

Towards Sustainable Urban Design Strategies for Historic City Centres in Iraq

Development of an Assessment Approach for Urban Regeneration Projects

A Dissertation Submitted
By
AQEEL QUSAY AL-MOSAWI

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Declaration

I hereby declare that this doctoral dissertation is the result of an independent investigation and it has been generated by me as the result of my own research. Where it is indebted to the work of others, acknowledgements have duly been made.

Aqeel Qusay Al-Mosawi
Dortmund, 2017

Dedication

To

Thura, Ghadeer, Ali

Acknowledgements

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Abstract

One of the techniques that have been used in recent years for urban redevelopment is the cultural regeneration which is seen as a means of restoring and improving urban life quality through the enhancement and development of the unique characteristics of a place and its people. In the Iraqi context the importance of urban regeneration in improving the physical environment conditions and the living standards is still not recognized. Furthermore, previous studies dealing with the local context revealed that many urban redevelopment projects did not fully tackle the problems of urban decay and brought dilemmas with regard to heritage conservation. This study is initiated as an attempt to address the deficiencies of current practices and ascertain the quality of the urban regeneration projects, defining what constitutes a sustainable urban regeneration project and how to implement it. The study argues that urban design is integral to the process of urban regeneration. Therefore the study looks at how heritage quarters are developed in city centre areas, and outlines the ways in which urban design techniques are used as part of the process of wider urban regeneration.

In this regard, the study suggested the adoption of a holistic approach to urban regeneration, with policy-makers using heritage as an organizing principle for city management and urban design. The research is an attempt to 'develop an assessment approach to urban regeneration proposals/projects to be conducted in Iraqi historic cities in particular and Iraqi cities in general by means of urban design'; 'to identify the relationship between urban design principles and the sustainable development objectives' and 'to determine the underlying factors that contribute to sustainable urban regeneration'. Therefore the main aim of the current study is to develop and derive a strategy for measuring the sustainability level of local urban regeneration initiatives (proposals/projects), based on assessment of the urban design aspects against a set of pre-determined performance criteria and indicators. Additionally, this approach can be considered as a framework which could assist policy-makers in determining the sustainability of ongoing urban regeneration as well as in performing dynamic and long-term monitoring of the process.

Through comprehensive literature review, urban regeneration practices were clearly identified. Sustainability concept, value of urban design, design considerations enhancing physical sustainable development and their interrelationship were also explained. By adopting various data collection and analyses methods such as questionnaire surveys and general views of Iraqi experts on the status of urban heritage environment in Iraq, the significance of design principles for sustainable development and the underlying factors that account for the variances in their perceptions could be elicited. Based on the factors highlighted, the criteria and indicators of the assessment strategy were identified and its framework was also derived. This framework was used to find out the relative importance of individual design criteria and form the skeleton of the assessment strategy.

In order to ensure the validity of the derived assessment tool and its effectiveness in assessing the sustainability level of national urban regeneration projects, a number of

schemes and indicators were developed in the current research under various design aspects to measure the performance of urban regeneration projects at the local level. The indicators underwent a detailed evaluation process, with the help of local experts from urban planning and urban design fields, which has revealed that the strategy indicators are an effective and valuable tool to accomplish sustainable urban regeneration projects in Iraq.

The research findings will help to strengthen the understanding of urban designers and local stakeholders on how to plan sustainable urban regeneration projects and create a sustainable community afterwards. By combining sustainability concepts with value of urban design, the research methodology and findings would enrich the related academic fields. In addition it introduces an assessment approach to existing urban heritage contexts to help the policy makers in planning their development strategies according to the assessment results. To ensure that the derived assessment strategy by the current study is theoretically and practically feasible, and to ensure that the assessment strategy is able to measure the design quality and sustainability level of urban regeneration projects in real life context, two urban regeneration projects as case studies were selected and assessed against individual indicators.

Keywords:

Sustainable physical redevelopment, Urban Regeneration, Urban design, Role of urban design in urban regeneration process, Historic city centres

Zusammenfassung

Eine der Methoden, die aktuell in der Stadtentwicklung angewendet wird, ist die kulturelle Erneuerung. Diese soll die Lebensqualität in Städten durch die Entwicklung der individuellen sowie einzigartigen Eigenschaften eines Ortes und seiner Bewohner wiederherstellen und verbessern. Im Irak wurde die Notwendigkeit und Relevanz dieser Entwicklung in der Erhöhung des Lebensstandards sowie der Verbesserung der Umweltbedingungen bisher nicht erkannt. Darüber hinaus belegen vorherige Studien, die sich mit dem lokalen Kontext befassen, dass zahlreiche Stadterneuerungsprojekte den Problemen, wie dem Zerfall der Städte, nicht entgegenwirken und teilweise Konflikte hervorrufen, die besonders den Schutz kulturellen Erbes betreffen. Diese Studie soll einen Beitrag dazu leisten, dem Mangel an gegenwärtigen Praxislösungen entgegenzuwirken und die Qualität von Stadterneuerungsprojekten zu erforschen, indem zunächst ermittelt wird, was ein nachhaltiges Entwicklungsprojekt ausmacht und wie es umgesetzt werden kann. Ein Argument, auf dem diese Studie aufbaut ist, dass Stadtgestaltung in den Prozess der Stadterneuerung integriert ist. Aus diesem Grund wird ermittelt, wie historische Stadtviertel in Stadtzentren entwickelt werden und die Aspekte, in denen Techniken für Stadtgestaltung als Teil der umfangreichen Stadterneuerung genutzt werden, fokussiert.

Aus diesem Anlass schlägt die Studie die Einführung eines ganzheitlichen Ansatzes für Stadterneuerung vor, in dem politische Entscheidungsträger das Erbe als Ordnungsprinzip für Stadtentwicklung und Stadtgestaltung anwenden. Diese Forschung strebt die ‚Entwicklung einer Bewertungsmethode für Stadterneuerungsprojekte/-ansätze an, die insbesondere in historischen irakischen Städten, aber auch in irakischen Städten generell, unter Bezugnahme zu dem Aspekt der Stadtgestaltung, Anwendung finden soll‘. ‚Dadurch sollen die Zusammenhänge zwischen den Prinzipien der Stadtgestaltung und den Grundsätzen einer nachhaltigen Entwicklung identifiziert werden‘. ‚Zudem sollen die grundlegenden Faktoren, die einen Beitrag zu nachhaltiger Stadterneuerung leisten, festgelegt werden‘. Daher ist das Hauptziel der Promotion, eine Methode zu entwickeln und abzuleiten, mit Hilfe derer die Nachhaltigkeit von lokalen Stadterneuerungsinitiativen (Projekte/Ansätze), basierend auf der Bewertung von Aspekten der Stadtgestaltung nach festgelegten Bewertungsmaßstäben sowie Indikatoren, messbar gemacht werden kann. Zusätzlich kann dieser Ansatz als ein Rahmen betrachtet werden, der Entscheidungsträgern Hilfestellungen bei der Ermittlung der Nachhaltigkeit laufender Stadterneuerungsprojekte und ebenso im Sinne einer Langzeitüberwachung der Prozesse bietet.

Mittels umfassender Literaturrecherche werden Stadterneuerungspraktiken und die damit verbundenen Probleme klar identifiziert. Das Konzept der Nachhaltigkeit, der Wert der Stadtgestaltung, Designvorschläge, die nachhaltige Entwicklung hervorheben und deren Zusammenhang werden ebenso erklärt. Unter der Verwendung verschiedener Datensammlungen und Erhebungs-/Analysemethoden wie beispielsweise Fragebögen sowie allgemeinen Ansichten von Irakexperten zu dem Status des städtischen Erbes im Irak, können die Bedeutung von Designprinzipien einer nachhaltigen Entwicklung sowie die

relevanten Faktoren, die die Widersprüche in ihren Auffassungen erklären, ans Tageslicht gebracht werden. Basierend auf den hervorgehobenen Faktoren werden die Kriterien und Indikatoren der Bewertungsmethode identifiziert und ihr Rahmen festgelegt. Dieser Rahmen wird dazu genutzt, um herauszufinden, welche Bedeutung individuelle Gestaltungskriterien haben und das Gerüst für die Bewertungsmethode zu bilden.

Um die Validität der entwickelten Methode und ihre Effektivität in Bezug auf die Beurteilung der Nachhaltigkeit von nationalen Stadterneuerungsprojekten sicherzustellen, wurde eine Reihe von Indikatoren unter verschiedenen Gestaltungsaspekten entwickelt, um die Leistungsfähigkeit von Stadterneuerungsprojekten auf lokaler Ebene zu messen. Die Indikatoren basieren auf einem detaillierten Evaluierungsprozess mit der Unterstützung von lokalen Experten der Stadtplanung und der Stadtgestaltung, der gezeigt hat, dass die Indikatoren ein effektives und wertvolles Werkzeug bieten, um nachhaltige Stadterneuerungsprojekte im Irak umzusetzen.

Die Forschungsergebnisse werden dazu beitragen, das Verständnis von Stadtplaner und lokalen Akteuren im Hinblick auf die Planung nachhaltiger Stadterneuerungsprojekte und Schaffung einer nachhaltigen Gesellschaft zu stärken. Durch die Verbindung von Nachhaltigkeitskonzepten mit Werten für Stadtgestaltung, werden die Forschungsmethoden und -ergebnisse auch verwandte Akademische Bereiche bereichern. Ergänzend stellt die Studie einen Bewertungsansatz dar, der bereits existierende Ansätze im Kontext städtischen Erbes mit einbezieht, um Entscheidungsträger bei der Planung von Entwicklungskonzepten im Hinblick auf die Bewertung des Resultats zu unterstützen.

Um sicherzustellen, dass die aus der aktuellen Studie abgeleitete Bewertungsmethode theoretisch und auch praktisch anwendbar ist und um zu gewährleisten, dass die Bewertungsmethoden in der Lage sind, die Gestaltqualität sowie das Maß der Nachhaltigkeit von Stadterneuerungsprojekten in der Realität zu messen, fungieren zwei ausgewählte Stadterneuerungsprojekte als Fallbeispiel. Diese wurden mit individuellen Indikatoren bewertet.

Keywords:

Nachhaltige physikalische Entwicklung, Stadterneuerung, Stadtgestaltung, Rolle der Stadtgestaltung/des Urbanen Designs im Stadterneuerungsprozess, Historische Stadtzentren

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List of Abbreviations

BMVBS	Bundesministerium für Verkehr, Bau und Stadtentwicklung/the Germany Federal Ministry of Transport, Building and Urban Development
CBA	Cost Benefit Analysis
CBD	Central Business District
DGPP	Directorate General of Physical Planning
DstGB	Deutscher Städte- und Gemeindebund/ German Association of Towns and Municipalities
DST	Deutschen Städtetag/ German Association of Cities
EIA	Environmental Impact Assessment
HIA	Health Impact Assessment
IA	Incidence Assessment
KVR	Kommunalverband Ruhrgebiet
LUDA	Large Urban Distressed Areas
MCA	Multi Criteria methods
MCH	Iraqi Ministry of Construction and Housing
MF	Iraqi Ministry of Finance
MMPW	Iraqi Ministry of Municipalities and Public Works
MPDC	Ministry of Planning and Development Cooperation
NRW	State of Nord Rhein-Westfalen
SBAH	Iraqi State Board of Antiquities and Heritage
SDIs	Sustainable Development Indicators
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
SURA	Sustainable Urban Regeneration Assessment
WCED	World Commission on Environment and Development

Introduction

Chapter 1: Introduction

1.1 Introduction

‘Safeguard the Past – Facilitate the Future’
URBACT (2011)

Urban regeneration policy has become a widely used urban transformation strategy in many cities and has been given an increased public profile within the urban policy agenda since the late 1990s and is of considerable contemporary public interest and debate (Tallon, 2013, p.3). A number of urban regeneration projects have been implemented in order to revitalize the declining city centres, old-industrial sites, working-class residential areas and undermined historical heritage quarters of cities. The city is the mirror of the economic, social, political and cultural life of the community that inhabits it. The changes in the physical and spatial structures of cities throughout history coincide with changes in their value and meaning resulting from transformation of social life (Segre, 2006, p.267). Many countries have tested various methods and policies to use sustainable urban conservation as a useful strategy for the urban core redevelopment and one of these policies is the regeneration. The regeneration of cities is understood as a complex process which includes demographic, physical and socio-economic dimensions (Kühn and Liebmann, 2012, p.135).

The urban heritage in Iraqi cities is undergoing steady destruction and the regeneration of historic areas and the maintenance of urban heritage are faced by a multitude of problems, due to the lack of national planning policies, regulatory measures for implementing strategies and lack of socio-political awareness. The rise of urban redevelopment projects in all Iraqi cities, particularly in historic city centres within the last decade raises the questions about the level of success of these projects and how far these projects are successful in terms of reversing the physical, environmental, social and economic decline, responding to the needs of the declining and deteriorated urban areas, and finding comprehensive solutions to the problems of these areas. The current study focuses on this central theme.

The central objective of this study is to develop an assessment approach to the urban regeneration initiatives at the local level and to place these approaches within their wider physical, economic, social and political contexts by reviewing the existing studies and to add new insights into the subject. Within the limitations of the research, the outcome of this study is a conceptual framework that suggests an assessment strategy for the urban regeneration projects in the Iraqi historic city centres towards sustainability, as well as general recommendations that enable the implementation of this conceptual framework. In the first part of the research the related concepts are discussed to formulate the theoretical and conceptual frameworks which lead to answering the research questions and to achieving the aim and objectives of the research. This chapter will provide an overview of

the research justifications, questions, significance of the research, objectives, scope and process of the study. In the end an overview is provided for the structure of this study.

1.2 Justifications for the research

From the international theoretical level: Nowadays, sustainable development is a common goal of many worldwide urban policies, and many urban redevelopment or urban regeneration projects are claimed to be sustainable. According to [Hodge and Hardi \(1997\)](#) within recent years communities, governments, international agencies and non-governmental organisations are increasingly concerned with establishing a means to monitor performance and assess progress towards sustainable development. Assessing the effectiveness of regeneration policies and practice has been the subject of numerous studies. However, only limited assessment or evaluation tools are available to examine the extent to which urban regeneration projects have generated sustainable outcomes ([Hemphill et al., 2004a](#) and [Lee, 2008, p.4](#)). Further, the rising environmental agenda has brought about the need to employ indicators as a key mechanism for assessing environmental impacts ([Hemphill et al., 2004, p.727](#)). The programmes for action on sustainable communities' priorities for sustainable development through suitable frameworks mentioned in [DETR \(1999a\)](#) is to provide national versions of sustainable indicators tailored to local priorities and the key aim of these programmes is to assess progress against these indicators.

According to [Lee \(2008, p.4\)](#) the interest in sustainable urban renewal and urban regeneration and the value of urban design are growing around the world but they are being studied separately, on the other hand, some studies are emerging that examine the benefits delivered by urban design to the concepts of sustainable urban renewal and urban regeneration approaches. This research is designed to address possible approaches to the evaluation of regeneration initiatives within specified areas and in view of this, it is beneficial to make a start by studying the national context. By merging the concepts of sustainability and urban design into urban regeneration practices, and developing strategies with high applicability and generality, a sustainable community can be created at the local level. The theme is initially explored by highlighting the potential compatibility of urban regeneration and sustainability concepts.

From the national level: Iraqi cities in general face major challenges represented by high population growth rates, scarcity of land, rapid urbanization, and ineffective national planning and implementation strategies of urban redevelopment, that have led to the deterioration of the physical environment of these cities. In the last decades, Iraqi historical cities have witnessed large urban and social transformations which have transformed them into unattractive places for living and investments in addition to neglecting their potential values. The weakness of strategic plans in considering the present and future urban development strategies led to more random city growth, distortion of the cultural heritage sites and the skyline image of the cities, with social and environmental problems. This complicated state leads to increased awareness of the concept of sustainability in the

redevelopment of historic cities and raises the question “To what extent are the recent regeneration proposals/projects successful in terms of regenerating the declining city centres physically, environmentally, economically and socially”, which this research attempts to answer.

The concepts of sustainable urban redevelopment and sustainable cities have been broadly discussed in the literature; however most developing countries are at the early stages of preparation and implementation of such sustainable regeneration ideas (Shaheen, 2009). The tools, procedures and policies may be quite different from country to country; however national as well as international conservation legislative requirements and policies now play a significant role in achieving sustainable urban regeneration tasks in historic cities. The sustainable urban regeneration concepts are still new for the Iraqi context, and only a few pieces of research have touched on aspects of these concepts. Moreover, only a small body of national studies has examined the assessment of regeneration and the role of urban design value in this process. Currently in Iraq there are two main types of construction activities to revitalise the historic city centres; the first one is new development projects and the second is urban regeneration projects. The present research focuses on urban regeneration initiatives and how they intend to achieve local urban sustainability through this process at city centre scale.

Thereby, the main concern of this study is to examine the level of success of the recent urban regeneration projects in the Iraqi historic city centres, by developing an assessment strategy. This could then be utilised as a future framework for national urban development policies. The assessment strategy is developed on the notions identified in the literature by highlighting a possible indicator-based approach to the evaluation of regeneration initiatives. In short, from all the above aspects and in the context of this study, the justification for this research is to develop an assessment strategy for the key attributes of sustainable urban regeneration in accordance with their relative importance.

1.3 Research Questions

Research questions are the initial queries to be addressed by a research study. The study's findings and conclusions should then provide responses to the questions (Yin, 2011, p.312). From the stated research justifications, it is evident that this research revolves around the rise of urban redevelopment and urban regeneration projects in all Iraqi cities, particularly in historic city centres within the last decade and that raises questions about the sustainability level of these proposals/projects and how far they are successful in terms of reversing the physical, social and economic decline through responding to the needs of the declining and deteriorating urban areas, and finding comprehensive solutions to the problems of these areas.

To identify the specific factors affecting the sustainability level of urban regeneration initiatives and to develop an assessment strategy handling the urban regeneration projects in the Iraqi context, the research is structured to improve the conceptual understanding of the issues in relation to *Sustainable Urban Redevelopment, Urban Regeneration* and *Urban*

Design. This leads to addressing the following queries and issues which this research attempts to answer through the research process by adopting an assessment tool to evaluate the design quality and performance of different urban regeneration strategies. From the above and according to the research approach by concentrating on the physical dimensions of sustainability, the central research question and key research questions can be presented as follows:

Central research question:

How can the physical dimensions of urban regeneration projects in historic city centres in Iraq be oriented towards more sustainability?

Key research questions:

1. How can the concept of sustainability be adopted as the guiding principle for urban regeneration projects in Iraqi historic city centers?
2. What is the role of urban design in achieving sustainable urban regeneration in the historic built environment?
3. How can urban design principles and indicators be applied actively to assess the success and sustainability of urban regeneration projects?
4. What are the present challenges facing the heritage values of the Iraqi historic urban context?
5. To what extent do the current urban regeneration initiatives in Iraq apply sustainable development principles?

By answering these questions, the analytic framework will be formed in the study by linking the concepts of sustainable urban redevelopment, urban regeneration and urban design. The contents of urban design principles will be described and used as tools for controlling the design processes, and a number of issues for investigation have been set as following:

- Sustainable urban regeneration is an appropriate mechanism to achieve sustainable redevelopment at the historic city centers.
- Urban design is an essential facilitator in urban regeneration approaches allowing the incorporation of more sustainable attributes from physical, economic and social perspectives.
- Assessing the urban regeneration projects is essential to predict and mitigate adverse effects of regeneration programs before implementation and to evaluate the effectiveness of these projects.

- The methods and process of the assessment raise awareness about regeneration projects and identify the design criteria being (highlighted/ ignored) in the projects.

1.4 Research motivation

The definition of cultural heritage characteristics and values were controversial in the last three or four decades of Iraqi urban and architectural concepts and the main question that is constantly raised in any new redevelopment initiative is to what extent are the historic architecture and urban fabric features worthy of preservation and conservation and the second question is what is the appropriate development policy that can be adopted in dealing with the decline in the historic urban fabric in city centres. A number of revitalization projects have been implemented at the local level in order to revitalize the declining city centres, I participated in some of these projects as an architect or urban designer and I am able to highlight some key challenges:

- Difficulty in identifying the specific characteristics of heritage values and rating the importance of heritage properties with reference to international guidelines.
 - Lack of appropriate guidelines to illustrate and to demonstrate the best delivery methods of urban planning and design policy.
 - Absence of assessment strategies to properly appraise the sustainability and suitability of the new interventions in the historic urban fabric based on official heritage standards.
 - A poor awareness of the importance of heritage among local residents and authorities.
- Also as the concept of urban regeneration at the local context is at a relatively early stage, work is concentrated mainly on preservation of single monuments and neglect for the urban form of the heritage fabric.

Although a small body of national research has examined the issue of urban design value and urban regeneration, the interrelationship between these two concepts remains a neglected area in the research agenda despite its significance. All of the above aspects have motivated me to undertake research projects such as the subject of this PhD project. The topic was chosen to tackle this issue within two redevelopment projects in historic cities chosen as case studies. The selection of cases was done in accordance to their importance as metropolitan cities that are continuously growing and witnessing spatial transformation due to the challenges of population growth and urbanization. Secondly, the accessibility to data resources was of great importance for this research. In addition to the above, being an architect and urban designer who participated in some of the regeneration projects in Iraq and being familiar with many cultural issues has helped in defining the scope of this research and in choosing the appropriate case studies as the analysis units.

1.5 Significance of the research

Academic significance: This study has been prepared following the increasing awareness of the potential of cultural heritage in achieving sustainable development, and consequently the study will improve the availability of data in this field. Some of the previous national

studies were conducted to investigate the definitions and the notions of sustainable urban redevelopment, urban regeneration policy and the value of urban design but still there is a lack in sufficient studies to integrate these concepts into a comprehensive study. Some of these concepts are still newly introduced to the local academic field and only a few implementation Initiatives have been conducted.

Despite the distinct physical, economic, political, social and environmental characteristics of the local context, most of the previous studies relevant to this field were not based on the local heritage context and only a few number of evaluation studies are available to assess the performance of urban regeneration projects. Moreover and due to the scale and speed of development, they need to have a common aim of creating sustainable communities and meeting the needs of their citizens. Therefore, this study aims at filling a part of the theoretical and practical gap in the local existing knowledge and providing a useful tool for urban regeneration professionals. It also can serve as a reference and provide a platform to conduct further studies on related topics in the future.

Practical significance: Reviewing the current urban revitalization approaches shows that there is a distinct gap in the process of urban problems analysis and regeneration of historic cities in the local context. The failure to bridge the gap between theory and practice has many serious consequences that often lead to inefficient decision-making and policy formulation that focus on specific aspects rather than on improving the quality of life and community development. Recently, attention of researchers has been directed towards considering cultural values as a driving force to achieve sustainable urban regeneration. A number of Initiatives have been conducted in Iraq to control the deterioration in historic cities and to improve the built environment. These initiatives were represented by a number of urban regeneration projects. Despite growing interest in urban regeneration, the development of a framework within which to monitor and evaluate regeneration processes along with sustainability outcomes is still unclear. Scholars and practitioners still lack the tools necessary to determine whether and how projects and policies aimed at sustainable regeneration reach their intended goals.

Accordingly many local architects, urban designers and other professionals look for new frameworks in planning urban regeneration projects to guide development, to minimize damage in related sectors and maximize the benefits brought to the community. Based on these considerations, this study attempts to develop a suitable assessment approach for regeneration projects in Iraqi historic cities and to explore possible alternatives which can assist in re-orientating urban design strategies towards more sustainability. To summarize the research importance:

- To draw attention to the present and future challenges facing the historic cities in Iraq.
- To investigate the weakness in the regeneration practices in Iraqi heritage cities.
- To re-examine more definite conservation and regeneration approaches, to identify appropriate planning policies to achieve sustainable urban regeneration in historic cities.
- To investigate suitable strategies that can assist in re-orientating the redevelopment approaches towards more sustainability.

