
• With the improvement and upgrading of the existing corridor functions, those corridors will become the linear focal points of services available along their structure for the future metropolitan development while constraining the increase of population;
• The existing corridors could be characterized so as to define the diversification of capital functions for the City of Baghdad such as a “Sports Corridor,” a “Medical Corridor,” an “Educational Corridor,” an “Expo and International Trade Corridor.”

The overarching goal is to produce a “Renaissance” in Iraq in all respects – reconstructing its national infrastructure, reinventing its national institutions, reinvigorating its national economy, rehabilitating its national human resource capacities to fuse with a highly
technologized world, renewing its commitment to meet the demands of the Iraqi people for social harmony, religious freedom, urban and rural services, a national healthcare system, and continuously growing economic opportunity as priorities of domestic order, re-establishing its relationships with neighbors near and far in the pursuit of peace and mutual prosperity, and redefining its prominence in the worldwide system of progress.

After more than thirty years of war and civil strife in the nation, Iraq is ripe for the reinvention of certain of its national governmental institutions. The need for a Special Implementation Agency for National Development in Iraq is indispensable to establish a Master Plan for the Iraqi Capital, under which the Iraqi population, divided after 3 decades of turmoil, internal struggle and civil strife, could live peacefully together.
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RESUME

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