Within the research limitations, the assessment strategy is supposed to be useable as a tool to test the degree to which a particular regeneration project is adhering to the principles of sustainability and to provide recommendations to assist how practitioners can structure their approaches to promote sustainable urban regeneration initiatives in heritage areas.

1.6 Research Aim and objectives

The main research aim is to promote and evaluate the sustainability of urban regeneration proposals or projects introduced in the historic city centres in Iraq by developing a strategy to assess the urban design quality and performance of these projects and its contribution towards safeguarding the heritage values in a sustainable manner. This will be achieved by providing a broad introduction to assessment approaches of urban regeneration regarding sustainability. This will help the stakeholders to have a common understanding of the process and its requirements to raise their awareness and participation in present and future projects. Providing this strategy will contribute to the achievement of sustainability in future urban regeneration initiatives and provide feasible assessment tools to the different approaches at the local level. Table (1.1) shows the relationship between research questions and research specific objectives, which can be summarized as following:

1. To construct theoretical and conceptual frameworks for sustainable urban regeneration that is built on the interplay of sustainable redevelopment and urban design principles in the process of regeneration.
2. To promote sustainable urban regeneration practices in the Iraqi context, by developing a practical assessment approach to evaluate urban design quality and performance.
3. To develop an assessment strategy for local urban regeneration projects by means of expert judgements and interplay of urban design principles.
4. To justify the selection of particular urban design principles-which are highlighted in the assessment strategy- that recognize the aspects of the historic cities.
5. To examine the application of the developed assessment strategy against the selected case studies.
6. To draw recommendations, based on the study findings, in order to facilitate application of the assessment strategy and steer the process of urban regeneration in Iraqi historic cities towards more sustainability.
7. To identify the cultural heritage concepts and values of Iraqi historic city centres.
8. To review the characteristics of urban redevelopment initiatives in the historic cities of Iraq.

Table1. 1 Shows the relationship between research questions and research objectives

Key concepts	Research Questions	Research objectives
Sustainable urban regeneration assessment strategies	1. How can the concept of sustainability be adopted as the guiding principle for urban regeneration projects in Iraqi historic city centers?	1. To construct theoretical and conceptual frameworks for sustainable urban regeneration that is built on the interplay of sustainable redevelopment and urban design principles in the process of regeneration. 2. To promote sustainable urban regeneration practices in the Iraqi context, by developing an assessment approach to evaluate the urban design quality and performance.
The role of urban design	2. What is the role of urban design in achieving sustainable urban regeneration in the historic built environment?	3. To develop an assessment strategy for urban regeneration projects by means of expert judgements and interplay of urban design principles. 4. To justify the selection of urban design principles, that recognizes the aspect of the historic cities.
	3. How can urban design principles and indicators be applied actively to assess the success and sustainability of urban regeneration projects?	5. To examine the application of the developed assessment strategy against the selected case studies. 6. To draw recommendations based on the study findings, in order to facilitate application of the developed assessment strategy and steer the process of urban regeneration in historic cities towards more sustainability
The Sustainability of urban regeneration projects in the historic city centres in Iraq	4. What are the present challenges facing the heritage values of the Iraqi historic urban context?	7. To identify the cultural heritage concepts and values of Iraqi historic city centres.
	5. To what extent do the current urban regeneration initiatives in Iraq apply sustainable development principles?	8. To review the characteristics of urban regeneration initiatives in the historic cities of Iraq.

1.7 Research scope and process

The concept of sustainable urban redevelopment is a broad, complex and multidimensional theme as it combines different issues and concerns. Therefore under the limitations of time and resources, it was important to set some limits. Accordingly, the study focused on the physical aspects of the sustainable urban redevelopment concept and its application to the local context, bearing in mind that the different dimensions of the concept are connected and interrelated, while the other dimensions could be adopted in future studies. This study focused on the regeneration of city centres, because this urban area is more dynamic than other city parts, and the urban decay problems are always concentrated in the central areas. The developed model in this research is designed for medium to large scale urban regeneration programs with a mixed use developments. In order to control the research

process and obtain accurate findings when carrying out the research, this study mainly investigated two important old historic centres in Iraq.

As mentioned before the aim of this research is to evaluate the urban regeneration proposals/projects introduced in historic city centers in Iraq, in terms of their contribution towards safeguarding the cultural heritage values in a sustainable manner. To meet the study aim and objectives and due to the exploratory and evaluative nature of the investigation, the research employs the case study methodology. This methodology comprises a comprehensive literature review and fieldwork which is to be followed by structured questionnaires and case study analysis. The assessment strategy will be achieved by the application of key criteria that have been derived and modified from the literature and guidance presented by urban design strategies and cultural heritage development policies. The validity and the reliability of these criteria are going to be examined throughout the questionnaire survey. The survey aims to collect opinions of experts about the extracted principle and assessment indicators. The data collected from the questionnaires will help to design the assessment strategy, which will be applied to two case studies, each representing a different approach employed by the urban authorities in Iraq during the last decades. Three main stages can be underlined to reflect the research process:

Literature review: Comprehensive literature review is undertaken in the beginning to identify a potential problem worthy of research and formulate a theoretical framework. The review encompassed literature on the theories of sustainable redevelopment, urban regeneration and value of urban design as well as examining the nature of extracted criteria and indicators concerning its relation to development, design and policy. This review enables the development of research tools such as; conceptualisation of urban regeneration, an analytical tool as a means to assess the urban regeneration qualities, and identification of the urban design values to examine the level of success of urban regeneration initiatives. By means of a literature review the research seeks to test the proposition of how sustainable urban regeneration can be achieved by employing good urban design.

Empirical study: Following the elaboration of the theoretical framework, two case studies were selected after a review of important urban regeneration initiatives in the historic city centres in Iraq. The first case is representative of previous urban redevelopment initiatives and the second case is representative of the recent urban regeneration initiatives in Iraq. The case studies formed the empirical heart of the research and the primary database created by the case studies represents the major development approaches that provide a basis for a thorough investigation. This empirical stage encompasses;

- Identification and analysis of the case studies, which reflect a range of physical contexts and approaches to urban design.
- A synthesis of the qualitative and quantitative data to measure the performance of urban regeneration projects and an emphasis on the benefits of urban design value that can be incorporated into assessment mechanism.
- Questionnaires with experts to measure their perceptions of the urban design principles and their role in assessing sustainability of urban regeneration at the local level.

Synthesis: In the final stage of the research the initial research questions were revisited and the results of the analysis were added to those of the literature review. According to the qualitative and quantitative research approaches, both literature review and case study analysis were instrumental in developing an assessment strategy to the urban regeneration projects in Iraq. The key themes were informed and driven by the literature that covers aspects of urban regeneration with ample consideration given to the role of urban design in the regeneration process. The developed assessment framework in the present research was achieved by establishing clear criteria against which judgements on urban design quality requirements could be made. This will be used for establishing a more holistic classification system for sustainability indicators in the evaluation of the built environment at a local planning level and for developing an integrated framework for evaluating urban regeneration in the context of sustainability.

Based on the above, the research process was developed in different phases as shown in figure (1.1). In the beginning the background about the research context and problem was given, the main themes are complemented by the literature review, to develop and ascertain the research concepts and problems to formulate the main research questions. In the first phase the literature review was used to conceptualise the research problem to develop a framework based on the relevant themes. In this phase the research variables were identified based on the conceptual framework and research questions, in addition to selecting the appropriate research strategy and methods. The second phase of the research represents the empirical study guided by the strategy and methods developed in the former parts. The findings are interpreted in the third phase of the research as a conception phase.

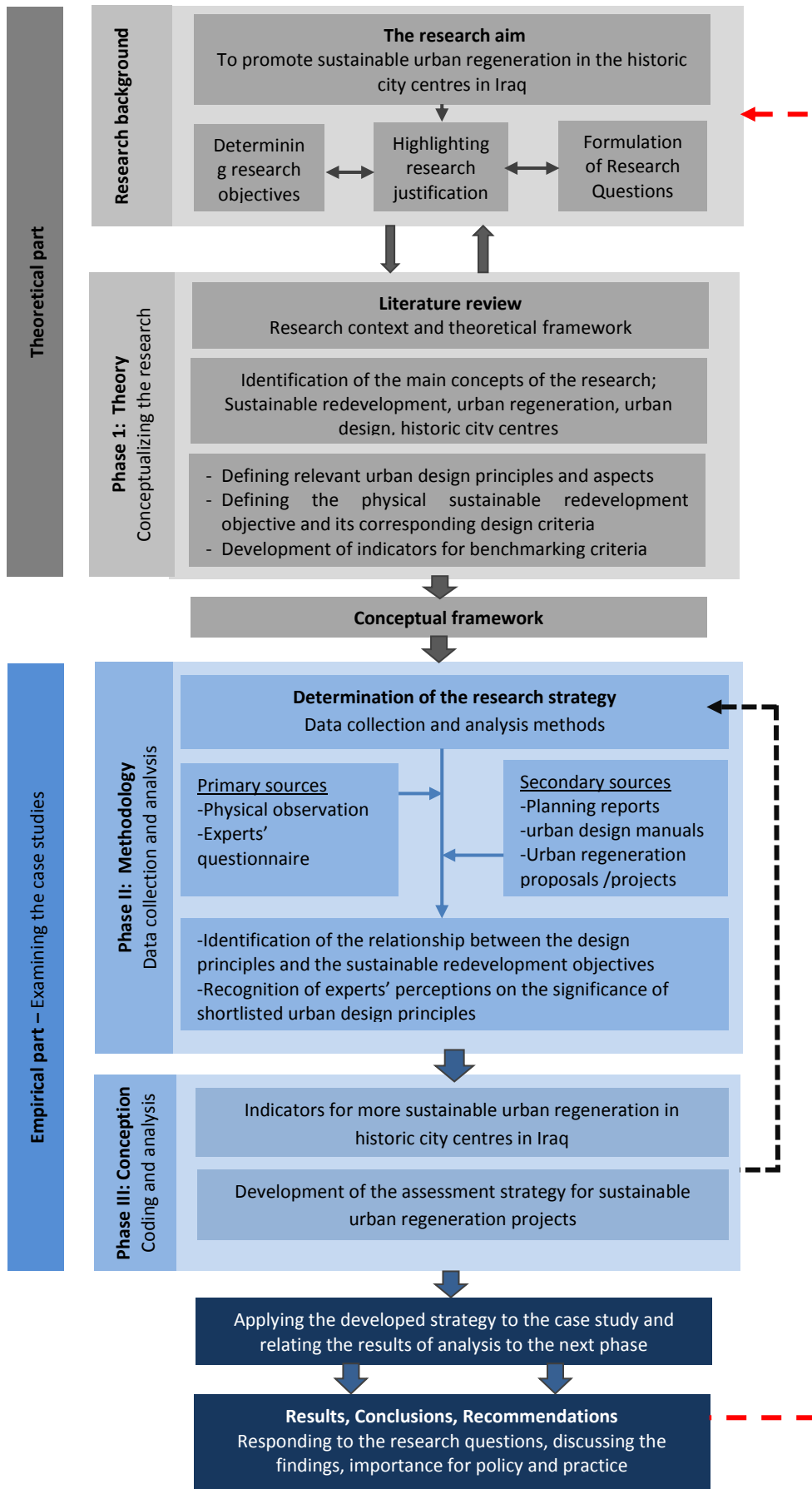


Figure1. 1 Research design

1.8 Research organization

The research is structured in an introduction and four parts to reflect the process of the research, these parts fall into twelve chapters each of which has its own focus and structure, figure (1.2) shows the thesis framework and organisation as follows:

Introduction: introduces the research project and illustrates its main aim, objectives and scope, this part is composed of:

Chapter 1: provides an introduction to the entire study, explains the reasons to conduct this study, highlights the research objectives, and identifies the scope, process and organization of the study.

Part I - The research context and theoretical framework: presents the literature review as an important part of the study, that provides a theoretical framework to identify the key study concepts and displays the rationale behind the research design and the methodological approach. This part will present the urban redevelopment policies and urban design strategies that influence the regeneration processes, part I is composed of:

Chapter 2: The related themes of sustainable redevelopment, urban regeneration and urban design are discussed and some conceptual aspects about the role of urban design in achieving sustainable urban regeneration at the local scale will be presented. The chapter discusses the details covering the selection of urban design principles and its associated criteria and assessment indicators, as main components of the assessment strategy towards achieving sustainable urban regeneration in Iraqi historic cities.

Chapter 3: Identification of urban heritage and its related concepts, definitions of conservation strategies, along with their role in the urban regeneration initiatives.

Chapter 4: this chapter discusses the integration of large scale urban design and urban regeneration projects. A good practice from Germany as an international example was selected. The chapter aims to reveal some basic urban regeneration approaches and practices adopted in Germany. This will support the development of the assessment strategy which is introduced in this research.

Part II - Methodology and data analysis methods: this part presents the research methodology; it displays an introduction to the different sustainability assessment methods and techniques, Rationale behind the methods adopted in the research stages and case studies selection. This part is composed of:

Chapter 5: The main aim of this chapter is to provide a broad introduction to the different assessment methods and techniques that can be used to evaluate the sustainability of regeneration projects. After that the chapter outlines the results of the theoretical review and formulates a conceptual framework for the assessment strategy.

Chapter 6: describes the research design and methodology adopted in this study. It provides a detailed description of the research process, instrument and data collection procedures, the techniques used for data analysis, and the assessment method adopted to examine the reliability of the final research outputs.

Chapter 7: illustrates the developed assessment strategy, which draws upon the literature review and experts questionnaire survey, thereafter evaluation of this assessment tool with the help of experts' input is undertaken, and indicates how the strategy can be applied in real practice. The chapter highlights the purposes of assessment strategy, appropriate corresponding point scoring system and assessment mechanism in order to build an assessment and monitoring system of physical sustainability.

Part III- Implementation and Case Studies analysis: this part presents the background concerning the Iraqi historic cities and the analysis of selected case studies. The aim of this chapter is to provide and prepare the adequate data to the next step which represents the implementation of the developed assessment strategy, to evaluate the reliability of this tool at the local context. This part is composed of:

Chapter 8: presents a general background about the Iraqi historic cities, their environmental, social and economic settings, diverse characteristics and challenges of the urbanization trends and the existing planning system.

Chapter 9: Represents the first empirical part of the research by introducing a case from previous urban redevelopment initiatives in Iraq; furthermore the chapter reviews the background, regulatory control and deficiency of urban redevelopment policies in Iraq and highlights the problems/adverse impacts associated with current urban regeneration practices.

Chapter 10: Represents the second empirical part, by analysis of the second case study which represents recent urban regeneration initiatives in Iraq. The developed assessment strategy will be evaluated by these two cases which differ in context and approach.

Part IV Findings, Conclusions and Recommendations: this part contains the key findings of data analysis and discusses the main conclusions of the research and recommendations. It comprises;

Chapter 11: It summarizes the key findings by revisiting the aim and objectives of the research, and shows how these findings address the queries stated in chapter 1. It also reports the key research findings presented by case studies analysis and discusses the views of experts regarding the value of physical dimensions.

Chapter 12: Summarises the main conclusions of the research and suggests recommendations to enhance the measurement of sustainability in the context of urban regeneration and conservation of the Iraqi historic city centres, along with recommendations for improving the implementation practice and further research.

introduction	Justifications for the research	Chapter 1 Introduction	An overview of the research aim, objectives, scope and structure of the thesis
Part I	The research context and theoretical framework Literature review	Chapter 2 The research context	Reviews the main research concepts: - Sustainable urban redevelopment - Urban regeneration. - Urban design
		Chapter 3 Integrated cultural heritage and urban regeneration	Review of relevant literature concerning the different dimensions of the subject: Heritage categories, values, conservation activities.
		Chapter 4 Integrated large scale urban design and urban regeneration projects	Description of some basic urban regeneration approaches and good practices adopted in Germany to support the development of the assessment strategy which is introduced in this research
Part II	Methodology and data analysis methods	Chapter 5 Urban regeneration assessment approaches	- Provides a broad introduction to the assessment methods and techniques that are used to evaluate the sustainability of urban regeneration projects. - Formulates the research conceptual framework as a result of the literature review
		Chapter 6 Research Methodology	-Identifies the rationale behind the methods adopted in the research stages : - Research methodology and design - Data collection analysis techniques
		Chapter 7 Urban regeneration projects assessment strategy	-Purpose and Indicators for developed model -Final structure and assessment mechanism of model -Implementation of the strategy
Part III	Implementation of the proposed assessment strategy and Case Studies analysis	Chapter 8 Historic city centres in Iraq -context and challenges	An overview of the context of the historic city centre in Iraq, its physical, social, economic setting and urbanization trends in addition to the existing planning system
		Chapter 9 Urban regeneration projects in Iraq-Case 1	Representative of previous urban redevelopment and regeneration practices in Iraq: - Background and deficiency of urban redevelopment policies in Iraq. - Problems/adverse impacts associated with past urban redevelopment practices.
		Chapter 10 Urban regeneration projects in Iraq-Case 2	Representative of contemporary urban regeneration initiatives in Iraq - Problems/adverse impacts associated with current urban regeneration practices.
Part IV	Findings, Conclusions and Recommendations	Chapter 11 Discussion of key findings	-summarise the key finding of the research -report the findings of Implementation of the proposed assessment strategy - Report the questionnaires results. - Report the main findings of the case studies analysis.
		Chapter 12 Conclusions and Recommendations	- Summarises the main conclusions of the research. - Recommendations to enhance the measurement of sustainability of urban regeneration in Iraqi cities. -recommendations for improving the implementation practice and further research.

Figure1. 2 The thesis framework

Part I: The research context and theoretical framework

Chapter 2: The main research themes: sustainable redevelopment, urban regeneration and urban design

2.1 Introduction

This chapter is structured to provide a theoretical framework by reviewing the themes of the research context and relevant literature to outline the conceptual framework of the study. According to [Roberts \(2000, p.9\)](#) urban areas are complex and dynamic systems, they reflect many processes that drive physical, social, environmental and economic transition and they themselves are prime generators of many such changes. Urban regeneration is an outcome of the interplay between these many sources of influence and, more importantly, it is also a response to the challenges which are presented by urban degeneration in a particular place. Therefore the aim of this chapter is to explain the urban transformation strategies over the last decades and to examine the main research concepts including urban (re)development, urban regeneration, and urban design through a comprehensive literature review. To structure and facilitate the literature review processes the following questions were asked about sustainable redevelopment and the nature of urban design values and their roles in achieving sustainable urban regeneration:

- What are the definitions of urban redevelopment, urban regeneration, and urban design?
- What is meant by sustainable urban redevelopment and sustainable urban regeneration?
- How can the quality of urban regeneration be measured?
- What might be the value of a good urban regeneration project?
- What is the role of urban design in urban regeneration?

[IOER \(2005, p.12\)](#) defined some of the terms and concepts used widely in urban studies in general and which are used in the current research:

Policy: Policy is an objective (or set of objectives) together with a general specification of how it is to be achieved.

Plan: A course of action for future re/development or regeneration to achieve the objectives.

Programme: A group of interventions often linked together over time and encompassing more than one project (in order to deliver a plan or part of a plan).

Project: A single intervention or a discrete form of activity.

A policy provides a framework for the establishment of plans; plans provide a framework for programmes; and programmes lead to projects. A policy thus may be considered as the inspiration and guidance for action, a plan as a set of coordinated and timed objectives for implementing the policy, and a programme as a set of projects in a particular area. This tiered system can be applied at the national, regional or local levels (IOER, 2005, p.19). In the current research sustainable urban redevelopment represents the urban policy target. Urban regeneration represents the development policy, while urban design represents the implementation tool to achieve sustainable urban regeneration. Historic city centres represent the field work area. The role of urban design in urban regeneration refers to the ways in which urban design techniques are used as part of the process of wider urban regeneration. As mentioned by SBE (2005, p.6) ideally urban regeneration involves formulating policy goals, implementing these through programmes of activity, and then monitoring performance over time.

2.2 The evolution of urban transformation strategies

Various urban transformation strategies have evolved both in Europe and North America in the last decades and urban regeneration is one of the outcomes of these strategies. According to Roberts (2000, p.18) urban regeneration moves beyond the achievements of urban renewal which is defined as a process of essentially physical change, urban redevelopment with its general mission and less well-defined purpose, and urban revitalisation which, whilst suggests the need for action, fails to specify a precise method of approach. Before the term urban regeneration was widely used, several terms were used to describe the changing process of urban planning in cities, i.e. urban renewal and urban redevelopment. Indeed, these three terms have different meanings. Edmond (2012, p.114) highlighted the need to examine the major changing process of urban planning so as to understand the meaning and characteristics of urban renewal, urban redevelopment and urban regeneration. This section examines the planning concepts in respect to urban regeneration and the major changes in urban planning that led to the evolution of these terms as well as understanding their characteristics.

2.2.1 Urban redevelopment and urban renewal

The term “urban redevelopment” emerged in the 1930s and it formed the fundamental principle of the “slum clearance and community development and redevelopment” programme under the Housing Act 1949 of the United States (Choo, 1990). Initially, the term “redevelopment” took on the hue of interventions on the slums and the actions were carried out by dismantling large areas. “Ad hoc” programs were created and “ad hoc” bodies were established before or immediately after the Second World War. The urban renewal-Act goes

back to 1949 and in 1952 the State of California adopted Community redevelopment Law; and those who mostly benefited from such actions were especially companies related to real estate (Longa, 2011, p.12). An early definition for redevelopment coined by Meltzer and Orloff (1953) as cited by Lee (2008, p.19): redevelopment is a process involving site clearance, dislocation, displacement, or relocation, which is merely an integral part of urban renewal under current urban policies. Lee (2008, p.19) mentioned the opinions of some researchers that looked to urban redevelopment from a more dynamic perspective that not only included the clearance of slum areas and the rebuilding projects but also involved rehabilitation and conservation measures. Some urban redevelopment initiatives converted blight and deteriorating urban areas into liveable and favourable urban communities. According to Choo (1990), the role of urban redevelopment is to address urban decay, improve the living and working conditions, and prevent blighting process.

Longa (2011, p.12) pointed out that in North American cities, there is very little difference between the terms renewal and redevelopment. In some cases, the term redevelopment anticipates the term renewal. Based on that it seems that the terms “urban renewal” and “urban redevelopment” share similar meaning and can be regarded as synonymous and used interchangeably in some studies (Choo, 1990). As mentioned by Lee (2008, p.19) the term “urban renewal” was developed later than “urban redevelopment”; therefore, it is expected that urban renewal integrates more planning considerations and development options than urban redevelopment.

Urban renewal is identified by Couch (1990) as a process involving “physical change, or change in the intensity of use of land and buildings” resulting from the “economic and social forces” imposed on the urban areas. This approach is clearly reflected in the urban renewal policies for Britain, due to the rapid growth of the population, economic restructuring and change in the social needs. Therefore urban areas in Britain are redeveloped to create better living environments by demolishing obsolete settlements, rebuilding new premises and providing various types of facilities (Lee, 2008, p.19). On the other hand some American authors stated that “redeveloping” serves mainly to remove obstacles of capital development. These phenomena are interconnected with the urbanization and the rapid development of the American economy, which requires its components of the city to be reshaped, with spaces often subdivided by functional components, this refers to the chaos within a context of settlement, which needs to be rationalized after the rapid development that occurred and which, within other contexts, may be compared to the urbanization phenomenon (Longa, 2011, p.13).

According to (Choo, 1990) The concept of urban renewal covering slum clearance, redevelopment, rehabilitation and conservation was laid down officially in the Housing Act 1954 in US. The activities in the programme such as displacement of substandard accommodation and redistribution of different land uses were not only for physical improvement of the living environment but also for social status enhancement and stimulation of economic growth. Priemus (2004) also emphasised that urban renewal had to be seen as a process combining physical, social and economic agendas. As mentioned by Lee (2008, p.16) urban renewal can be explained as “the plan, process and programme through

which the environmental quality of large derelict areas is upgraded through large scale clearance and redevelopment...according to new layouts in comprehensive plans prepared for the purpose". It includes clearance of slum or blight areas, urban redevelopment, urban revitalization, building rehabilitation, preservation and conservation to improve urban fabric, and meet some economic and social objectives. The terms urban redevelopment, urban rehabilitation, urban regeneration and urban renewal are used widely in the planning policies and planning programs. Bringing together the evidence from the history of urban change and policy, it is possible to identify a number of phases or stages in the development of the theory and practice of what we now define as urban regeneration as shown in Table (2.1). According to [Roberts \(2000, p.18\)](#), urban regeneration implies that any approach to tackling the problems encountered in towns and cities should be constructed with longer-term and more strategic planning. The regeneration strategy will be discussed in details in the next sections.

Table2. 1 The evolution of urban regeneration. Source: [Roberts and Sykes \(2000, p.14\)](#)

Period	1940s - 1950s	1950s - 1960s	1970s	1980s	1990s- present
Policy type	Reconstruction	Revitalisation	Renewal	Redevelopment	Regeneration
Major strategy and orientation	Reconstruction and extension of older areas of towns and cities often based on a 'master-plan'; suburban growth	Continuation of 1950s theme ; suburban and peripheral growth; some early attempts at rehabilitation	Focus on renewal and neighbourhood schemes; still development at periphery	Many major schemes of development and redevelopment; flagship projects; out of town projects	Move towards a more comprehensive form of policy and practice; more emphasis on integrated treatments
Key actors and stakeholders	National and local government; private sector developers and contractors	Move towards a greater balance between public and private sectors	Growing role of private sector and decentralisation in local government	Emphasis on private sector and special agencies; growth of partnerships	Partnership the dominant approach
Spatial level of activity	Emphasis on local and site levels	Regional level of activity emerged	Regional and local levels initially; later more local emphasis	In early 1980s focus on site; later emphasis on local level	Reintroduction of strategic perspective; growth of regional activity
Economic focus	Public sector investment with some private sector involvement	Continuing from 1950s with growing influence of private investment	Resource constraints in public sector and growth of private investment	Private sector dominant with selective public funds	Greater balance between public private and voluntary funding
Social content	Improvement of housing and living standards	Social and welfare improvement	Community-based action and greater empowerment	Community self-help with very selective state support	Emphasis on the role of community
Physical emphasis	Replacement of inner areas and peripheral development	Some continuation from 1950s with parallel rehabilitation of existing areas	More extensive renewal of older urban areas	Major schemes of replacement and new development ; flagship schemes	More modest than 1980s;heritage and retention
Environmental approach	Landscaping and some greening	Selective improvements	Environmental improvement with some innovations	Growth of concern for wider approach to environment	Introduction of broader idea of environmental sustainability

2.2.2 Transformations in the form of European and North American cities

This section discusses the urban change, emergent urban forms and new urban spaces after rise of the post-modern city in Europe and North America. [Hall \(2001, p.86\)](#) argued that the post-modern or ‘post-industrial’ city in its urban form, its patterns of land values, its social geographies and its landscapes is significantly different from the modern city. Such cities, which developed over the course of the twentieth century, typically displayed homogeneous zones of land-use and social group, land values which declined regularly away from the centre of the city. Urban geographers since the early 1980s have argued that this idea of the city is outdated and the emergence of new urban forms have been witnessed. [Tallon \(2013, p.16\)](#) discussed the contrasts between the modern and post-modern city which can be assessed in terms of urban form and structure, urban planning, urban economy, society and culture, architecture, urban landscape and urban government. Each of these themes is closely interlinked and the changes have taken place in parallel.

Despite a number of differences between scholars they generally agree that the new cities are more fragmentary in their form, more chaotic in structure and are generated by different processes of urbanisation than earlier cities. This describes a city which, rather than being a single coherent entity, consists of a number of large spectacular residential and commercial developments with large environmentally and economically degraded spaces in between. According to [Hall \(2001, p.86\)](#) the actual nature and extent to which modern forms of urbanisation have been supplanted by post-modern forms varies between cities. Likewise, in the face of post-modern forms of urbanisation, many cities are likely to retain much of their modern or industrial structure while other researchers demonstrate some combination of modern urban characteristics mixed in with newer post-modern urban forms. The main characteristics of the modern and post-modern city are summarised in Table (2.2).

Table 2. 2 Characteristics and contrasts of the modern and post-modern city. Source: [Hall \(2006, p.100\)](#)

	Modern	Post-modern
Urban form	<ul style="list-style-type: none"> Homogeneous functional zoning Dominant commercial core Steady decline in land values away from centre 	<ul style="list-style-type: none"> - Chaotic multi- nucleated structure - Highly spectacular centres - Large ‘seas’ of poverty - Hi-tech corridors - Post- suburban edge- city developments
Urban planning	<ul style="list-style-type: none"> - Cities planned in totality - Urban space shaped for social ends 	<ul style="list-style-type: none"> Spatial ‘fragments’ designed for aesthetic rather than social ends
The urban economy	<ul style="list-style-type: none"> - Industrial - Mass production - Economies of scale - Production- based 	<ul style="list-style-type: none"> - Service sector- based - Flexible production aimed at niche markets - Economies of scope - Globalised - Telecommunications and information- based Finance - Consumption- oriented - Jobs in new edge- of-city zones

Society and culture	<ul style="list-style-type: none"> - Class divisions - Large degree of internal homogeneity within class groups 	<ul style="list-style-type: none"> - Highly fragmented - Lifestyle divisions - High degree of social polarisation - Groups distinguished by their consumption patterns
Architecture and the urban landscape	<ul style="list-style-type: none"> - Functional modernist architecture - Mass production of styles 	<ul style="list-style-type: none"> - Eclectic 'collage' of styles - Spectacular - Playful - Ironic - Use of heritage - Produced for specialist markets
Urban government	<ul style="list-style-type: none"> - Government - Managerial – redistribution of resources for social purposes - Public provision of essential services 	<ul style="list-style-type: none"> - Governance - Entrepreneurial – use of resources to attract mobile international capital and investment - Place promotion by city authorities - Public and private sectors working in partnership - Private provision of services

2.3 Sustainability and sustainable urban redevelopment

2.3.1 The emergence of the concept

IOER (2005, p.4) mentioned that the decay in environmental quality and the gradual depletion of natural resources has been a dominant theme for research and public policy in the latter part of the twentieth century and is likely to remain so for the first quarter of the twenty first. The concept of sustainable development can be traced back to the 1980s; the real watershed in understanding came with the Brundtland Commission on Environment and Development (ibid). Various resources mentioned that the term sustainable development has become popular since the publication of the summary report of the World Commission on Environment and Development (WCED) "Our Common Future" in 1987, because it comes up in almost every discussion of environmental issues. According to Devuyt (2001, p.7) and Tallon (2013, p.165) The (WCED) defined sustainable development as "development that meets the needs of the present generation without compromising the ability of the future generation to meet their own needs" or "the rearrangement of technological, scientific, environmental, economic and social resources in such a way that the resulting heterogeneous system can be maintained in a state of temporal and spatial equilibrium". Rodwell (2007, p.57) referred to the official United Kingdom government's definition of a sustainable community as: 'Sustainable communities are places where people want to live and work, now and in the future'.

After that the concepts of sustainability have assumed a central place within urban development models since the 1990s (Hall and Barrett, 2012). The concept was further expanded at the Rio Earth Summit in 1992 (UNCED, 1992), through Agenda 21, the 'Policy plan for environment and sustainable development in the 21st Century'. The agenda mentions the goals of sustainable development in general, and its practice in towns and cities in particular. In all, 27 principles were agreed in the final declaration IOER (2005, p.5).

Ten of these relevant to questions of sustainable urban development, which have been simplified and rationalized into four core principles: ecological integrity, equity, participation and futurity, which represented in a four-sided model, known as PICABUE (figure 2.1).

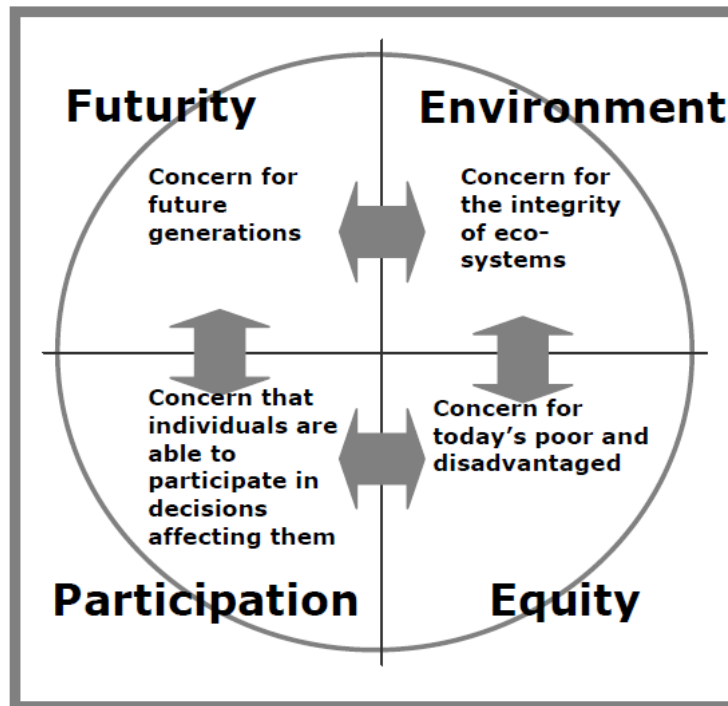


Figure2. 1 The PICABUE model of sustainable development principles.
Source: (ERC 1996 and BEQUEST 1998 cited in SBE, 2005, p.5)

The concept of sustainable development has become a common and contemporary goal of many urban redevelopment policies in various countries. Blackburn (2007) elaborates the concept of sustainability as long-term development and the efforts of sustainability practices embrace the rigorous use of the scarce natural resources through good implementation of economy but without neglecting the environmental and social factors. In addition, the philosophy of sustainability emphasizes the achievement of sustainability that integrates the economic, environmental, and social into performance.

According to Frey (1999, p.213) the achievement of sustainable city regions requires the rethinking not only of the city and city region but also of current policies, approaches and professional responsibilities as well as education. Devuyt (2001, p.21) described how the environmental, social, and economic aspects of city development are closely interlinked and related to urban planning, urban policy and decision-making, and sustainable development issues. Sustainable urban development must take a broad view of urban issues and attempt to solve urban problems by integrating environmental, social, and economic components. Silver (2006, p.180) identified the role of urbanism by offering a set of principles and range of development models to guide public policy, development practice, urban planning and design that counteract the pernicious effects of sprawl.

2.3.2 Smart growth

Smart growth emerged in the USA in the 1990s and represents another term for sustainable urban development, which focuses on broader quality of life issues than just environmental sensibilities, and therefore is based on a comprehensive view of the urban development process (Pacione, 2009, p.181). According to Tallon (2013, p.179) compact cities present contemporary approaches to sustainable urban development and regeneration, focusing on the compact city debate, sustainable urban planning and design, eco-towns, brownfield site regeneration, and the role of urban green space. O'Meara (1999) states that changes in the layout of urban neighbourhoods can lower energy demands from transportation, otherwise low-density neighbourhoods require more water and sewer pipes, power lines, roads, and building material. Therefore the economic benefits from compact growth can be calculated.

Pacione (2009) mentioned that the principles of smart growth (Table 2.3) overlap with those of new urbanism, an urban design school which advocates a return to traditional human-scale neighbourhood development, liveable communities and transit-oriented development. Pacione (2009, p.680) also identified smart growth as 'a set of planning techniques designed to achieve more sustainable development, that includes infill development, revitalisation of existing neighbourhoods, mixed-use developments, environmental preservation, and integrated regional transport and land-use planning'.

Table 2.3 Major principles of smart growth. Source: Pacione (2009, p.182)

<ol style="list-style-type: none">1. Mix land uses2. Take advantage of compact building design3. Create a range of housing opportunities and choices4. Foster distinctive, attractive communities with a strong sense of place5. Preserve open space, farmland, natural beauty and critical environmental areas6. Strengthen and direct development towards existing communities7. Provide a variety of transport choices8. Make development decisions predictable, fair and cost-effective9. Encourage community and stakeholder collaboration in development decisions
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Planners now argue that the way to make cities more sustainable is to make them more compact and more urbanised. The compact settlement patterns conserve open space and enable residents to use energy-efficient mass transit public transport systems (Tallon, 2013, p.170). Since the mid-1990s, city centre regeneration, densification, infilling and brownfield development have been encouraged by government's policies. This has been implemented through focusing retail, office and housing development in central mixed-use and sustainable environments (ibid). Based on Hall and Barrett (2012) there has been much debate about the optimal city size in terms of sustainability, the debate generally associates increasing city size with unsustainability, increasing energy use per capita and more dependence upon external environmental resources. Larger cities are also associated with greater environmental problems such as air and water pollution. Some have argued against this and say that large settlements might be more sustainable as decentralisation can potentially decrease commuting distances, large cities are characterised by relatively low car use and also have more advanced political and managerial infrastructures giving them greater political resources that can be mobilised to manage and deal with environmental

problems. On the other hand, more important than urban size is the internal organisation of cities relating to their form, processes, management and the nature of urban regeneration activities (Hall and Barrett, 2012). It is evident that a significant debate has developed over the relationship between urban form and sustainability, this follows widespread advocacy of various high-density 'compact city' models which are deemed to offer a number of advantages (Tallon, 2013, p.170):

- Conservation: farmland, rural ecosystems, biodiversity
- Reduced need for cars
- Public transport, walking and cycling
- Efficient use of energy – reduced urban heat island
- Access to services and facilities
- Efficient utility and infrastructure provision;
- Inner city regeneration;
- 'Community' and greater social equity
- High density urban living

2.3.3 Components of sustainability concept

Sustainable development as a component of urban regeneration has been incorporated within the planning, building and environment sections of the development departments. Delivering sustainable development should involve planning for the long term, fully integrating economic, social and environmental factors into decision-making and considering impacts beyond the local area (Tallon, 2013, p.168). According to Elliott (2006, p.11) most definitions of sustainable development encompass the idea that there are three interdependent pillars of sustainable development: environmental, economic and social, These pillars are presented by Barbier (1987) as three interlocking circles in Figure (2.2) the objective of sustainable development is to maximise the goals across all three systems and is illustrated by the intersection of these circles.

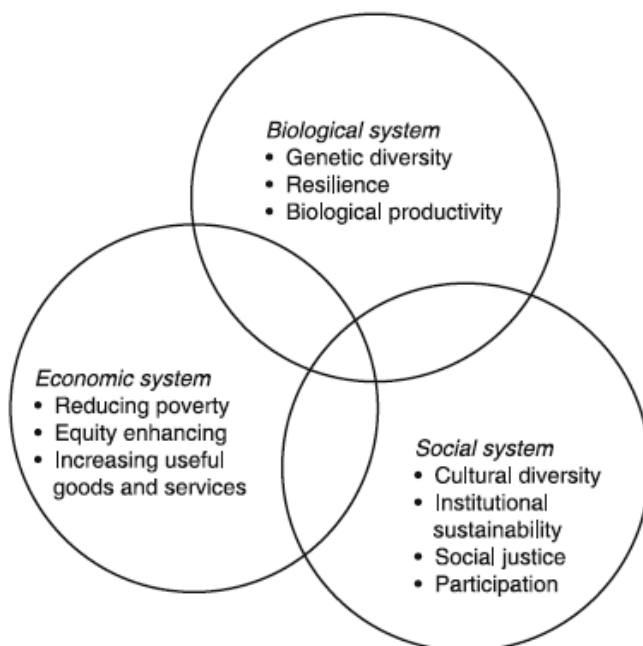


Figure2. 2 Objectives of sustainable development. Source: compiled by Elliott (2006, p.11) from Barbier (1987).

Lee (2008, p.35) identified 3 main aspects of sustainability concepts, these aspects are *environmental quality, economic development and social equity*. According to Allen (2009) the built environment needs to be recognised as a central component to the liveability of the earth. Furthermore, the search for more sustainable forms of urbanisation depends on political and institutional decisions promoting the competition or cooperation of different agents with one another. Thus it could be argued that to assess whether any given practice, policy or trend is moving towards or against urban sustainability it is necessary to consider the relationships among the five dimensions: *Economic sustainability, Social sustainability, Ecological sustainability, Physical sustainability* (Sustainability of the built environment) and *Political sustainability*. The following give a brief introduction about these elements based on Allen (2009):

A. *Economic Development*: is understood as the capacity and ability to put local/regional resources to productive use for the long-term benefit of the community, without damaging or depleting the natural resource and without increasing the city's ecological footprint.

B. *Social Equity*: refers to the fairness, inclusiveness and cultural adequacy of an intervention to promote equal rights over the natural, physical and economic capital that supports the lives of local communities. Cultural adequacy, here, means the extent to which a practice respects cultural heritage and cultural diversity.

C. *Environmental Quality*: Ecological sustainability pertains to the impact of urban production and consumption on the integrity and health of the city region and global carrying capacity. This demands the long term consideration of the relation between the state and dynamics of environmental resources and the demands exerted over them.

D. *Physical sustainability*: concerns the capacity of an intervention to enhance the liveability of buildings and urban infrastructures for 'all' city dwellers without damaging or disrupting the urban environment. It also includes the efficiency of the built environment to support the local economy.

E. *Political sustainability*: is concerned with the quality of governance systems guiding the relationship and actions of different actors among the previous four dimensions. Thereby, it implies the participation of local civil society in all areas of decision-making.

As mentioned by Flint & Houser (2001) economic prosperity can only occur alongside a healthy natural environment, coupled with healthy social systems, this hierarchy illustrates how the socio-economic spheres of communities must always be considered within the larger environmental sphere of influence. Frey (1999) identified the characteristics of a sustainable city in (Table 2.4). These definitions are a starting point to the subject and consequently there are clear interrelationships between urbanisation, development, regeneration and sustainability issues, which have been increasingly incorporated within urban regeneration policies since the 1990s.

Table 2. 4 Characteristics of a sustainable city. Source: Tallon (2013, p.166) based on Frey (1999, p.32).

<p>i. Physical properties of the city</p> <ul style="list-style-type: none"> Containment Densities to support services Adaptability 	<p>ii. Provisions of the city</p> <ul style="list-style-type: none"> Readily available, good quality public transport Reduced and dispersed traffic volumes Cycle provision and pedestrian walkways Hierarchy of services and facilities Access to green space
<p>iii. Environmental and ecological conditions</p> <ul style="list-style-type: none"> Low pollution, noise, congestion, accidents, crime Available private outdoor space Range of green space habitats for nature Existence of local, non- fossil fuel energy generation, including micro- generation Existence of urban farms Evidence of local food consumption Small ecological footprint 	<p>iv. Socio- economic conditions</p> <ul style="list-style-type: none"> Social mix that reduces social stratification Degree of local autonomy Degree of local economic self- sufficiency, including local firms 'Liveability' – good quality of life
<p>v. Visual- formal quality</p> <ul style="list-style-type: none"> Positive 'image' to city and its constituent parts Sense of 'centrality' Sense of 'place' (distinctiveness) 	

2.4 Urban Regeneration: Definition, Evolution and Purpose

2.4.1 Definition of urban regeneration

Urban regeneration has received significant attention from researchers, due to the increasing urban decay and deterioration of built environment around the world. As mentioned by Wang et al. (2014) The term “urban regeneration” which is usually interchangeable with ‘urban renewal’, ‘urban redevelopment’, ‘urban rehabilitation’ and ‘urban revitalization’ is a process that involves the rehabilitation of existing structures, redevelopment of buildings and sites, or reuse of urban land.

Oxford English Dictionary (1997) defined urban regeneration as “the revival, renaissance or reconstitution on a higher level, pertaining to, situated or occurring in a city or town”, based on this definition Lang (1999, p.61) highlighted the wide spectrum of interests and activities within urban regeneration and that initially, urban regeneration seeks to revitalise urban areas which stand out due to some deficiency. Magalhaes (2015, p.919) defined the concept of urban regeneration policies as policies seeking to address the problems of a locality in all their multiple dimensions. A well-known definition of urban regeneration by Roberts and Sykes (2000, p.17) which emphasizes the interplay of physical, economic, and social dimensions of urban problems: “*Comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change*”. However, this multidimensionality of urban regeneration begs the questions of what is that interaction, what the causal nexus it contains are, and how they could be acted upon and in what direction (Al-Akkam, 2012, p.59).

According to [UIRS \(2008\)](#) urban regeneration is one of the key instruments in achieving sustainable urban development; sustainable development itself is a way of human development which aims to meet human needs while preserving the environment and cultural heritage for next generations. The main objectives of urban regeneration are improvement of the physical and social environment, demographic and economic revitalisation of cities, strengthening of cultural and spatial identity (regeneration of historic cities) and achievement of better living standards of inhabitants ([ibid](#)).

The multidimensionality of the problems addressed by urban regeneration interventions underpins the complexity of the objectives that seek to be achieved. These are marked by tensions between different perceptions of encouraging economic competitiveness, with an emphasis on physical transformation, and encouraging social inclusion in bringing about the desired outcomes ([Magalhaes, 2015, p.920](#)). As shown in the above definitions, and based on the opinion of [Tallon \(2013, p.6\)](#), it is obvious that urban regeneration due to its nature and practice, is far from being a completely fixed set of guiding principles and practices, and does not have a proven or well-established track record of success. The definition of urban regeneration should also include the future challenges of urban development, which is the sustainable development.

2.4.2 Evolution

[CABE \(2004\)](#) pointed out that the term urban regeneration had become current in the 1980s and more widely adopted after 1995 as a replacement for 'urban renewal', which had become associated with wholesale clearance and comprehensive redevelopment. Urban regeneration was used initially by the private sector and was later applied to all kinds of positive urban change. [Roberts \(2000\)](#) highlighted that urban regeneration has become the fundamental urban policy since the 1990s. Also in this period, the strategic and comprehensive planning approach in urban planning started to be commonly used in regeneration projects of many cities. According to [Vilaplana \(1998, p.2\)](#) these projects have been implemented to revitalize the declining city centres, old-industrial and harbour sites, and the working-class residential areas and undermined historical heritage sites of cities. According to [Karadimitriou et al. \(2013\)](#) the classical problems addressed by urban regeneration policies are widely acknowledged, as those pertaining to the deterioration of the social, economic, and physical health of cities in the older industrialized economies of Europe and North America, as a result of structural changes in the last quarter of the twentieth century that saw the demise of traditional industries often leaving behind a weak economic basis, persistent problems of unemployment, and derelict sites.

2.4.3 Purposes and objectives of urban regeneration

There has been a wide variety of policies and approaches to urban regeneration, all of which strive to achieve similar goals. [Tallon \(2013, p.8\)](#); [Hall and Barrett \(2012, p.148\)](#) highlighted and summarized the contemporary general concerns of urban regeneration by:

1. Physical environment: urban regeneration has attempted to improve the built environment, concerns having now embraced environmental sustainability.
2. Quality of life: urban regeneration has sought to improve the physical living conditions, or local cultural activities, or facilities for particular social groups.
3. Social welfare: urban regeneration has endeavoured to improve the provision of basic social services in certain areas.
4. Economic prospects: urban regeneration has sought to enhance the employment prospects for deprived groups and areas through job creation or through education and training programmes.
5. Governance: there has been a shift from city government to city governance within urban regeneration, and public policy more generally, which is highlighted by the rise in importance of partnership, community engagement and multiple stakeholders in the process and delivery of urban regeneration.

Roberts (2000) mentioned that in addition to economic and social analysis, the urban regeneration process includes environmental analysis, which includes urban physical quality, environmental resource use, waste management, pollution, designed features, and landscape. One of the inputs is the physical improvement, including city centre improvement, housing improvement, enhanced urban design quality, and heritage. Roberts (2000, p.22) determined the key features of urban regeneration as follows:

- An interventionist activity.
- An activity that straddles the public, private and voluntary and community sectors.
- An activity that is likely to experience considerable changes in its institutional structures over time in response to changing economic, social, environmental and political circumstances.
- A means of mobilising collective effort and providing the basis for the appropriate solutions.
- A means of determining policies and actions designed to improve the condition of urban areas and developing institutional structures necessary to support the proposals.

The Department of the Environment (DoE, 1980, p.120) identified the particular means to achieve the above objectives of regeneration by the following: bringing land and buildings into effective use; encouraging the development of existing and new industry and commerce; creating an attractive environment and ensuring that housing and social facilities are available to encourage people to live and work in the area.

2.4.4 Theoretical foundation of urban regeneration

Modern cities are facing a complex array of economic, social, physical and environmental problems; moreover the cities have to compete for investment and economic growth at the same time. Couch and Fraser (2003, p.2) highlighted that urban regeneration is the field of public policy that deals with all issues mentioned above, or the restoration of urban areas to its initial state. It is concerned with the regrowth of economic activity where it has been lost; the restoration of social function where there has been dysfunction; and the restoration of environmental quality or ecological balance where it has been neglected. Therefore urban regeneration deals with the management and planning of existing urban areas rather than

the planning and development of new urbanisation. According to Couch and Fraser (2003, p.2) some types of interventions, such as slum clearance and the improvement of transport infrastructure, can be traced back to the twentieth century and even earlier. What is different about recent decades is the size and complexity of the problems, the speed of change, and the concomitant scale and sophistication of policy. Currently urban regeneration represents an instrument of urban policy at all political levels, coupled with massive capital investment in the process.

At the European context, recently most countries have re-examined their urban policies and have put new legislation into place to improve the condition of urban areas. Couch et al. (2003, p.4) highlights some examples: in the UK a prime example of this is the Urban White Paper, which built on the report of Lord Rogers “*Towards an Urban Renaissance*”. The French government also has produced a new planning Act, the SRU of 2000, picking up many of the ideas of the Sueur report of 1998. The Social Cities programme in Germany, the Major Cities programme in the Netherlands and recent initiatives in urban planning in both Brussels and the Walloon region of Belgium and in Italy reinforce the continent-wide nature of this awakening of interest in the future of towns and cities. Therefore, examining and reviewing the regeneration process can offer a reflection on the capacity of regeneration strategies to meet social, political, economic and environmental goals.

2.4.5 The new agenda for urban regeneration

New challenges for planning and regeneration schemes appeared recently in response to changes in social trends (cultural and political), heightened awareness of environmental issues, economic changes associated with globalisation, and a desire for development to be more sustainable. According to Percy (2003, p.200) There are clearly new agendas that are influencing strategies and the success of regeneration programmes, in some cases these agendas are not new but have recently taken on more importance in regeneration programmes. Turok (2005) cited in Tallon (2013, p.7) highlighted the appearance of three approaches to urban regeneration by the late 2000s, each one is related to policy approaches that have evolved over successive decades since the 1960s. These approaches are *urban renaissance*, *social inclusion* and *economic competitiveness*.

In Europe, the new agendas appeared in order to deal and cope with issues of old industrial areas. According to Percy (2003, p.200) these new agendas have in most cases evolved out of the necessity to deal with factors that are common to case studies. These include a *fundamental restructuring of the economic base*, *unemployment*, *social segregation*, and *environmental degradation*, coupled with the globalised nature of financial markets and the sustainable development movement. Tallon (2013, p.7) drew out some important issues and processes of these new agendas:

Urban renaissance: this agenda is subsumed within the sustainable communities programme, has been concerned with physical and environmental conditions, linked with the trend towards brownfield redevelopment and issues surrounding green field

development. It promotes high quality urban design, mixed-use environments and sustainable cities.

Social inclusion: this agenda focuses more on social conditions within deprived neighbourhoods. It encourages the development of social cohesion, social capital and community participation to bring about the regeneration of neighbourhood and community.

Economic competitiveness: this agenda is concerned with improving economic performance and employment by increasing productivity and innovation.

Promoting sustainability: Sustainable urban regeneration can be delivered through development, planning, housing, and design policies. Examples of such policies are compact city development, urban intensification, mixed-use development, brown field regeneration and eco-town principles.

Since the 1990s, city centre regeneration, densification and brownfield development have been encouraged by government policies. This has been implemented through development in central mixed-use and sustainable environments (Tallon, 2013, p.170). The idea of urban densification has been incorporated into governments' urban policy in different countries since the mid-1990s; this idea is also linked with the brownfield and versus the green field development debate (DETR, 2000). The compact city is represented in policies as a 'liveable city' connected to the ideals of urban regeneration and gentrification, though it has been critiqued as being impractical, undesirable and unrealistic. Alternative concepts to the compact city according to Tallon (2013, p.172) is the 'Multiplicity', which proposed clusters of development that include urban infilling and the creation of new ex-urban (edge-of-urban) settlements, resulting in a sustainable city-region.

Some of the new agendas have been imposed on cities and regions from global changes in society and economy and from international support for sustainable development. These new agendas are becoming more central in regeneration schemes (Percy, 2003, p.209). It is clear that regeneration involves more than merely physical renewal, and through the new agendas growing scope exists to deliver on social, economic and environmental issues in a more integrated way. These new agendas influence current practice, and will shape future approaches.

2.4.6 Linking urban regeneration and sustainability

There are clear interrelationships between urbanisation, development, regeneration and sustainability issues, which have been increasingly incorporated within urban regeneration policies since the 1990s (Tallon, 2013, p.179). As mentioned by Chanan et al. (1999) the promotion of city centre living to meet environmental and social 'sustainability' goals, as well as supporting economic regeneration, is a key objective of urban regeneration policies, and indicates how the two dimensions of regeneration and sustainability are closely interrelated. The Mainstreaming Sustainable Regeneration: A call to action, by The SDC (2003, p.4) emphasized that sustainable development principles should be at the heart of regeneration policy and practice. Bromley et al. (2005) highlighted that the energy efficiency measures are usually at the heart of sustainable urban regeneration schemes, therefore

most research on sustainability avoids quantification of the costs and benefits other than for the energy savings to be derived from changes to transport use and type, building design and recycling. [DETR \(2000\)](#); [Jones and Evans \(2008, p.86\)](#) outlines the key dimensions of sustainable regeneration that were set out in the Urban White Paper (table 2.5), they emphasized also that while the elements of sustainable regeneration are categorised in this table as environmental, economic and social, it is clear that in practice each goal addresses more than one element of sustainability or each element of sustainability is addressed by more than one regeneration goal. For example, the ‘prudent use of natural resources’ is addressed by the re-use of derelict land, mixed-development, energy efficient buildings and higher density developments. The Urban White Paper makes very strong links between the ideas of ‘mixed’ and ‘sustainable’ communities; which is a key element in achieving socially sustainable regeneration ([ibid](#)).

Table2. 5 Key elements of sustainable regeneration. Source: [Jones and Evans \(2008, p.87\)](#)

Element of sustainability	Goal	Reason
Environmental	Re-use derelict land for high-density development	Protect countryside and decrease car use
	Improve environmental quality	Enhance quality of life and attract investment
	Use energy efficient buildings	Decrease ecological footprint of urban areas
Economic	Rejuvenate housing stock	Revitalise city centres
	Attract development and create jobs	Improve local economy
Social	Mixed-use developments (combination of retail, residential and business)	Decrease car use (live, work and play in same area)
	Mixed communities (in terms of age , ethnicity, family structure and income)	Increase social integration
	Inclusive decision-making	Respond to local needs and increase social capacity

According to [Jones and Evans \(2008, p.86\)](#) the goals above have been subsequently refined into a series of initiatives and approaches. They identify factors such as energy efficiency in construction as critical in combating fuel poverty; local environmental action as a mechanism to create jobs and promote community re-investment; Green Transport Plans to improve public transport services, cycling and walking facilities and links to local services. [Lee \(2008, p.100\)](#) points out that promoting sustainable development in an urban area is one of the major objectives of urban renewal or urban regeneration and that design principles for achieving sustainability in the territory is required.

[\(Lu, 2012, p.10\)](#) drew attention to the Transit-Oriented Development (TOD) as a possible approach to regeneration in historical city centres in a sustainable way. The theory and practices of a competitive method (TOD) and historical city centre share the similar principle of compact mixed land use and friendly neighbour atmosphere. They are both supposed to achieve the goal of a sustainable cycle in land use, land price and human behaviour. Table (2.6) shows the comparison of TOD principle and historical city centre demands. It is clear from the points above the strong relationship between urban regeneration and

sustainability; moreover an assessment of the effects of urban regeneration policy also reveals linkages with sustainability.

Table2. 6 Comparison of TOD principle and Historical city centre demands. Source: Lu (2012).

Demands of historical city centre	TOD principle
<ul style="list-style-type: none"> - Shift in function and structure match the urban form. - Preservation of the traditional urban fabric. - Improvement of public services and infrastructure (to fit the growth and pressure from whole city) - Better living environment (building, public spaces and services) 	<ul style="list-style-type: none"> - Compact and mixed land use - Well-developed public transport service around - The projects help increase the usage of public transportation - High –quality in pedestrian and cycling environment - Public open spaces and infrastructure close to traffic node - Traffic node related to area centre

2.4.7 Urban regeneration assessment

Devuyst (2001, p.9) explained the assessment as a tool that can be used by decision-makers and policy-makers to decide which action they should and should not take in an attempt to make society or their cities more sustainable. According to SBE (2005, p.9) the aim of urban regeneration assessment is to improve decision-making about urban development, opening up the decision-making processes and making them transparent and open to external scrutiny through public participation. To link these objectives with the decision-making processes, tools and indicators for measuring progress are also required, along with regeneration procedures. According to DETR (2000, p.67), for major applications, the local authority may commission an independent design assessment. This assessment can provide a basis for more informed decision-making, give a developer independent design advice, provide the basis for rejecting a design of poor quality and complement other assessments, such as those on retail, transport and environmental impact.

The Implementation of urban regeneration assessment should encourage decision-makers to give appropriate attention to sustainability issues in the realization of their initiatives and should be integrated into policy-making and decision-making processes and should lead to the production of information that can be used in planning as well as raising public awareness and understanding (SBE, 2005, p.10). As mentioned by Hemphill et al. (2004, p.726) the evaluation frameworks of urban regeneration are increasingly following an indicator-based approach by including contextual measures to identify the baseline assessment of the area, the conditions within which the strategy is operating and the effects of policy actions. More details are given in chapter 5 about urban regeneration sustainability assessment tools, indicators and examples of the use of these Indicators.

2.4.8 The steps of the urban regeneration process

According to SBE and IOER (2005, p.16) the principles of sustainable urban regeneration are put into practice by following the step-wise logic of the regeneration process. This provides a simplification of the policy environment surrounding the diagnosis related to urban deterioration, the visioning of futures, policy and plan-making processes underlying the

sustainability of the regeneration programmes. Based on LUDA (Large Urban Distressed Areas) regeneration project, the [USAL \(2005, p.5\)](#) mentioned that the main aim of LUDA is to reverse the social, economic and physical deterioration and meet sustainable development goals. The regeneration approach taken by the team of LUDA project concentrates on strategic, well thought-out planning preceding any actions undertaken. In order to provide a development option capable of sustaining the community affected by its implementation, the decision-making in the regeneration process must be supported and informed by assessment activities. The regeneration process of LUDA represents a generalisation and simplification of the planning process in urban regeneration in the majority of EU countries, this process comprises tasks and related activities that are grouped into the following steps (see also Figure 2.3) ([ibid](#)):

Diagnosis: Identifying the extent of the deprivation and recognising the stress features present in the regeneration initiative area.

Visioning: refers to participation of stakeholders in creating a stress-free vision and policy framework for urban regeneration initiative.

Programming: Translating the vision into a coherent master plan.

Implementation: Putting the programme into practice.

Monitoring: Evaluating the success of the programme.

In the monitoring phase, the evaluation and monitoring provide feedback to the programming and implementation steps and can be used to review and revise a regeneration programme, adjusting it so projects can meet new challenges. This assessment can be done through the use of appropriate indicators.

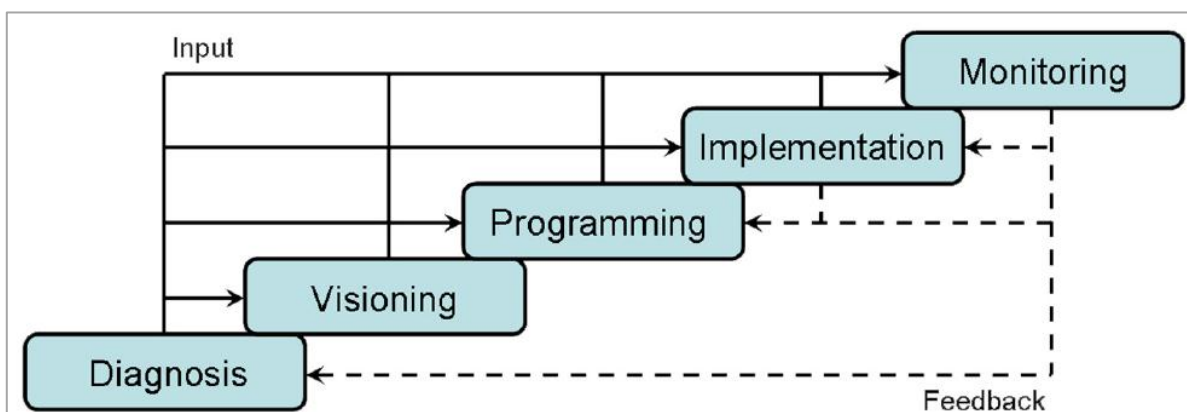


Figure 2.3 Regeneration process-steps. Source: [USAL \(2005, p.6\)](#)

[Friesecke \(2007, p.7\)](#) tried to provide an illustration of the inputs and outputs related to the urban regeneration process (figure 2.4) The diagram indicates the variety of themes and topics involved in urban regeneration and the multiplicity of interrelated outputs. The outputs of urban regeneration operations are grouped according to [Roberts \(2000\)](#) into five categories: neighbourhood strategies, training and education, physical improvements, economic development and environmental action. But nevertheless, any regeneration strategy has to be adapted to the circumstances within which it operates. However, [SBE and IOER \(2005, p.17\)](#) emphasised that, as each regeneration process is different and requires

flexibility, there is no rigid order within these steps, they may in some cases run parallel to one another, or develop in a slightly different order.

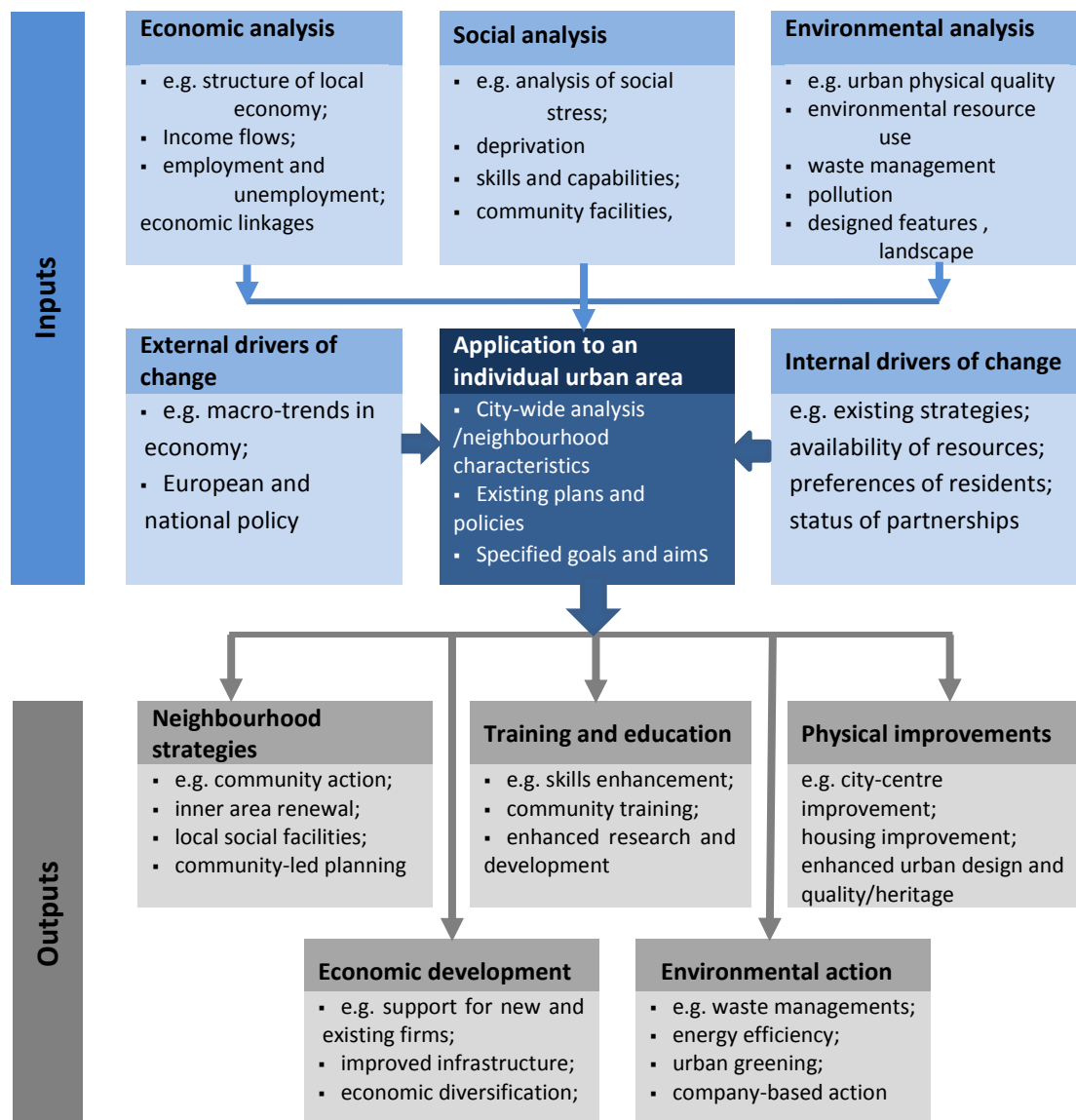


Figure2. 4 The Urban Regeneration Process. Source: Author construction based on Friesecke (2007, p.7) and Roberts & Sykes (2000, p.20).

2.5 The role of Urban Design in Urban Regeneration

This role is based on the regeneration concept as a means of creating sustainable places with specific identity. It is also related to protection and promotion of cultural values, social cohesion and economic prosperity. Mrdenovic (2011, p.305) highlighted that nowadays urban design is challenged by the contemporary concept of regeneration, and its relation to socioeconomic transition processes, as one of the specific conditions of urban regeneration context. This process re-affirms urban design as an initiator of regeneration that is on the way towards an approach where urban design practice is an integrative process of urban production. DETR (2000, p.9) pointed out that the best way to promote successful and

sustainable regeneration, conservation and place-making is to think about urban design from the beginning of the planning and development process. Otherwise it is unlikely to lead to the best outcome in terms of quality. On the other hand, the need for an approach in regeneration leads to questions about the possibilities of urban design to become an integrative instrument. According to [Mrdenovic \(2011, p.306\)](#) the multidimensional process of urban design can provide creative solutions for different development sectors of sustainable regeneration: economy, society and environment, overcoming problems of rational and collaborative paradigm in urban decision making through communicative action. Therefore, the process of urban design can provide a positive atmosphere for communicative action of different viewpoints and interests into a coherent whole, becoming an integrative, specific instrument for different theoretical orientations, sectors of sustainability and urban design dimensions.

The aim of this section is to discuss the role of urban design as a transformative instrument in the regeneration process and to examine the possibilities of urban design in providing a strategic framework for regeneration through a process that enables integration of different aspects and dimensions that should be integrated in sustainable development. Furthermore; describing an integrative framework for urban design as an instrument for regeneration is one of the main contributions of the current research and the expected results are a definition of basic principles for achieving sustainable places through regeneration.

2.5.1 Definitions of urban design

The term urban design was apparently coined in North America in the late 1950s. [Rowley \(1994, p.180\)](#) mentioned that the American Institute of Architecture established a Committee on Urban Design In 1957 and the first university course in the subject was established at Harvard University in 1960. According to [CABE \(2003\)](#) urban design is a process involving politicians, a wide range of stakeholders and different kinds of professional such as architects and planners and the quality of the urban design depends on how these people work together. Good urban design is not an abstract ideal, It is a matter of creating the right conditions to make places work, and the planning system has a central role in achieving this aim. [CABE \(2003, p.3\)](#) believes that making places successful depends on getting the right physical form of development and, the planning system gives the opportunity to ask about the kind of place that we want and how we can promote the qualities that we want. It is apparent that there is no single definition of urban design and, many definitions can be found in the literature, some of these definitions are shown in the following:

“Urban design is a complex phenomenon, difficult to define and grasp but of undoubted importance. It is an interdisciplinary activity and is commonly seen as occupying the middle ground between architecture and town planning”
[\(Rowley, 1994, p.182\)](#)

“Urban design is the art of making places for people. It includes the way places work and matters such as community safety, as well as how they look. It concerns the connections between people and places, movement and urban form, nature and the built fabric, and the processes for ensuring successful villages, towns and cities”
(DETR, 2000, p.8)

“Urban design is the process of shaping the setting for life in cities, towns and villages. It is a process that involves politicians; a wide range of people with a stake in an area; and many different kinds of professionals. A successful outcome depends on these people working effectively together”
(CABE, 2003, p.3)

Rowley (1994, p.182) pointed out that urban design is essentially about place making, where places are not just a specific space, but all the activities and events that make it possible. Good urban design is a powerful tool for achieving a higher quality of life, greater economic vitality and a more efficient use of resources (CABE, 2003, p.3). Therefore urban design can be considered both an approach and a response to the processes of urban change and development, concerned with satisfying social and emotional needs as well as the requirements of a convenient, safe, healthy and efficient public realm. Rowley (1994, p.195) summarized urban design function as design, creation and management of good urban spaces and places. It is concerned with people’s use, perception and experience of places over time, as well as how they work in a practical sense. Another definition by Llewelyn and Baxter (2007, p.10) states that urban design is about creating a vision for an area and then deploying the skills and resources to realise that vision, it is drawing together many aspects such as place-making – environmental responsibility, social equity and economic viability, for example - into the creation of places of beauty and distinct identity. Urban design is derived from different related matters such as planning and transportation policy, architectural design, development economics, landscape and engineering.

As known, urban design deals with the physical setting of an area. Some people mix between the terms “urban design”, “urban planning” and “architecture” and use them interchangeably, in fact, they are not the same. As mentioned by Arida (2002) urban design is the interface between urban planning and architecture. According to CABE (1997) urban design involves both urban planning and architecture, but focuses on physical features of the built environment that goes beyond a single building or individual parcel of land, urban design emphasizes on the relationships between urban spaces like interface between public and private realms, areas between buildings and streets, and spaces beneath buildings or within buildings. Lee (2008, p.47) attempted to clarify the differences between these terms and referred that architecture focuses on physical design of buildings and the areas nearby while urban planning deals with design of the built environment from macro perspective at a less detailed level, which embraces zoning to manage land-use distribution and growth management in order to regulate pace of development. Accordingly, urban design can be described as “large-scale architecture” or “physical aspect of urban planning” (Barnett, 1982 cited in Lee, 2008, p.47). According to Llewelyn and Baxter (2007, p.11) Urban design is not

the province of one professional group; it involves joint working between different stakeholders representing different interests. The local communities can also have a role in implementing and managing the projects, this involvement can be through early stages in the design process.

2.5.2 The importance and need for urban design

This section discusses the contemporary need for urban design. Bentley (1998, p.15) argues that one of the important reasons for the emergence of urban design was the gaps created by the boundaries set up around the various environmental disciplines, producing a 'fragmented set of professions', with 'tight boundaries around' and 'gaps between them'. As the gaps became increasingly hardened it appeared that what was falling through the gaps was concern for 'the public realm itself - the void between buildings, the streets and spaces which constitute our everyday experiences of urban spaces'. Ian Bentley (1976) as cited in Carmona et al. (2003, p.12) mentioned the emergence of concerns about urban design for three critiques: the urban environmental product, the development process and the role of professionals in controlling its production. These critiques detected the lack of concern for the totality and overall quality of the urban environment as following:

The urban environmental product and the development process: The poor quality of the contemporary urban environment is attributed to the development industry and the processes by which the environment is produced, and the forces that act on those processes (Carmona et al., 2003, p.12). Environmental degradation also results from the cumulative effect of incremental decisions by urban designers. Lewelyn (2000a) argues that the development process and the parties within it have become 'involved' in a system that produces 'developments', but not 'places', constrained by the 'predominantly conservative, short-term and supply-driven characteristics of the development industry'.

The role of the built environment professions: The contemporary concern for urban design is also located in critiques of the role of the various built environment professions. Lang (1994, p.3) locates the birth of urban design in the recognition that "the sterile urban environments achieved by applying the ideas of the modern movement to both policy-making and to architectural design at the urban scale were a failure in terms of the lives of the people who inhabited them". People began to challenge the values and assumptions of architects and planners and to distrust their ability to improve upon the spatial and physical forms of pre-modernist urbanism.

As mentioned by Carmona et al. (2003, p.13) from the late 1960s onwards, an increasing number of professionals began to see the hard-edged division of responsibilities as contributing to poor quality urban environments, development and places. Problems of contemporary development have also been attributed to well-intentioned but ill-conceived public sector regulation and to development controls and standards with little holistic awareness; also many development codes have a negative effect on the quality of the built environment. This suggested a need to focus on the integration of professional activity, and a concern for the environment as a whole (ibid).

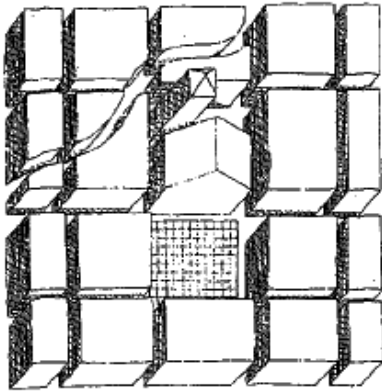
This discussion led to the appearance of the concept of 'sustainable architecture', also known as 'environmental architecture', According to Tallon (2013, p.173) this is a general term that describes environmental design techniques. Sustainable architecture is framed by the wider discussion of sustainability, and seeks to minimise the negative environmental impact of buildings by enhancing efficiency and moderation in the use of materials, energy and development space. The principles of sustainable urban design clearly link to aspects of contemporary urban regeneration in transforming cities. Mrdenovic (2011, p.306) defined the main principles for urban design integrative instrument in regeneration and these principles must be incorporated in the design, to achieve sustainable urban regeneration:

- It should provide strategic framework for regeneration in a rational manner.
- It should integrate different sectors of sustainability.
- It should integrate different levels of governance, policies and legislation.
- It should be inclusive for stakeholders at local, regional and national levels.
- It should promote and develop a specific character and identity of place.

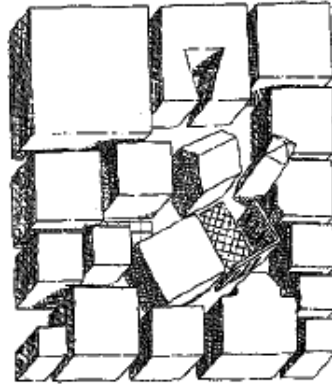
2.5.3 Theories and dimensions of urban design

This part reviews the dimensions and associated theories of urban design. According to Carmona et al. (2003, p.vii) the main dimensions of urban design are morphological, perceptual, social, visual, functional and temporal. These six overlapping dimensions are the everyday subject matter of urban design and also design as a process of problem solving.

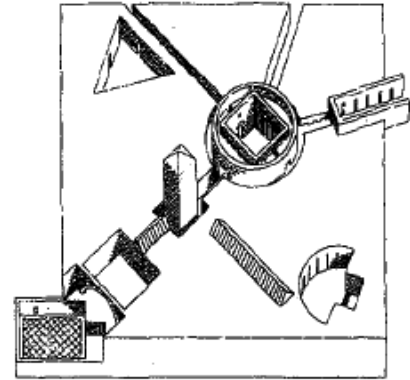
The morphological dimension: This dimension refers to the layout and configuration of urban form and space. Carmona et al. (2003, p.61) identified two types of urban space system; traditional and modernist. Traditional urban space consists of buildings as constituent parts of urban blocks, where the blocks define and enclose external space. On the other hand 'modernist' urban space typically consists of freestanding buildings in landscape settings as shown in figure (2.5). As mentioned by Bentley (1998) during the modern period, the morphological structure of the public space network has changed from buildings as constituent elements in urban blocks defining 'streets' and 'squares', to buildings as separate freestanding in an amorphous 'space'; and from integrated and connected small scale finely meshed street grids, to road networks surrounding segregated and introverted buildings.



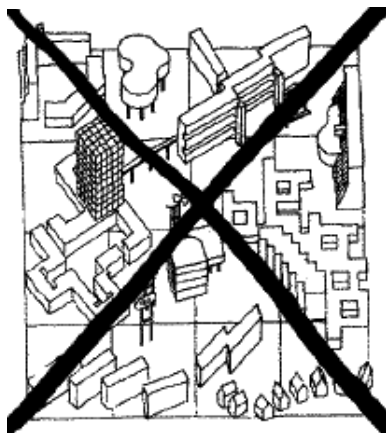
The urban blocks are the result of the patterns of streets and squares: the pattern is typologically



The pattern of streets is the result of the position of blocks: the blocks are typologically classifiable.



The streets and squares are precise formal types: the public 'rooms' are typologically classifiable



The buildings are precise formal types: there is a random distribution of buildings standing in space

Figure 2. 5 Four types of urban space as identified by Krier (1990), first three are types of traditional urban space; the fourth is a form of modernist urban space. Source: [Carmona et al. \(2003, p.71\)](#).

The perceptual dimension: One of the essential dimensions of urban design is awareness and appreciation of environmental perception and experience of place. According to [Carmona et al. \(2003, p.87\)](#) an initial preoccupation with environmental images has been supplemented by work on symbolism and meaning in the built environment. The interest in environmental perception has also been reinforced by a body of work focusing on the experiences associated with urban environments. As our experience of urban environments is a dynamic activity involving movement and time, the kinaesthetic experience of moving through space is an important part of the visual dimension of urban design. To describe the visual aspect of townscape, Gordon Cullen (1961) conceived the concept of 'serial vision' (Figure 2.6). Cullen argued that the experience is typically one of a series of jerks or revelations, with delight and interest being stimulated by contrasts, by the 'drama of juxtaposition'. In addition to the immediately present 'existing view', there are also hints of a different 'emerging view'. He considered that the urban environment should be designed from the point of view of the moving person, for whom 'the whole city becomes a plastic experience, a journey through pressures and vacuums, a sequence of exposures and enclosures, of constraint and relief' ([ibid, p.134](#)).



Figure 2.6 Gordon Cullen's serial vision. Source: Cullen (1961) cited in Carmona et al. (2003, p.87)

The social dimension: It is difficult to conceive of 'space' without social content and equally the society without a spatial component. Dear and Walch (1989) cited in Carmona et al. (2003, p.106) believe that social relations can be: constituted through space (e.g. where site characteristics influence settlement form); constrained by space (e.g. where the physical environment facilitates or obstructs human activity); and mediated by space (e.g. where the 'friction of distance' facilitates or inhibits the development of various social practices). Therefore and according to Carmona et al. (2003, p.106) space and society are clearly related, and their relationship is best conceived as a continuous two-way process in which people create and modify spaces and are influenced by them in various ways. This dimension can be discussed in five key aspects: the relationship between people and space, the interrelated concepts of the 'public realm' and 'public life', the notion of neighbourhoods, issues of safety and security and the issue of accessibility.

The visual dimension: This dimension discusses the visual or visual-aesthetic dimensions of urban design. Architecture and urban design are often described as the public art forms. According to Nasar (1998, p.28) urban design does not afford a choice to experience the art, such as literature and music. People in their daily activities, must pass through and experience the public parts of the city environment. Thus the city form and appearance must satisfy the broader public who regularly experience it. Carmona et al. (2003, p.130) discussed this dimension in four key issues: aesthetic preferences; the appreciation of space and the aesthetic qualities of urban spaces and townscape; the design of elements that define and occupy urban space, the architecture, and the hard and soft landscaping. Bosselmann (1998, pp.49-60) examined the rich and varied experience of a walk-measuring

350m, He showed how our perception of time passing and distance travelled differs from reality, and is partly a function of the visual and experiential qualities of the environment we are moving through. He assessed the aesthetic experience of the same length of walk in fourteen cities and he noted for example the walk in Venice seemed to be longer and take more time than it actually did, Figure (2.7) shows the 4 examples from these fourteen cities.



Figure 2.7 Bosselmann's walks in Rome, London, Copenhagen and Kyoto, the walks are the same length in terms of distance but the perception of time taken varies. Drawn at a consistent scale and read as a set, these diagrams are tissue studies illustrating the different textures; block size and urban grains of each city. Source: [Bosselmann \(1998\)](#) and [Carmona et al. \(2003, p.137\)](#)

The functional dimension: The functional dimension of urban design involves how places work and how urban designers can make 'better' places. According to [Carmona et al. \(2003, p.165\)](#) the 'social usage' and 'visual' traditions of urban design each have a 'functionalist' perspective. The former is concerned with the functioning of the environment, while the latter is concerned with aesthetic or technical criteria such as traffic flow, access or circulation. This dimension is concerned with the functional considerations in several parts such as; the use of public spaces, the mixed uses and density and the environmental design.

The temporal dimension or 'time' dimension: Although sometimes considered to be a matter of working in three dimensions, urban design is four dimensional: the fourth dimension being time. [Lynch \(1972\)](#) observes the experience of time in the urban environment in two ways: through *rhythmic repetition* for example 'the cycles of sun and moon; the seasons; waves' and *through progressive and irreversible change* for example 'growth and decay'. [Carmona et al. \(2003, p.193\)](#) discussed three key aspects of the temporal dimension of urban design: First, as environments are used differently at different times, urban designers need to understand time cycles and the time management of activities in space. Second, as environments change over time, urban designers need to understand how environments change and are able to design and manage environments that can accommodate the inevitability of time's passage. Third, urban environments change over time, and urban design projects, policies, etc., are implemented over time.

2.5.4 Value of urban design

According to [CABE et al. \(2001\)](#) the value of urban design represents a ground-breaking attempt to pin down the economic, social and environmental value of good urban design. Urban design is the art of making places for people. It includes the way places work and how they look. It concerns the connections between people and places, movement and urban form, nature and the built fabric, and the processes for ensuring successful villages, towns and cities ([DETR, 2000, p.8](#)). Urban design is a key to creating sustainable development and the conditions for a flourishing economic life, for the prudent use of natural resources and for social progress. Good design can help create lively places with distinctive character; streets and public spaces that are safe, accessible, pleasant to use and human in scale; and places that inspire because of the imagination and sensitivity of their designers ([ibid](#)).

In 2001, CABE and DETR examined economic, social and environmental value added by good urban design and the findings confirmed that good design probably added positive value in those aspects ([CABE et al., 2001](#)). A study by Lee ([Lee, 2008, p.49, p.100](#)) referred to urban design as "the art of shaping physical urban environment, preserving nature and built fabric with unique features, satisfying social and emotional needs of the people, and linking people and 3-dimensional spaces in a process that leads to sustainable cities/ communities". The study looked into 6 key urban design principles-taking into account the attributes and special regeneration need of historic environments, namely: *compact design and intensive development, proper mix and balance of land uses, establishment of inter and intra-regional linkage, respect for positive identity, plan for comfort and quality living and maximization of*

community participation. However, he found that not all of these principles are applicable to urban renewal. Although promoting sustainable development in the urban area is one of the major objectives of urban renewal, urban design principles for achieving sustainable urban renewal should be tailor made for a certain region.

After looking at the concept and value of urban design, and its relationship with sustainability, it is believed that urban design can achieve sustainable urban regeneration by changing existing built environment with due consideration to the economic, social and environmental agendas at the beginning of the planning process.

2.5.5 Urban design as a public policy to control urban development

To enhance the role of urban design in urban development, many researchers advocated adopting urban design as a policy to control urban development and to promote good building design as well as public space design. Since then, rich studies have explored the impact of design guidelines, and asked questions about the extent to which policies and practice cover sufficient design issues and meet intended design objectives (Chen, 2016, p.84). The development control process refers to the way that is used to determine whether and how the design policies in development plans and supplementary guidance are reflected and applied (DETR, 2000, p.10). Applicants for planning permission should be able to demonstrate how they have taken account of the need for good design in their development proposals and that they have adhered to relevant development plan policies and supplementary design guidance (ibid). According to CABE (2003, p.19) development control is the process through which a local authority determines whether a proposal for development should be granted planning permission, and how the control process used will determine how far the design policies in development plans and supplementary planning guidance are respected and applied. Development control should be seen as a positive means of guiding planning applicants towards fulfilling both their own objectives and public policy.

As mentioned by DETR (2000, p.9) successful urban design requires a full understanding of the conditions under which decisions are made and development is delivered. Many factors determine or influence the outcome of the design process. It depends on:

- A clear framework provided by development plans and supplementary guidance delivered consistently through development control.
- A sensitive response to the local context.
- Judgements of what is feasible in terms of economic and market conditions.
- An imaginative and appropriate design approach by those who design the development and the people who manage the planning process.

The planning system provides the means to encourage good design. The appearance of a proposed development and its relationship to its surroundings are relevant to the consideration of a planning application (DETR, 2000, p.9). How can development form achieve the urban design objectives? As noted by DETR (2000, p.17) lists of objectives and aspects of form can aid writers of policy and guidance and decision-makers by asking a series

of questions. These questions should draw together urban design objectives and aspects of development form. For example, what form of layout would help to achieve a particular objective in this context depending on what is considered relevant?

Loew (1997) pointed out that the nature of policy and guidance is developed in a sequence from goals, objectives, design principles, prescriptive and performance design guidelines, up to advice procedures and implementation devices. These terms are often used very loosely in the literature and in practice, and lead to confusion between development briefs, design briefs, design guidelines, and other similar terms. Punter and Carmona (1997) clarified the relationship between design objectives, design principles and design guidelines, which are summarized into the following diagram (Figure 2.8) that identifies the key components of design policy.

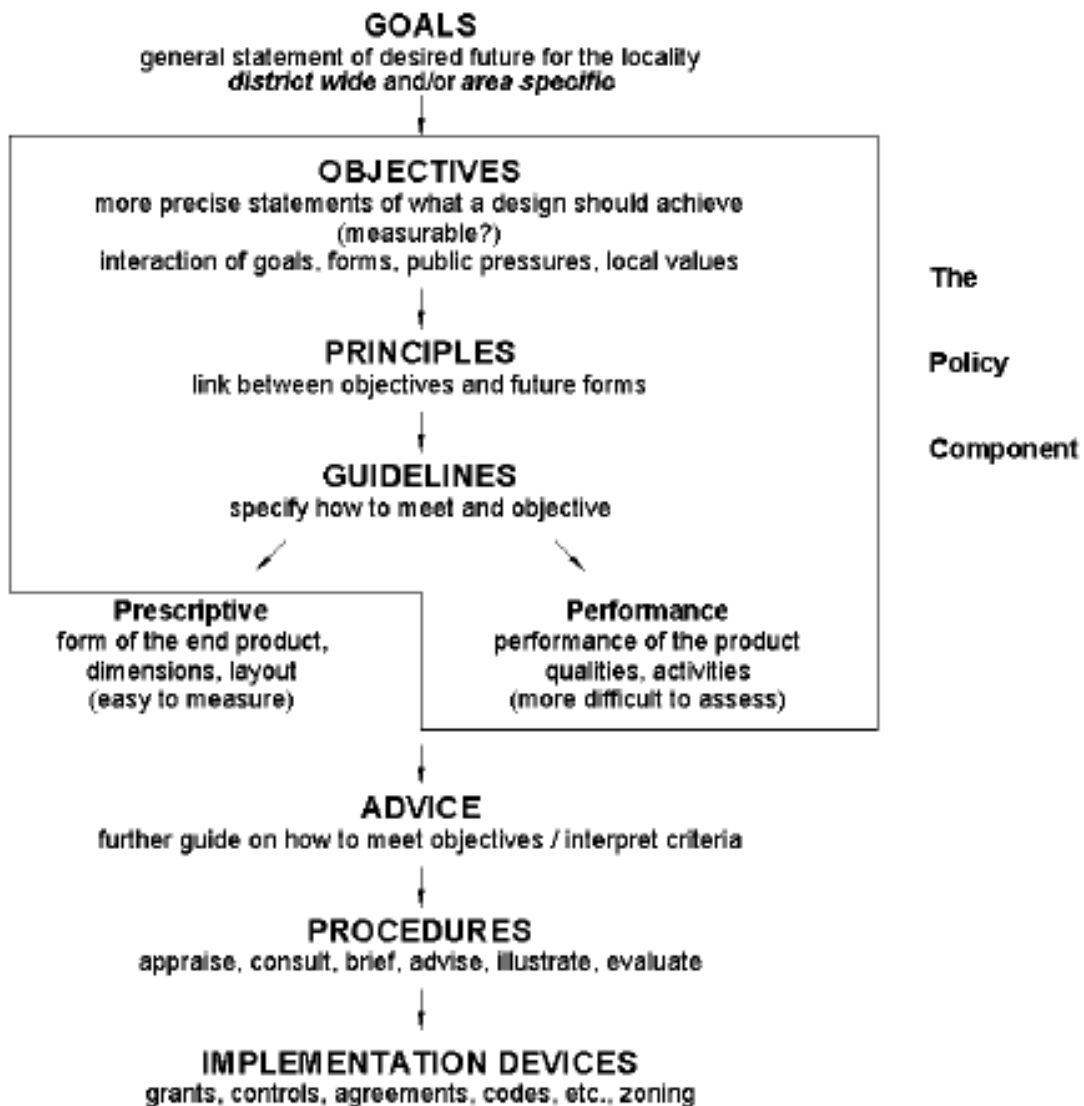


Figure 2. 8 key components of design policy. Source: Punter and Carmona (1997)

According to Punter (1999, p.28-33) Urban design is primarily a process. This process may begin with an evaluation of the site and its surrounding, then may develop design briefs and key principles, provide public consultation and advice, illustrate and explain the proposals, and finally the criteria for evaluation and monitoring of the end product. Furthermore, the strategy can be expressed in a set of design principles, against which the application can be

measured. These design principles are then incorporated into the design guidelines, which should be detailed, not visionary, and employ precise language. Some expressions, such as "creating a nice and lively urban environment" are visionary. It is the nature of such visionary design to be abstract or even philosophical. To be doable, such a design vision must be translated into a set of strategies to achieve it (Poerbo, 2001, p.80).

2.5.6 The implementation tools in urban design

It refers to the tools that can be used to facilitate high-quality urban design. MFE (2009, p.vi) identified urban design tools as specific techniques that can be applied at appropriate stages in the design or project planning process to facilitate quality outcomes. According to MFE, (2009, p.vi) the tools can be grouped into five themes, which reflect the life-cycle stages of most urban design projects. These are:

Research and analysis tools: are essential for understanding the urban context and character of the urban environment, and should be used in the first steps of a project. They identify the qualities that enlighten design development and decision-making. It encompasses the history, physical form and the behaviour of the people. Common topics for urban design research include the analysis and aspects of activity, accessibility and liveability. These tools can be used in various ways, for example, an urban design audit or character appraisal of a site or may involve analytical techniques, such as a walk-through, studies of urban morphology and building typology and archive research (MFE, 2009, p.1)

Community participation tools: encourages community involvement and informing initiatives, to develop appropriate and effective urban design solutions. Quality urban design is founded on a sound understanding of local knowledge, values and needs. True community participation enables people to influence, and be part of, urban design decision-making processes. By identifying community concerns and issues, tools would be used to provide information on user needs, values and expectations and incorporate them in decision-making and approval process in a constructive way (MFE, 2009, p.30).

Raising awareness tools: for increasing understanding and promoting quality urban design processes and projects. Knowledge of design possibilities will help people participate in constructive ways. Knowledge encourages people to take responsibility for local issues and gain ownership over 'their' place. The informed community is more likely to support and insist on high-quality design initiatives (MFE, 2009, p.42).

Planning and design tools: for describing intended design outcomes, these tools create a vision and set a framework for integrated development; these tools vary in scale depending on the boundaries of the design framework. They set out comprehensive design strategies that provide the means to describe, coordinate and apply quality design intentions in complex urban situations. Planning and design tools promote quality urban design, focusing on the opportunities, and contributing to the design process through the provision of a sound policy context (MFE, 2009, p.61).

Implementation tools: for establishing processes and organising people and resources, Implementation tools offer different mechanisms for the delivery of quality urban design

outcomes, and are used by professionals to manage, motivate and organise urban design projects. The implementation tools focus on the means of building quality urban design projects, they can be considered through all stages of an urban design project, further, they focus on discussing and resolving design issues before the construction of a project, to provide collaborative management structures, and develop creative design solutions (MFE, 2009, p.106). As mentioned by Biddulph (2011, p.86) The success of master plans reflects the principles and stages discussed above and outlined in the urban design studies, but also embraces a number of additional qualities depending on the project context.

2.6 Theoretical framework for selection of the urban design principles

Developing an assessment strategy to evaluate the sustainability of the urban regeneration projects in historic cities in Iraq is the main aim of the current research. The previous studies stressed a number of areas that should be considered during the urban design process for enhancing the sustainability of urban regeneration projects, for example Colantonio and Dixon (2011, p.158) identified five dimensions of urban sustainability including: Economic, Social, Environmental, physical (Built environment) and cultural. Based on the current research limitations and approach, the physical dimensions formed the basis for developing assessment strategies in the current study and which stem from the literature review and case-studies analysis. According to CABE (2003, p.7) the physical expression of urban design is one of the sustainable development forms, which consists of the relationships, shape and size of buildings, structures and spaces, which in turn influence the user's activity and movement in a place and so is fundamental to the success of a place. With reference to these studies, a number of design principles contributing to sustainable development can be identified for relevant and appropriate urban design considerations.

Colantonio and Dixon (2011, p.34) introduced the framework for sustainability assessment against social criteria at multiple levels as shown in figure (2.9). The framework pinpoints the fundamental guiding role played by principles and themes in sustainability frameworks and the importance of sustainability assessment indicators in the process. The figure illustrates how the overarching milestones of social sustainability are guided by four principles and policy actions. These principles provide guidelines to achieve sustainability in seven themes, ranging from 'living' to 'moving'. Indeed, a guide to the implementation of the framework, identifies the characteristics required to 'live', 'work', 'play' and so on in an equitable, inclusive, safe and adaptable way. As mentioned by Holden (2006) the interrelationships between principles and themes, underpin the progress towards sustainability, this progress is monitored through a set of urban sustainability indicators that draw upon expert based or citizen-based recommendations, which are gathered also through the work of urban observation.

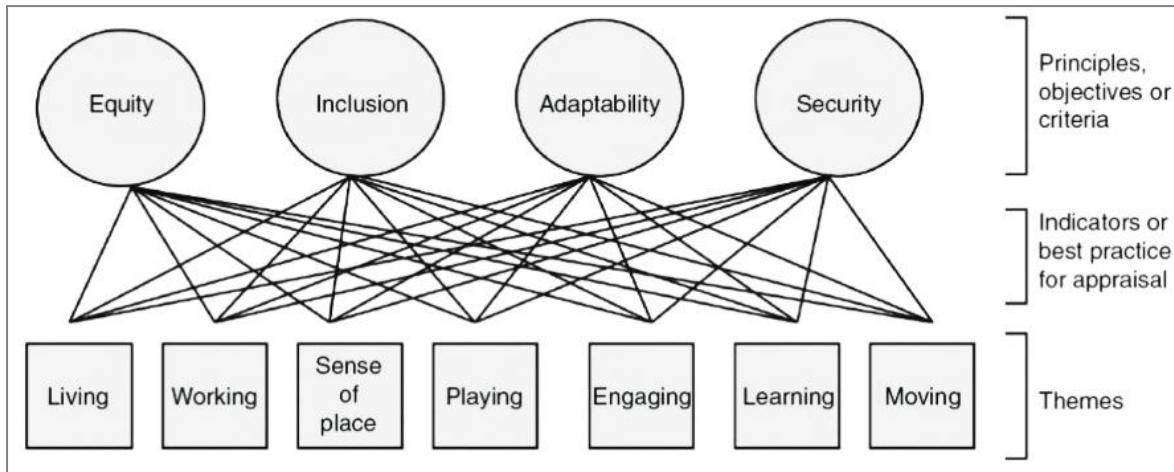


Figure 2.9 Framework for social sustainability assessment in Vancouver. Source: Colantonio and Dixon (2011, p.34).

Based on the framework in figure (2.9), the basis for developing a physical sustainability assessment strategy to the historic cities in Iraq can be formed, the hierarchy of framework including; Theoretical (*approaches*), Policy (*principles and objectives*) and Practical (*methods, themes and indicators*) (as illustrated in figure 2.10). The next parts will address the analysis of sustainability of the physical environment which is represented by the urban design, by examining the approaches, principles and indicators of urban design. This will set up the strategy for the evaluation of urban regeneration projects in Iraqi historic cities.

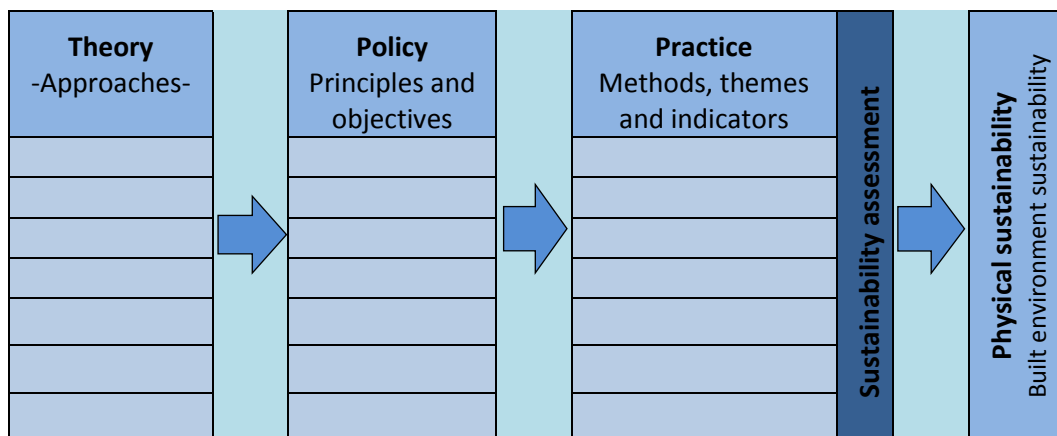


Figure 2.10 Urban physical sustainability assessment frameworks. Source: modified from Colantonio and Dixon (2011, p.216).

2.6.1 Identification of the key urban design objectives and principles

According to DETR (2000) and Cookson Smith (2000) good urban design cannot be achieved unless the underlying principles are highlighted and expressed in more concrete terms. The design of the built environment is faced by two problems; first, defining the exact scope and nature of good urban design and second, making objective judgements about the relative merits or otherwise of particular design solutions (CABE et al., 2001, p.17). Analyses of these factors would produce principles or objectives of good urban design and considerable overlap between them will help to create successful places (DETR, 2000, p.15).

Lee (2003) highlighted that there are no consistent and definite rules for good urban design in most of related literature, rather various scholars and urban planners have their own preferences, principles or considerations when designing urban areas. Based on the research approach in dealing with the existing built environment (historic city centres in Iraq), the mutual influence of the sustainability dimensions and the limitation of the study scope, this research focused mainly on the physical aspects of built environment to study the assessment of urban design and regeneration initiatives. As a starting point, it is important to have some overall concepts of what constitutes good design to provide a basis on which to make informed judgements. The current study adapted its framework from a combination of existing assessment models of urban design, cultural regeneration and building development, to assess the effectiveness of the role of urban design in a particular case-study of existing heritage quarters.

Wansborough and Mageean (2000, p.188) identified several urban design concepts which focus on the processes by which the built environment is created and which are synergic with the essential components of cultural strategies, in terms of developing strategy frameworks which can encourage and support such characteristics. The design guidelines published by DETR (2000) indicated 8 main aspects that define the physical form of development fulfilling the urban design principles to create a successful place, these are: own identity; attractive and successful outdoor areas; variety and choice; distinguished public and private spaces; easy to get to and move through; a clear image and is easy to understand; and that can change easily. Lee (2008, p.53) identified a number of principles for the most relevant urban design considerations that should be considered in securing the quality of urban design. A total of 5 major design principles are highlighted for each of 3 sustainable dimensions- Economic dimensions contains (*efficiency, cost effectiveness, flexibility, accessibility, variety*), Social dimensions contains (*convenience, satisfaction, visual impact, health & safety, identity*), Environmental dimensions contains (*reduction, recycle, optimization, replacement, reuse*)- based on these principles 46 urban design considerations are then shortlisted for his study.

Accordingly, in the current study, a number of urban design principles contributing to the physical and visual sustainable urban development dimensions need to be identified for the most relevant and appropriate urban design considerations. Figure (2.11) shows the theoretical framework for selecting the appropriate urban design principles that are adopted for the current study. These principles are not definitive but represent the most important typical design variables extracted from the literature. Following that, the key principles/aspects of urban design are set out, which are adopted in the current study as shown in table (2.7). These principles and aspects are developed with specific reference to regeneration and development issues and provide a basis for starting to think about a site or area for the refurbishment of an existing urban area. They are emphasised in broad design principles or objectives published in various design standards. The design principles in table (2.7) establish a benchmark requirement of the design quality expected from the new buildings and adjoining spaces. These principles are informed by the need to deliver high

quality sustainable, distinctive, and enduring design, with a complementary relationship to the historical context.

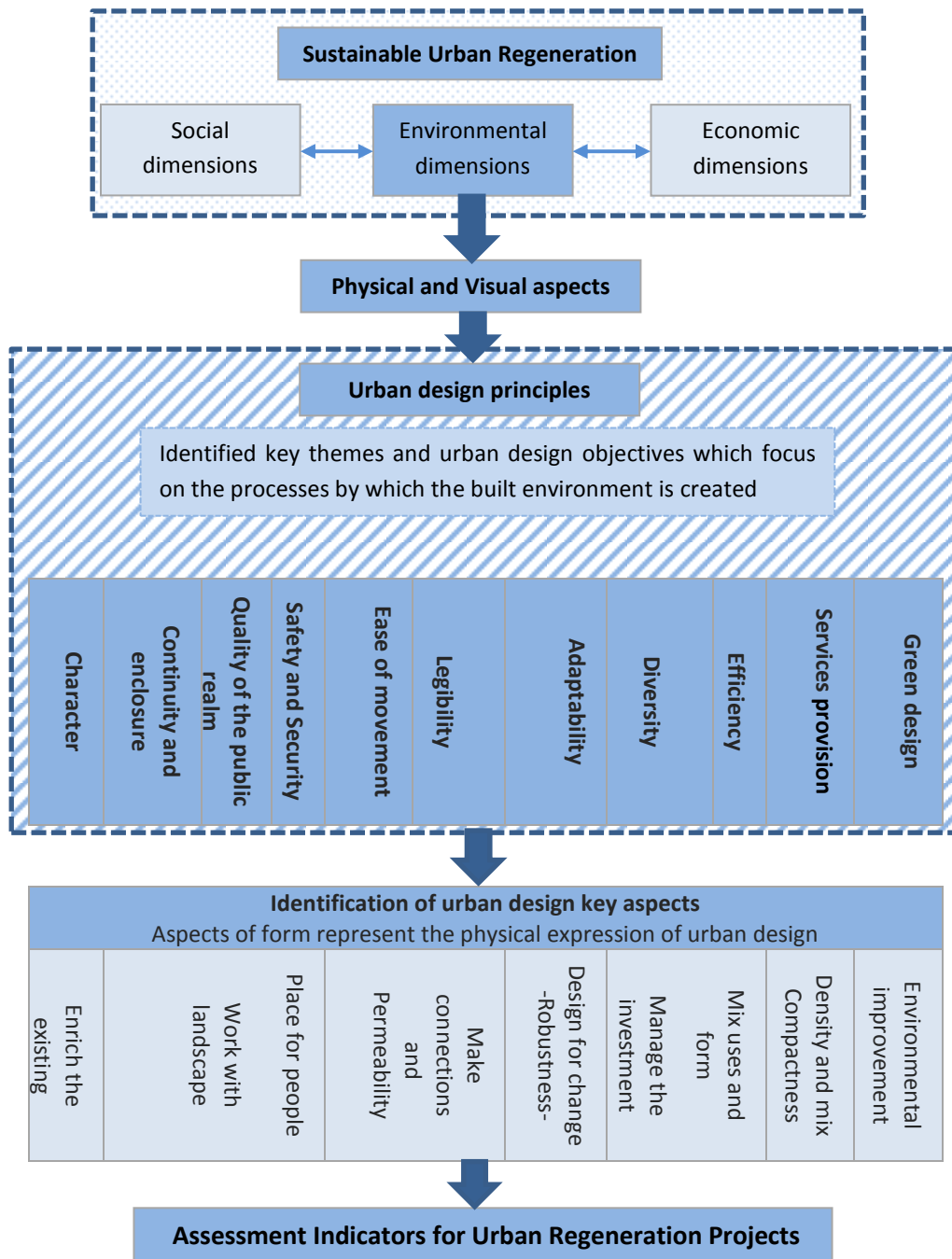


Figure2. 11 Theoretical frameworks for selection of the urban design principles.
Source: Author construct based on (DETR, 2000; CABE et al, 2001; Llewely and Baxter, 2007; Lee, 2008).

Table 2. 7 Definitions of urban design principles (objectives) that are adopted in the current research.
Source: Author elaboration, based on literature review

Urban design principles	References
<p>Character Sense of place and history <i>A place with its own identity (DETR, 2000)</i> <i>A place that responds to and reinforces locally distinctive patterns of development and landscape (CABE,2003)</i> <i>Appreciating the context (Llewelyn &Baxter, 2007)</i></p> <p>Aims to promote character in townscape and landscape by responding to and reinforcing locally distinctive characteristics and patterns of development, landscape and culture.</p>	<p>DETR, 2000; CABE, 2003; Llewelyn & Baxter, 2007; RBC, 2007; Lee, 2008; Yeang et al., 2008.</p>
<p>Continuity and enclosure: Clarity of form <i>A place where public and private spaces are clearly distinguished (DETR, 2000 ;CABE, 2003)</i></p> <p>Aims to promote the continuity of street frontages and the enclosure of spaces by development which clearly defines private and public areas. In more details Ewing et al (2005, p.6) mentioned that Enclosure refers to the degree to which streets and other public spaces are visually defined by buildings, walls, trees, and other elements. The height of vertical elements is proportionally related to the width of the space between them and indicates to compact and intensive development.</p>	<p>DETR, 2000; CABE, 2003; Ewing et al., 2005; Lee, 2008 ; Yeang et al, 2008.</p>
<p>Quality of the public realm: Sense of wellbeing and amenity <i>A place with attractive and successful outdoor spaces (DETR, 2000), (RBC, 2007).</i> <i>A place with public spaces and routes that are lively and pleasant to use (CABE, 2003)</i></p> <p>Aims to promote public spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people (DETR, 2000), to maximize community participation and to plan for comfort and quality living.</p>	<p>DETR,2000; Wansborough & Mageean, 2000; CABE,2003; RBC, 2007; Lee, 2008; Yeang et al., 2008.</p>
<p>Ease of movement: Connectivity and permeability <i>A place that is easy to get to and move through (DETR, 2000)</i> <i>Convenient , efficient & safe environment for pedestrians & public transport users (Lee, 2008)</i></p> <p>Aims to promote accessibility and permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport (DETR, 2000). In more details Linkage refers to physical and visual connections from building to street, building to building, space to space, or one side of the street to the other which tend to unify disparate elements. Tree lines, building projections, marked crossings all create linkage (Ewing et al, 2005).</p>	<p>DETR, 2000; Ewing et al,2005; RBC, 2007; Lee, 2008; Yeang et al., 2008; Biddulph, 2011.</p>
<p>Legibility: Ease of understanding <i>A place that has a clear image and is easy to understand (DETR, 2000 ;CABE, 2003; Ewing et al, 2005)</i></p>	<p>DETR, 2000; CABE, 2003; Ewing et al., 2005; NHDC, 2007; RBC, 2007; Yeang et</p>

<p>Aims to promote legibility through development that provides recognisable routes, intersections and landmarks to help people find their way around (DETR, 2000). According to Ewing et al (2005) Legibility refers to the ease with which the spatial structure of a place can be understood and navigated as a whole. It is improved by a street or pedestrian network that provides travellers with a sense of orientation and relative location and by physical elements that serve as reference points.</p>	<p>al., 2008.</p>
<p>Adaptability: Ease of change <i>A place that can change easily (DETR, 2000; CABE, 2003)</i> <i>Rehabilitation of repairable properties (Lee, 2008)</i></p> <p>Aims to promote adaptability through development that can respond to changing social, technological and economic conditions (DETR, 2000).</p>	<p>DETR, 2000; CABE, 2003; RBC, 2007; Lee, 2008; Yeang et al., 2008.</p>
<p>Diversity/ Complexity Ease of choice/ Design for change <i>A place with variety and choice (DETR, 2000)</i> <i>A place with variety and mixed uses (CABE, 2003)</i></p> <p>Aims to promote diversity and choice through a mix of compatible developments and uses that create viable places that respond to local needs (DETR, 2000). In the same meaning complexity refers to the visual richness of a place and depends on the variety of the physical environment, specifically the numbers and kinds of buildings, architectural diversity, landscape elements, and human activity (Ewing et al, 2005).</p>	<p>DETR, 2000 ; CABE, 2003 ; Ewing et al,2005; Llewelyn &Baxter, 2007; RBC, 2007; Yeang et al., 2008</p>
<p>Efficiency: Green construction <i>Appropriate use of resources, including land (Yeang et al, 2008)</i> <i>proper mix and balance of land use</i></p> <p>It is about consumption of land and space available in a development in an economical and organized way with a minimum of waste, expense, or unnecessary effort (Lee, 2008, p.121). As mentioned by (Llewelyn & Baxter, 2007, p.50) depending on the site, there is a hierarchy of considerations as to how to use renewable energy resources, such as: sun, rainwater, ground and wind. Whilst maximising the contribution of these resources, it is important to minimise environmental demands and ensure the efficient conversion or disposal of waste.</p>	<p>Llewelyn & Baxter, 2007; Lee, 2008; Yeang et al., 2008; Llewellyn et al., 2008.</p>
<p>Safety and Security Sense of safety <i>Ensuring places are safe, secure, and welcoming (RBC, 2007)</i></p> <p>Are vital elements in any urban redevelopment, and the perception of safety or danger does not always relate directly to actual incidence of crime. The integrated design is an important instrument in enhancing the sense of well-being and making places more user-friendly, easy to understand and secure (Llewelyn & Baxter (2007, p.106). As mentioned BY RBC (2007, p.15) the visitors must feel that places are welcoming, and businesses must be able to operate in a safe and secure environment.</p>	<p>Llewelyn and Baxter, 2007; RBC, 2007; Yeang et al., 2008.</p>
<p>Services provision Compactness/ Provision and access to public facilities <i>an appropriate and high quality services infrastructure (CABE, 2004)</i> <i>The possibility of approaching the public facilities are located (Lee, 2008)</i></p>	<p>CABE 2004; Lee,2008</p>

<p>public facilities refers to the facilities that are essential to support the daily necessity of the community, and quality of life of the public, which include as example; public buildings, structures, or systems used for functional, institutional, educational, medical, recreational and cultural purposes e.g. markets, fire stations, hospitals, sports venues, etc. the access to these facilities refers the possibility of approaching the places where the public facilities are located by roads, streets or pedestrian walkways (Lee, 2008, p.122).</p>	
<p>Green Design <i>Minimising the impact on our environment (RBC, 2007)</i> <i>Reduce the impact of development on climate change.</i></p> <p>It refers to the design that optimizes the use of sunlight (for lighting and heating) and air movement (for ventilation and cooling). Appropriate solar orientation, use of thermal mass, proper window placement, sunshades or balconies are some common examples of passive design. while Green Construction is related to the construction measures that minimize the consumption of energy and other natural resources or use them in an effective and efficient way, for example; reuse and recycling of materials; use of renewable materials ; installation of environmental benign equipment (Lee, 2008, p.123).</p>	<p>RBC,2007;Lee,2008;</p>

2.6.2 Aspects of form development and successful place

As mentioned by DETR (2000, p.17) effective design policy and design guidance is likely to focus on how form development can achieve the urban design objectives. The objectives and aspects of form are prepared in order to encourage writers of policies and decision-makers to ask a series of questions which should draw together urban design aspects of development. Stiles et al. (2009, p.4) defined the design of built environment as integrating all aspects relating to the conditions of the place, the needs of the users, the expectations of the client, the demands of society and spatially functioning concept. According to (CABE, 2004, p.55) the character of a place is influenced by many factors, including the natural features around the place; the historic structure and the layers of development which have influenced the built form of the area; the landmark buildings and traditional building types; the green spaces and landscape framework and the nature of the streets and spaces and the relationships between the public and private realm.

This theoretical introduction considers the essential ‘urban design and architectural’ aspects of the treatment of urban spaces at three different levels (table 2.8), ranging from the wider urban context through the site design itself, to the use of materials and their detailing. Obviously this is a very large topic and here only the main aspects are covered in outline. These aspects will help to develop the assessment strategy for urban design projects at the national level, thereby putting these theoretical principles into practice. After defining the principles and aspects of urban design that are appropriate for the current research objectives, it is then necessary to define the indicators for measuring the level of sustainability of urban regeneration projects. According to Vehbi and Hoskara (2009, p.723) sustainability indicators are the tools used to measure changes in the physical, economic and social structures of an urban area.

Table 2. 8 Elements of urban design (key aspects or assessment criteria of urban design). Source: Author collection from literature review

Aspects of development form	Concepts associated with the term	References
Urban form -Layout	Urban structure	(DERT, 2000; CABE , 2003 ;GBCA & ISCA ,2011)
	Morphology	(CABE , 2003 ; NHDC , 2007)
	Urban grain	(DERT, 2000; CABE , 2003 ; GBCA & ISCA ,2011)
	Topography	NHDC , 2007
Scale	Height	DERT, 2000; CABE ,2003 ; NHDC , 2007; GBCA & ISCA ,2011)
	Massing	DERT, 2000; CABE , 2003 ; GBCA & ISCA ,2011; NHDC , 2007)
	Density and mix	DERT, 2000; CABE,2003; GBCA & ISCA ,2011)
Public realm	Environmental improvement	(Wansborough & Mageean, 2000)
	facade & interface	CABE ,2003; GBCA & ISCA, 2011
	Enrich the existing	(Llewelyn &Baxter, 2007)
	Architectural styles	(NHDC, 2007)
	Places for people	(Llewelyn &Baxter, 2007)
	Place making	(Wansborough & Mageean, 2000)
	Cultural activity	(Wansborough & Mageean, 2000)
Security	(NHDC, 2007)	
Landscape	Streetscape & landscape	(DERT, 2000; CABE,2003 ; GBCA & ISCA ,2011)
	Work with the landscape	(Llewelyn &Baxter, 2007)
	Streetscape elements	(NHDC, 2007)
Density and Mix	Density and mix	(DERT, 2000; CABE , 2003 ; GBCA & ISCA, 2011)
	Mix uses and form	(Llewelyn &Baxter, 2007)
	Compactness	CABE 2004; Lee, 2008
Appearance	Details	(DERT, 2000; GBCA & ISCA , 2011)
	Materials	(DERT, 2000; GBCA & ISCA , 2011)
Manage the investment	Design strategy	(Wansborough & Mageean, 2000)
	Manage the investment	(Llewelyn &Baxter, 2007)
Design for change	Efficiency	(Llewelyn & Baxter, 2007)
	Building development	(Wansborough & Mageean, 2000)
	Robustness	(Biddulph, 2011)
Make(ing) connections	Community participation and access	(Wansborough & Mageean, 2000)
	Circulation, Demand and Linkages	(NHDC, 2007)
	Parking	(NHDC, 2007)
	Make connections	(Llewelyn & Baxter, 2007)
	Permeability	(Biddulph, 2011)

As shown in Table (2.7) a total of 11 major urban design principles are highlighted for relevant physical development dimension with literature backup. The list of urban design principles and aspects have been extracted from previous studies or urban design guidelines, and used as the basis, to draw the assessment indicators. Based on these principles a total of

71 urban design indicators are then derived for this study and discussed in the next paragraphs. The identified principles and indicators are not definitive; rather, the most typical and appropriate design variables are included.

2.6.3 Identification of the indicators of urban design assessment

Indicator, according to SEP (2015, p.8) is “a parameter, or a value derived from parameters, which points to, provides information about, and/or describes the state of a phenomenon/environment/area, with a significance extending beyond that directly associated with a parameter value”. Urban design principles are by themselves abstract, they have an impact on people’s lives only by being translated into development (DETR, 2000, p.17). The form of buildings, structures and spaces is the physical expression of urban design. It is what influences the pattern of uses, activity and movement in a place, and the experiences of those who visit, live or work there.

SEP (2015, p. 5) identified urban sustainability indicators as tools that allow planners, city managers and policymakers to gauge the socio-economic and environmental impact of, for example, current urban designs, infrastructures, policies and pollution. They allow for the diagnosis of problems and pressures, and monitor the success and impact of sustainability interventions. The agreement that defines the overall objectives and outputs that are measured using a selection of indicators is known as Indicator set, while the Index is a set of aggregated or weighted parameters or indicators (ibid). As mentioned by Hemphill et al. (2004a, p.729) indicator selection depends on the nature of the research being carried out, the policy under evaluation and the importance placed upon the results in terms of decision-making. Also there is no recognised common practice to select indicators for analytical use. Indicators must be capable of satisfying various criteria in terms of being scientifically sound, technically robust, easily understood, sensitive to change, measurable and capable of being regularly updated (DETR, 1998). Therefore, it is important to select the relevant indicators into manageable steps in a systematic manner to ensure that the key indicators are not overlooked in the selection.

Coombes and Wong (1994) cited in Hemphill et al.(2004a, p.729) illustrate a four-step procedure in determining the selection of indicators on a systematic basis as shown in figure (2.12). These four-steps have been useful in leading towards the derivation of indicators in an orderly and logical fashion. By articulating the urban design principles and aspects, which define the *overall urban form* of the place, *its scale, its public realm, its landscape, density and mix, its appearance, design for change* etc., the current research sets out the key assessment indicators of the physical form of development in the historic built environment as shown in tables (2.10-2.20).

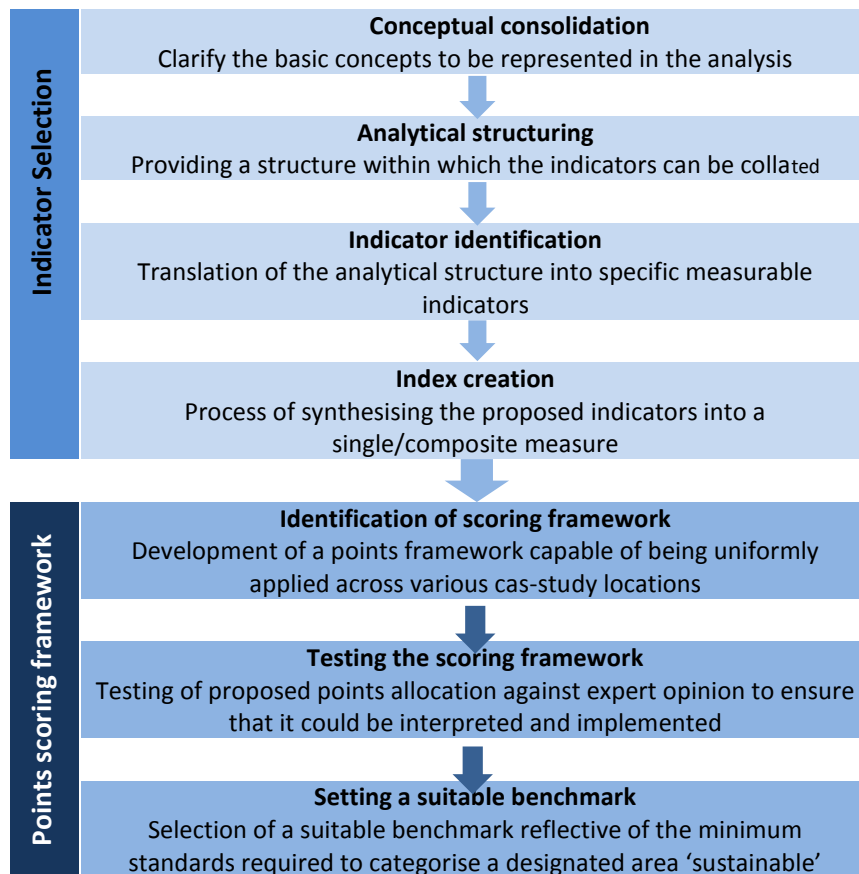


Figure2. 12 Indicators selection approach and points scoring phase.
Source: [Hemphill et al. \(2004a, p.730\)](#).

[Llewellyn et al. \(2008\)](#) identified 12 questions to encapsulate the range of urban design considerations. The questions were formulated by extraction of a range of urban design and sustainability principles, to assess the sustainability of development proposals. These questions can be used as a basis for structuring design and access statements; they can also help to structure pre-planning negotiations between applicants and planning authorities. The questions will promote a consistency of approach that will serve to improve planning processes and, therefore, improve the quality of development outcomes. They will also serve to foster a more collaborative approach between developers, designers and planners with each working towards a common objective of reaching an optimal design solution. In the current research, these questions are translated into the 15 assessment criteria (table 2.9) that have been linked with the main urban design principles. Tables (2.10 to 2.20) show how the questions can be utilised to form the assessment model in the planning process (represents the practical section).

Table2. 9 Questions that frame the range of urban design considerations and associated design criteria. Source: summarised from [Llewellyn et al. \(2008\)](#).

	Questions that frame the urban design considerations	Related criteria
1	How does the development respond to its surroundings?	Context
2	How well connected is the new neighbourhood?	Connections
3	How easily can people use and access the development?	Inclusivity
4	How does the development promote a good mix of activities?	Variety Compactness
5	How does the development make appropriate use of resources, including land?	Efficiency Green design
6	How does the proposal create a sense of place?	Distinctiveness
7	How does the proposal create people friendly streets and spaces?	Layout
8	How safe, secure and enjoyable are the public areas?	Public Realm Sense of safety
9	How will the buildings cope with change?	Adaptability
10	How does the scheme provide a decent standard of amenity?	Privacy and Amenity
11	How will the parking be secure and attractive?	Open spaces and Parking
12	How well thought through is the building and landscape design?	Detailed Design

By linking the urban design consideration and principles -as elaborated above- with related assessment criteria of design quality, the value of urban design can be measured as shown in detail in the following tables.

Table2. 10 Criteria for urban design principle A and their associated assessment indicators. Source: Author's elaboration	
Urban design Principle - A	Character Sense of place and history
Performance criterion 1	Context How does the development respond to its surroundings? (Llewellyn et al., 2008) Refers to a new development that complements surrounding neighbourhood, and blends in with the physical characters of the surrounding properties (Lee,2008)
Assessment indicators (positive impacts)	The regeneration scheme seems to: Ind.1: Positively contribute to the character and identity of the surrounding neighbourhood properties (Llewellyn et al, 2008 ; RBC, 2007). Ind.2: Incorporates the heritage, culture and historical context of surrounding communities and places (CABE, 2003 ; RBC, 2007 ; GBCA & ISCA, 2011). Ind.3: Integrate with the physical environment, including its topography, biodiversity (micro-climate), landscape and views, existing buildings, streets and infrastructure (DETR, 2000 ; Llewellyn et al, 2008 ; Lee, 2008 ; GBCA & ISCA, 2011). Ind.4: Be compatible with the surrounding social and economic activities (Llewellyn et al, 2008 ; GBCA & ISCA, 2011). Ind.5: respect the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users when increasing in density (Llewellyn et al., 2008).
Performance criteria 2	Detailed Design How well thought through is the building and landscape design? (Llewellyn et al., 2008) it concerns physical characters and configuration of building including appearance, density, height, mass, etc. (Lee,2008)
Assessment indicators (positive)	In the regeneration scheme : Ind.1: The materials and external design make a positive contribution to the locality (Llewellyn et al, 2008).

impacts)	<p>Ind.2: Satisfactory visual appearance of the properties in terms of appropriate height and bulk of individual buildings (Lee,2008)</p> <p>Ind.3: The landscape design facilitates the use of the public spaces from the outset (RBC, 2007; Llewellyn et al., 2008).</p> <p>Ind.4: Acceptable density of development within regeneration site in terms of Plot Ratio (PR= total gross building floor area / total site area to be regenerate) (Lee,2008)</p> <p>Ind.5: Design of the buildings and public space will facilitate easy and regular maintenance (RBC, 2007), (Llewellyn et al., 2008).</p>
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Table2. 11 Criteria for urban design principle B and their associated assessment indicators. Source: Author's elaboration

Urban design Principle B	<p>Continuity and enclosure Clarity of form <i>A place where public and private spaces are clearly distinguished (DETR,2000;CABE,2003)</i></p>
Performance criterion 1	<p>Layout How does the proposal create people friendly streets and spaces? (Llewellyn et al. , 2008)</p>
Assessment indicators (positive impacts)	<p>The regeneration scheme shows:</p> <p>Ind.1: Layout ensures that there is continuity in the frontages of streets and spaces through buildings relating to a common building line, street blocks or alongside public spaces; to create permeable routes and define the street (DETR, 2000; RBC, 2007; Llewellyn et al., 2008).</p> <p>Ind.2: The streets are designed as places, helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers (Llewellyn et al., 2008)</p> <p>Ind.3: Block layout places some public spaces in front of building lines as squares or greens, and some semi private space to the back as communal courts (Llewellyn et al., 2008).</p> <p>Ind.4: The layout focuses activities on the streets by creating active frontages with front doors directly serving the street (Llewellyn et al., 2008)</p> <p>Ind.5: Traffic speeds are controlled by design and layout rather than by speed humps (Llewellyn et al., 2008)</p>
Performance criterion 2	<p>Privacy and Amenity How does the scheme provide a decent standard of amenity?</p>
Assessment indicators (positive impacts)	<p>In the regeneration scheme :</p> <p>Ind.1: the design maximises the different use of front and backs of buildings, and ensures that entrances to properties are located in a way to distinguish between private and public spaces (DETR, 2000; RBC, 2007; Llewellyn et al., 2008).</p> <p>Ind.2: Clearly defining and enclosing useable private outdoor space, that provides for better privacy and security (DETR, 2000; Llewellyn et al., 2008)</p> <p>Ind.3: Development helps to define the relationship between the public spaces fronts of buildings and the streets for the benefit of their respective uses (DETR, 2000).</p> <p>Ind.4: The design reduces noise transmission and achieves visual privacy by appropriate layout and the windows- size, position and direction-which are sited to avoid unwanted views (Llewellyn et al, 2008).</p>

Table2. 12 Criteria for urban design principle C and their associated assessment indicators. Source: Author's elaboration

Urban design Principle C	<p>Quality of the public realm Sense of wellbeing and amenity</p>
Performance criterion 1	<p>Public Realm How safe, secure and enjoyable are the public areas? (Llewellyn et al., 2008). Refers to the "open spaces" which define the public/private areas designed for recreational uses, conservation of the natural environment, or for amenity and visual purposes (Lee,2008)</p>

Assessment indicators (positive impacts)	<p>In the regeneration scheme:</p> <p>Ind.1: The public realm is considered as a usable integrated element in the design of the development (Llewellyn et al., 2008).</p> <p>Ind.2: There is a clear definition between public, semi-private, and private spaces (Llewellyn et al., 2008).</p> <p>Ind.3: The public open spaces are overlooked by surrounding buildings so that this amenity is owned by the residents or users and allows natural surveillance, feels safer and safe to use (DETR,2000; Llewellyn et al., 2008).</p> <p>Ind.4: Roads and open car parking are considered as an integral landscaped element within the public realm design and are treated accordingly (Llewellyn et al., 2008).</p> <p>Ind.5: Ground floors are designed to make a positive contribution to the street scene and create an active building frontage, with interesting uses that relate directly to passing pedestrians (DETR, 2000; RBC, 2007).</p>
Performance criterion 2	<p>Open spaces and Parking</p> <p>How will the parking be secure and attractive? (Llewellyn et al., 2008)</p>
Assessment indicators (positive impacts)	<p>The regeneration scheme shows:</p> <p>Ind.1: The design of public open and green spaces respects the natural features, takes account of the micro-climate and is accessible (DETR, 2000).</p> <p>Ind.2: Adequate percentage and proper location of provided open spaces within the regeneration area (DETR, 2000; Lee, 2008).</p> <p>Ind.3: Works of art and street furniture are integrated into the design of public spaces, to give identity and enhance the sense of place (DETR, 2000)</p> <p>Ind.4: Integration of materials and soft landscape elements with the other elements of parking, street and paving in a coordinated way (RBC, 2007; Llewellyn et al., 2008)</p> <p>Ind.5: Parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces (Llewellyn et al., 2008)</p> <p>Ind.6: The car parking is on street or within easy reach from different users and they are overlooked by residents, pedestrians and traffic, or stored in secure underground arrangements (Llewellyn et al., 2008)</p>

Table2. 13 Criteria for urban design principle D and their associated assessment indicators. Source: Author's elaboration

Urban design Principle D	Ease of movement Connectivity and permeability
Performance criterion 1	<p>Inclusivity</p> <p>How easily can people use and access the new development? (Llewellyn et al., 2008).</p>
Assessment indicators (positive impacts)	<p>In the regeneration scheme:</p> <p>Ind.1: New buildings present a positive aspect to passers-by avoiding unnecessary physical and visual barriers (Llewellyn et al., 2008).</p> <p>Ind.2: Appropriate physical design of the pedestrian walkways and pedestrian passages to public transport in terms of location, width and material used (Lee, 2008).</p> <p>Ind.3: Areas defined as public open space that have been either taken in charge or privately managed will be clearly defined, accessible and open to all (Llewellyn et al , 2008).</p> <p>Ind.4: There is a range of public, communal and/or private amenity spaces and facilities for children of different ages, parents and the elderly (Llewellyn et al., 2008).</p>
Performance criterion 2	<p>Connections</p> <p>How well connected is the new development? (Llewellyn et al., 2008).</p> <p>Related to the required quality of the pedestrian walkways e.g. streets, pavements, etc. and mass transport system for the pedestrians and users (Lee, 2008)</p>

Assessment indicators (Positive impacts)	<p>The regeneration scheme shows:</p> <p>Ind.1: The layout links to existing routes and places, in addition to the way the development is laid out which encourages low traffic speeds (DETR, 2000; Llewellyn et al., 2008).</p> <p>Ind.2: The urban structure has an attractive network of connected spaces and routes, for pedestrians, cyclists and vehicles (DETR, 2000; Llewellyn et al., 2008).</p> <p>Ind.3: The layout and density of development help to support efficient public transport and increase accessibility to the site rather than creating big blocks (DETR, 2000; Llewellyn et al., 2008).</p> <p>Ind.4: Transport interchanges in the development's layout promote the use of public transport and provide for seamless movement between all modes of travel (DETR, 2000; Llewellyn et al., 2008).</p>
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Table2. 14 Criterion for urban design principle E and its associated assessment indicators. Source: Author's elaboration

Urban design Principle E	Legibility Ease of understanding
Performance Criterion	<p>Distinctiveness How do the proposals create a sense of place? (Llewellyn et al., 2008)</p>
Assessment indicators (Positive impacts)	<p>The regeneration scheme seems to:</p> <p>Ind.1: The design, location and function of buildings reinforce the identity of the locality (DETR, 2000; Llewellyn et al., 2008).</p> <p>Ind.2: The place has recognisable features so that people can describe where they live and form an emotional attachment to the place (DETR, 2000; Llewellyn et al., 2008).</p> <p>Ind.3: The layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout (Llewellyn et al., 2008).</p> <p>Ind.4: There is a discernible focal point to the proposals that reinforce the role of an existing centre (Llewellyn et al., 2008).</p> <p>Ind.5: The corners design, detailing and quality of materials in the new development improve legibility by creating visual interest and contributing to a distinctive identity (DETR, 2000).</p>

Table2. 15 Criterion for urban design principle F and its associated assessment indicators. Source: Author's elaboration

Urban design Principle F	Adaptability Ease of change
Performance criterion	<p>Adaptability How will the buildings cope with change? (Llewellyn et al., 2008) Refers to the flexibility to respond to future changes in use, lifestyle and demography without substantial alterations of building structures. Or it is about the process of returning dilapidated buildings to a state of utility, through alteration, additions, or renovations (Lee, 2008).</p>
Assessment indicators (Positive impacts)	<p>In the regeneration scheme :</p> <p>Ind.1: Development has flexible layouts and places design is capable of being used for a range of activities (DETR, 2000).</p> <p>Ind.2: The building forms are simple, robust and not tightly designed to a very particular use, allowing for the variety of possible future uses to be accommodated (DETR, 2000).</p> <p>Ind.3: The non-residential portion of the redevelopment is readily allowed for future expansion, improvement and modification involving structural and non-structural alterations (Lee, 2008)</p> <p>Ind.4: The existing properties that have significant values are properly retained and rehabilitated [The percentage of retained existing properties = total retain area/ total construction area in the site x 100%] (Lee, 2008).</p> <p>Ind.5: The residential dwellings are designed to allow for adaptation and subdivision without ruining the character of the types, layout and outdoor space (Llewellyn et al.,08)</p>

Table2. 16 Criterion for urban design principle G and its associated assessment indicators. Source: Author's elaboration

Urban design Principle G	Diversity Ease of choice
Performance criterion	Variety How does the development promote a good mix of activities? (Llewellyn et al., 2008)
Assessment indicators (Positive impacts)	The regeneration scheme seems to: Ind.1: Have a diversity of layout, building form and tenure that contribute to successful living and working environments (DETR, 2000). Ind.2: Create a mix of activities in the most accessible places to attract people to live, work and play in the same area and contribute to meet different needs (DETR, 2000; Llewellyn et al., 2008; GBCA and ISCA, 2011). Ind.3: Have a range of facilities, services and activities establishments per population (GBCA & ISCA, 2011; Shen et al., 2011). Ind.4: Have a rich range of experiences and things to do, such as: how you move around and interact with others, what buildings and spaces look and feel like (GBCA & ISCA, 2011). Ind.5: Have an overall harmonious blend, despite the diversity, and each locality has its own characters and activities that are compatible with those already available in the neighbourhood (Llewellyn et al., 2008; GBCA & ISCA, 2011).

Table2. 17 Criterion for urban design principle H and its associated assessment indicators. Source: Author's elaboration

Urban design Principle H	Efficiency
Performance criterion	Green Construction How does the development make appropriate use of resources, including land? (Llewellyn et al., 2008). The construction measures that minimize the consumption of energy, water and other natural resources and use them in an effective and efficient way (Lee, 2008).
Assessment indicators (Positive impacts)	In the regeneration scheme : Ind.1: The proposal looks at the potential of higher density, taking into account appropriate accessibility by public transport and the objectives of good design (Llewellyn et al., 2008). Ind.2: Landscaped areas are designed to provide amenity and biodiversity, protect buildings and spaces, and incorporate sustainable urban drainage systems (Llewellyn et al., 2008). Ind.3: The scheme brings a redundant building or derelict site back into productive use (Llewellyn et al., 2008). Ind.4: The adopted construction practices in the project, can effectively minimize the consumption of natural resources and use them in an efficient way (Lee, 2008) Ind.5: Buildings, gardens and public spaces are laid out to exploit the best solar orientation (Llewellyn et al., 2008).

Table2. 18 Criterion for urban design principle I and its associated assessment indicators. Source: Author's elaboration

Urban design Principle I	Safety and Security
Performance criterion	Sense of safety A place where the users feel and are as safe as possible (CABE, 2004).

Assessment indicators (Positive impacts)	<p>Regeneration proposals designed to:</p> <p>Ind.1: Ensure design of roads and paths that are safe and convenient for all citizens to walk or walk to the nearest public transport facilities or ride their bikes (Lee, 2008; GBCA & ISCA, 2011; RBC, 2007)</p> <p>Ind.2: Provide a clear distinction between the publicly accessible streets or space and private space associated with individual buildings and groups of buildings (RBC, 2007)</p> <p>Ind.3: Ensure all routes and open spaces are well overlooked by buildings to avoid creating hiding places and segregating pedestrians, cyclists and vehicles (RBC, 2007; GBCA and ISCA, 2011).</p> <p>Ind.4: Concentrate the activity along a network of pedestrian-friendly key routes and public spaces so that these can be “self-policing” (RBC, 2007).</p> <p>Ind.5: Ensure public car parks and secure cycle parking areas are accessible with secure and visible entrances and exits (RBC, 2007).</p>
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Table2. 19 Criterion for urban design principle J and its associated assessment indicators. Source: Author’s elaboration

Urban design Principle J	Services provision
Performance criterion	<p>Compactness The possibility of approaching the places where the public facilities are located (Lee, 2008).</p>
Assessment indicators (Positive impacts)	<p>Regeneration proposals designed to:</p> <p>Ind.1: Consider the factors of distance, comfort and safety when locating the public facilities (Lee, 2008).</p> <p>Ind.2: Provide access to local / neighbourhood public facilities in the residential development ‘that are essential to the daily necessity of community’ can be found within 500m in the regeneration project (Lee, 2008; SCI, 2012).</p> <p>Ind.3: Provide accessible design and adequate facilities for the people regardless of age and physical abilities (Lee, 2008).</p> <p>Ind.4: Provide local services and deal with the volume of generated solid waste (Rosales, 2010; SEP, 2015).</p>

Table2. 20 Criterion for urban design principle K and its associated assessment indicators. Source: Author’s elaboration

Urban design Principle K	Green Design Minimising the impact on our environment RBC (2007)
Performance criterion	<p>Green Design / Environmental improvement Refers to the passive design approach to optimize the use of natural resources (such as: sunlight and air movement), in addition to ensuring that developments are sustainable in terms of their design, layout and density.</p>
Assessment indicators (Positive impacts)	<p>Regeneration proposals designed to:</p> <p>Ind.1: ensure that the layout and orientation of buildings benefit from passive solar gain and using air movement to reduce the mechanical requirements for heating and ventilation (RBC, 2007; Lee, 2008; Llewellyn et al., 2008).</p> <p>Ind.2: locate buildings where they are least exposed to the chilling effect of prevailing winds, using topography, other buildings and tree belts to provide shelter (RBC, 2007)</p> <p>Ind.3: reduce the potential for overheating on south facing facades and the need for mechanical cooling (through appropriate window sizes or blinds, screens or planting to provide shading) (RBC, 2007)</p> <p>Ind.4: provide for natural daylight and sunlight to illuminate the interior of buildings and reducing the need for artificial lighting (RBC, 2007)</p>

2.6.4 Relationship between urban design principles and sustainable urban regeneration

Urban design has to be accountable not just for immediate clients, occupiers and neighbours but also to future generations. According to [REAL \(2007, p.57\)](#) good urban design is sustainable design in its use of resources, and in its contribution to the stability of communities and their economic viability, this not just about changing the way places look but about making places work better. Integrated design requires interdisciplinary working and an understanding of how design decisions in one discipline can have impacts on other areas. [DETR \(2000, p.8\)](#) mentioned that urban design is a key to creating sustainable developments and the conditions for a flourishing economic life, for the prudent use of natural resources and for social progress. Lively places with distinctive character; streets and public spaces that are safe, accessible and pleasant to use can be created by good design.

Regarding the sustainability principles and planning model, [Mason \(2002b, p.27\)](#) referred to the influence of the planning model by sustainability principles in several ways, at several stages. The principles have direct impact at the policy-setting stage; they are designed to serve as tests, or criteria, against which the policies can be judged. Each decision can be evaluated (informally, or with formal indicators) against each of the principles. Therefore, the sustainability principles play the role of guidelines and constitute an ideal, which could shape the setting of project goals, the composition of the stakeholder group, the analysis of significance and management contexts, and the evaluation of project outcomes ([ibid](#)). Accordingly, each one of the urban design principles has to meet-to various extents- the main dimensions of sustainable development, in order to indicate how they increase physical, economic, and social sustainability of a community. [CLG \(2008\)](#) identified some features of sustainable urban design:

- It is through the design process that the greatest impact can be made on the quality, efficiency and overall sustainability of buildings
- It encourages local community identity over big- brand 'anywhere, anyplace' anonymity
- It ensures attention to creating places that respond to people's needs, and helps community cohesion
- It improves longer term 'liveability', management and maintenance of the built environment
- It contributes to the achievement of sustainable development by respecting historical context, making best use of resources, and being able to respond to change.

Based on the above the relationship between urban design principles and the assessment of sustainable urban regeneration can be highlighted. According to [CABE \(2004, p.85\)](#) a good master-plan must be based on understanding the nature of a place before starting the design, and must include a written and drawn urban design analysis. However, tried and tested urban design principles can be used to evaluate its quality by indicating key questions to ask when evaluating the design quality of proposals and the extent to which they will secure well designed projects during implementation. This explains the importance of design quality evaluation and stresses the importance of urban design analysis to balance idealism

with pragmatism. As mentioned by [DETR \(2000, p.17\)](#) effective design policy and design guidance is likely to focus on how development form can achieve the urban design objectives. [Hodge and Hardi \(1997\)](#) mentioned that communities, governments and international agencies are increasingly concerned with establishing a means to monitor performance and to assess progress towards sustainable development or sustainable urban regeneration. According to [Peng et al. \(2015, p.2\)](#) a number of studies have been conducted to measure the sustainability of urban regeneration, among these studies, the indicator system approach emerges as a widely used method for assessing urban regeneration in terms of economic, physical, ecological, and social sustainability. The indicators vary between these studies and the common approaches of acquiring relevant data for assessment are through questionnaires survey, conducting interviews, and obtaining historical records ([ibid](#)). In particular, these indicators represent the urban design principles and criteria which are used to design and assess the physical environment. According to [REAL \(2007, p.134\)](#) the assessment approaches vary, depending on the scale of the project and its objective. The followed approach should be clearly outlined in the brief, with an explanation of how it will be assessed and by whom. The assessment should be reviewed in three stages: objective criteria, assessment approach and the quality balance, balancing design quality with value for money leads to an optimal approach.

2.7 Summary of the Theoretical background

This part of the study introduces a theoretical framework as a guide for creating a conceptual framework and builds the research methodology. The next chapters will illustrate how this framework is translated into the research strategy and methodology. The current study has adopted the objectives of urban design as key principles against which regeneration proposals will be assessed to determine whether they represent good or poor urban design. To achieve this aim a number of questions contained within this context have been formulated to easily guide the assessment of regeneration proposals. By extracting a range of sustainable urban design principles and objectives into relevant questions, the research has sought a more rigorous assessment of these areas at regeneration stages. In the current study, principles of urban design derived from previous studies will be adopted to structure the assessment methodology within the following steps;

First: establishing clear aspects against which judgements on urban design quality could be made.

Second: a general acceptance of the principles adopted, achieved in this case by basing assessment on principles established in various urban design guidelines.

Third: adopting clear indicators for the scoring systems (in detail in chapter 7) to be involved in making judgements about quality.

To make that possible and to avoid simply recording design characteristics, the regeneration cases will be measured against a set of urban design performance criteria and given a mark for how successfully it was judged to have met them.

Chapter 3: Integrated Cultural Heritage and Urban Regeneration

3.1 Introduction

Heritage is a broad concept that encompasses our historic or cultural inheritance. It is a complex whole which includes knowledge, belief, customs, morals, art and any other habits acquired by societies. This chapter provides a discussion on the definitions, related concepts and conservation strategies of urban heritage in addition to discussing the integration of heritage value within the new trends of urban planning and regeneration strategies, in order to achieve a sustainable development process. To conclude, in the context of urban policies and regeneration strategy as well as for the current research purpose, heritage can be defined as those elements of the past that are perceived to attract people and investments, crystallize past life practices and reflect collective memory. These elements need to be considered during the regeneration of historical areas.

3.2 Cultural heritage definition

For the purposes of the present study, the definition used in the Council of Europe has been applied: *Cultural heritage is a group of resources inherited from the past with which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time* (CoE, 2005). However, many authors complement this definition, in the context of the value of cultural heritage, with a notion of a heritage sector constituted by specialised activities involving heritage and related to other social or economic sectors. As mentioned by Rodwell (2007, p.7) Heritage is defined by UNESCO as 'our legacy from the past, what we live with today, and what we pass on to future generations', in this definition heritage is neither limited in time nor restricted to material objects- whether they be historic remains, buildings, artefacts or whatever. Dümcke and Gnedovsky (2013, p.6) identified two strands of cultural heritage value:

a) Cultural heritage as a sector of activities on its own, which provides jobs and generates growth (direct impact, mainly economic but which can include other dimensions of development as well);

b) spill-over social and economic effects of cultural heritage in other fields, such as agriculture, regional development, environment, science and education, tourism, technology, innovation, social cohesion, intercultural dialogue, etc.

Some studies dealt with cultural heritage in general, while others focused on particular types, such as built heritage, movable heritage, archaeological heritage, etc. Natural heritage is considered by some scholars as a part of cultural heritage, as nature is always perceived through a cultural lens, and natural landscapes have often been formed through human activity. In any case, both notions are crucial from the point of view of sustainable development (*ibid*). In general the integrated approaches lead to the formation of historical landscapes or cityscapes as complex protected areas merging different types of heritage.

As mentioned by [UN-HABITAT \(2015, p.1\)](#) the UNESCO Universal Declaration on Cultural Diversity (2001), identified culture as “the set of distinctive spiritual, material, intellectual and emotional features of a society or a social group that encompasses art and literature, lifestyles, ways of living together, value systems, traditions and beliefs”. Urban culture thus covers the notions of culture within an urban setting, from both a functional and anthropological perspective. According to Article 11 of the World Heritage Convention, a natural or cultural property must ‘have outstanding universal value’ in order to find its place on the World Heritage List. The World Heritage Committee indicates its World Heritage Values by deciding on the criteria for inscription. Each property must fulfil at least one of the selected criteria regarding the cultural and/or natural value of the property ([world heritage reports, 2004, p29](#)).

3.3 Urban Heritage definition

According to [UN-HABITAT \(2015, p.1\)](#) urban heritage represents a social, cultural and economic asset and resource reflecting the dynamic historical layering of values that have been developed, interpreted and transmitted by successive generations and an accumulation of traditions and experiences recognized as such in their diversity. Urban heritage comprises urban elements (urban morphology, built form, open spaces, green spaces and urban infrastructure), architectural elements (monuments, buildings) and intangible elements. The conservation of urban heritage relates to urban planning processes aimed at preserving cultural values, assets and resources through conserving the integrity and authenticity of urban heritage, while safeguarding intangible cultural assets through a participatory approach (*ibid*).

Some researchers probed the difference between ‘History’ and ‘Heritage’. According to [Heritage Perth \(2016\)](#) the past is all around us, everywhere has a history and everywhere has a heritage. Communities too have a collective heritage which can include buildings, landscapes, archives and collections of objects gathered by citizens. These all combine to give a unique cultural identity to the people who live in a particular area. Therefore the difference between ‘history’ and ‘heritage’ can be defined as following:

Heritage: something that is passed down from previous generations; a 'tradition', but in more recent times has taken on a much broader definition: Those things from the past which are valued enough today to save for future generations (*ibid*).

History: means 'inquiry', or 'knowledge gained by investigation'. So 'history' is the discovery, collection, organisation and presentation of information about past of people, places and events (*ibid*).

According to [Rodwell \(2007, p.206\)](#) The construct of heritage as something that relates to tangible objects from the past which we may add to today by constructing the monuments of the future-characterised frequently as iconic building, needs to be substituted by a dynamic approach that is focused on processes of safeguarding geocultural identity and securing its continuity. These processes embrace all expressions of interaction between the physical environment and human activity. Not all heritage elements are clear-cut; there are many disputes on the issues related to recent heritage originating in the periods of wars or in the legacy of communist regimes in the Eastern European countries ([Dümcke & Gnedovsky, 2013, p.7](#)), further, the contemporary role of tangible and intangible cultural heritage is widely discussed. The introduction of this notion has dramatically expanded the scope and potential of heritage but it has also posed serious challenges before the heritage sector.

3.3.1 Cultural heritage and identity

Underlines the fact that cultural heritage is a cornerstone of local, regional and national identity. The conservation and protection thereof, as well as the strengthening of social identity, are key factors for sustainability, which will ensure that community values are preserved for future generations and that traditional features and knowledge survive in the long term. Cultural heritage is centred on society and plays a frontline role in the fight against poverty and social exclusion ([ECOR, 2015](#)). Therefore cultural heritage with its unique values is a crucial factor in urban identity. Wide knowledge of cultural diversity is a base for tolerance and respect, overcoming differences and building bridges between different cultures as a unique identity (*ibid*).

Historic cities with well-maintained cultural heritage assets provide a distinct identity and image, conveying a feeling of home, community, likeness and appreciation. Often citizens are very proud of their local heritage, identifying themselves strongly with their town, which also leads to the development of a collective identity of the residents and stronger identification with the place. Well-maintained cultural heritage serves also to develop a positive image to outsiders as a unique soft location factor in the global competition of attracting enterprises, skilled working force, inhabitants and tourists. Historic buildings, open spaces and contemporary architecture contribute significantly to the value of the city by branding the city's character. Historic and contemporary architecture constitute an asset to local communities, which should serve educational purposes, leisure, tourism, and secure market value of properties ([WHC, 2005, p.5](#)).

3.3.2 Cultural heritage as a driver for sustainable growth

A wide research has shown that cultural heritage can be crucial in achieving smart and sustainable growth. It has a great potential for skills development as well as for generation of direct, indirect and induced jobs. Along with drawing investment and tourists, heritage institutions, projects and programmes appear as efficient tools for providing social and territorial cohesion. In the cities and regions with a culturally-mixed population, properly-designed and managed heritage projects can serve as efficient means for the policy of social inclusion, intercultural dialogue and conflict resolution (Dümcke and Gnedovsky, 2013, p. 142).

As mentioned by European Commission (2010) in several European flagship initiatives for smart sustainable growth, cultural heritage played a vital role, such as the Digital Agenda, the Innovation Union or the Agenda for New Skills and Jobs. Cultural heritage is recognized as socio-economic potential and each country should develop alternative strategies for their sustainable regeneration. As regeneration crosscuts different sectors of sustainability in place of creation, this is best achieved through urban design processes. Urban design is considered as a creative, imaginative and rational process that can provide a framework for sustainable regeneration. Dümcke and Gnedovsky (2013, p. 142) pinpointed that cultural heritage contributes to sustainable growth through merging modernity and tradition, and through a creative combination of the legacy of the past with innovative ideas aimed at shaping the future. Heritage is thus seen as a resource which not only preserves historic memory but, if used creatively, can also bring various social and economic benefits to a variety of stakeholders. It raises the profile of places, making them more competitive and serves as a source of inspiration for the contemporary arts and creative industries.

A debatable point between heritage and urban growth is that conservation demands protection and preservation of historic buildings whereas the rehabilitation in the regeneration process seeks to prolong the life of the buildings with a more effective new use which may require significant structural and architectural changes and modification.

3.4 Urban heritage safeguarding - concepts and meanings

Historic cities along with their cultural heritage, present a unique urban fabric and urban landscape. They constitute an integral part of communities' history, identity and diversity. Their centres are often multifunctional, representing a fabric of mixed uses, a vibrant and diverse co-existence of jobs and public services, housing, crafts, education, recreation and culture, retail and tourism (URBACT, 2011, p.12). According to UN-HABITAT (2015) threats to urban culture and heritage have significantly increased over the last 20 years. With the mounting pressures of urbanization, urban heritage faces severe conservation and safeguarding issues. Damages resulting from conflict situations have also become an important issue. While globalization processes enhance interaction between cultures, they

also represent a challenge for cultural diversity and the safeguarding of traditional cultural practices.

One of the important examples for the impact of safeguarding cultural heritage is the European cities; they are a sustainable model for multifunctional historic areas with living organisms and vital living spaces for their inhabitants, visitors and entrepreneurs, being the focal point of daily life (URBACT, 2011, p.12). Historic centres offer both a compact, dense, human scale living framework and proximity; they are walking and cycling friendly, thus providing a good quality of life. Historic cities are shaped in particular by their cultural heritage assets – monuments, groups of buildings, historic sites, social values and traditions – which give identity in addition to economic, social and environmental benefits. These benefits can be summarized below based on URBACT (2011, p.13):

Economic benefits: The safeguarding of cultural heritage and revitalisation of historic urban areas contribute to the creation of jobs, businesses and economic growth through:

1. Work generated for local businesses by the labour-intensive repair and renovation of the historic fabric.
2. Restored old buildings which provide special places for businesses.
3. The improved location quality and image through the heritage environment and infrastructure for business activities, in particular for the cultural, tourism and as location factor for investments.
4. Attracting and binding highly-skilled workers, businesses, visitors and tourists through the attractiveness and uniqueness of the distinguished place as “trade mark”.
5. Public investments in the cultural heritage as catalyst for the revitalisation of the area, attracting local as well as external investments and stimulating new developments.

Social and cultural benefits: The revitalisation of historic urban areas and the safeguarding of the cultural heritage help to support binding and attracting inhabitants, creating a “corporate feeling” and strengthening the identification with the places and assets and contribute to:

1. Providing a place for cultural and creative activities
2. Providing local identity, pride and community spirit for a place to live and work
3. Learning and knowing about its history and culture
4. Activating citizens to get involved in the urban development
5. Improving the quality of life.

Environmental benefits: The maintenance and reuse of the historic fabric and historic buildings contribute to the efficient handling of natural resources through:

1. Reducing the need and consumption of new construction materials and further land.
2. Securing the short ways (historic cities generally show a compact urban structure and are located in the city centre, reducing the length of transport ways and less commuting).
3. Attractive historic urban areas which contribute to the mitigation of suburbanisation trends (people stay and live in the centre).

The points above emphasized the importance of safeguarding and capitalizing on cultural heritage assets. At the same time it is necessary to match them with newly emerging needs

for sustainable and future-oriented cities, which demand an integrated and continuous handling of the cultural heritage in the urban development framework.

3.4.1 Urban rehabilitation

Kühn and Liebmann (2012, p.139) identified revitalisation as an urban policy approach which is particularly used in the context of the preservation of urban monuments. The starting point of revitalisation is physical buildings, particularly in historic city centres. It aims at a “revitalisation” of building structures which have been abandoned and are threatened by decay, as well as of elements of public space. The revitalisation approach starts out from a city’s physical structure; it therefore is supply-oriented and looks for new ways of using old buildings. According to Bigio and Licciardi (2010, p.17) preserving key monuments and improving the state of public spaces and of urban infrastructure are essential components of rehabilitation. The World Bank’s Urban Development identified three objectives for historic centres rehabilitation: (i) ensuring the conservation of key cultural heritage assets; (ii) fostering local economic development; and (iii) addressing the basic needs of the residents. Bigio and Licciardi (2010, p.7) explained these objectives as following:

The first objective: ensuring the preservation of the existing patrimony, through policies and measures extended to monuments, key public spaces and physical and intangible cultural assets of the historic towns, according to internationally recognized standards.

The second objective: pursues the development of the economic potential of cities, so that they may contribute to economic growth through the promotion of handicrafts, cultural activities, and the hospitality industry related to cultural tourism.

The third objective: addresses the basic needs of the residents, through investment strategies that are centred on the improvement of housing conditions, access to basic infrastructure and public services, and job creation, so as to reduce social isolation and poverty.

These objectives should be pursued in parallel, and the approaches applied to rehabilitation should be equally sensitive to each one of them. Failure in achieving any of these objectives can result in an unsustainable process of urban transformation and will ultimately undermine the process of city rehabilitation as a whole. Comprehensive rehabilitation can only be achieved by reinforcing the institutional framework of the historic cities (ibid, p.12).

3.4.2 Urban conservation

UNESCO (2011, p.9) mentioned that urban heritage conservation has emerged in the course of the past half century as an important sector of public policy worldwide. It is a response to the need to preserve shared values and to benefit from the legacy of history. However, the shift from primarily an emphasis on architectural monuments towards a broader recognition of the importance of the built environment as a whole and of the role of social, economic and cultural processes in the conservation, has not yet reached its full potential. Tangible

and intangible components of urban heritage constitute key resources in enhancing the liveability of urban areas and sustaining productivity and social cohesion in a changing global environment. As the future of humanity hinges on effective management of resources, conservation has become a strategy to achieve a balance between urban growth and life quality (*ibid*).

According to [Rodwell \(2007,p.7\)](#) the practice of urban conservation employs a number of key terms that have taken on specific meanings, changed over time, been used synonymously, or been redefined from those in common usage: *Preservation, Restoration* and *Conservation*. These terms continue to be used interchangeably; not least because conservation is the most fashionable word in the world today. The International Centre for Conservation in Rome (ICCROM) employs all three words at once, and in a manner that implies that preservation + restoration = conservation. Based on the conservation concept, ICCROM defined authenticity as: 'materially original or genuine as it was constructed and as it has aged and weathered in time' ([Rodwell, 2007, p.8](#)).

The Burra Charter by [ICOMOS \(2013\)](#) offers definitions for these terms, which are favoured by conservation purists as following:

Preservation: means maintaining the fabric of a place in its existing state and retarding deterioration.

Restoration: means returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

Conservation: means all the processes of looking after a place so as to retain its cultural significance.

As mentioned by [UNESCO \(2011, p.13\)](#) modern urban conservation policies, as reflected in existing international recommendations and charters, have set the stage for the preservation of historic urban areas. However, present and future challenges require the implementation of new public policies identifying and protecting the historic layering of cultural and natural values in urban environments. Special emphasis should be put on a balanced relation between urban continuity and contemporary architecture. Respect for historic values should be the guiding principle for architectural interventions. Conservation policies should be integrated into those dealing with the broader urban context, with historic forms and practices informing sustainable contemporary development.

Policies should provide mechanisms for balancing long-term conservation and sustainability with short-term management objectives. An integrated approach allowing conservation practice to be part of a distinctive and successful urban design and development should also explore planning practices applicable to historic settings (*ibid*). Training and continuity of employment opportunities in traditional craft skills is related to architectural conservation in locations where demand for their actual or potential services is concentrated. These employment opportunities can only be secured through effective policies and coordinated urban management ([Rodwell, 2007, p.206](#)).

3.5 Conservation and sustainability in historic cities

According to [Rodwell \(2007, p.vii\)](#) urban conservation is a concept that has been with us since at least the 1960s. Sustainable development is a concept that originated in the 1980s and has become one of the core agendas of our time. Furthermore, the culturally led urban development began to appear as a concept in the urban planning from the late 1980s ([Montgomery, 2003, p.294](#)). Although the roots are different, conservation and sustainability share common ground. As mentioned by [UN-HABITAT \(2015, p.3\)](#) culture is now recognized as a driving force, key resource and asset for sustainable urban development. Stemming from social and cultural processes, urban heritage reflects societies' identities, expectations and visions over time. Urban culture – understood as cultural and social practices, behaviours and assets developed within urban environments – is often characterized by pluralism and paves the way for innovation. Culture was mostly addressed through a sector-based approach, but rarely in a comprehensive way as a lever for sustainable urban development strategies and improvement of people's well-being, identification and involvement (*ibid*).

[Rodwell \(2007, p.131\)](#) mentioned that the sustainable cities concept seeks to balance human needs and the aspirations of citizens at a local level with ecological sustainability at the global scale. The sustainable cities seek to conserve and enhance what exists in the natural, built and cultural environments. The city is viewed as a dynamic and complex ecosystem, one in which a core objective is the achievement of a balanced and self-regulating socio-economic and environmental organisation based on functional, structural and social diversity. [Rodwell \(2007, p.132\)](#) points out that the environmental features of existing buildings and infrastructures are as important as their cultural value and the implementation is largely a matter of creative use of technologies from the conservation perspective. As mentioned by [URBACT \(2011, p.58\)](#) the safeguarding of cultural heritage can provide an important stimulus for the sustainable development of historic towns and cultural heritage sites. In order to achieve this, the safeguarding of cultural heritage has to be linked with the economic, social and environmental development of the area, working out how the cultural heritage can support the sustainable urban development and how the development can be used to support the safeguarding of cultural heritage. Successful application of this strategy will lead to attractive, competitive and multifunctional historic urban areas and to appreciating the cultural heritage values of the area.

According to [Chohan and Ki \(2005\)](#) the urban planners, developers and policy makers have started thinking about creating a balance between development and heritage conservation in the coming times. This creates a 'win-win' situation between heritage conservation and urban regeneration. Urban development did not only affect the city fabric but also destroyed the vernacular built environment and cultural values of the city. Therefore urban planners and policy makers thought of some practical ways to solve this crucial problem of how to create a balance between the new development and the old urban fabric. In recent years, a number of initiatives have contributed positively to the sustainable cities debate, [Rodwell \(2007, p.132\)](#) summarized some of these initiatives as following:

Urban Villages: explored the idea of creating mixed-use development at a small, neighbourhood scale.

The Urban Renaissance: took a much broader view and explored key components of an overarching framework for sustainable urban development.

According to these initiatives, environmental responsibility and social well-being were placed above urban design in its list of priorities as these parties consider environmental capital as one of the keys to unlocking the untapped potential of urban conservation to contribute to sustainable development. [Montgomery \(2003, p.295\)](#) identified a set of necessary conditions and success factors in establishing cultural quarters (Table 3.1). Based on the urban literature, successful urban places are comprised of three sets of elements: Activity, Form and Meaning.

Table3. 1 Conditions and success factors of cultural quarters. Source: [Montgomery \(2003\)](#).

Activity economic, cultural, social	Building Form the relationship between buildings and spaces	Meaning sense of place, historical and cultural
<ul style="list-style-type: none"> • Diversity of primary and secondary land uses. • Extent and variety of cultural venues and events • Presence of an evening economy. • Strength of small-firm economy, including creative businesses. • Access to education providers. • Presence of festivals and events. • Availability of workspace for artists and low-cost cultural producers. • Small-firm economic development in the cultural sectors. • Managed workspaces for office and studio users. • Location of arts development agencies and companies. • Complementary daytime and evening uses 	<ul style="list-style-type: none"> • Fine-grain urban morphology • Variety and adaptability of building stock • Permeability of streetscape. • Legibility • Amount and quality of public space. • Active street frontages. • People attractors. 	<ul style="list-style-type: none"> • Important meeting and gathering spaces • Sense of history and progress • Area identity and imagery • Knowledgeability • Environmental signifiers • Design appreciation and style

3.6 Cultural Heritage Values

In a world increasingly dominated by global styles of architecture and building technology, historic centres provide a unique sense of place which differentiates them one from another ([COEC, 1990](#)). People value the historic environment as part of their cultural heritage, which reflects the knowledge and traditions of communities. It gives distinctiveness, meaning and quality to the places in which people live, providing a source of identity. It is a social and economic asset and a resource for learning and enjoyment ([Historic England, 2008](#)). The significance of a place embraces all the diverse cultural and natural heritage values that people associate it with. These values tend to grow in strength and complexity over time, as understanding deepens and people's perceptions of a place evolve. [Historic England \(2008,](#)

p.21) states that in order to identify the significance of a place, it is necessary to understand its fabric and how and why it has changed over time; and then to consider:

- Who values the place, and why they do so
- How those values relate to its fabric
- Their relative importance
- Whether associated objects contribute to them
- The contribution made by the setting and context of the place
- How the place compares with others sharing similar values.

Indicating the values and significance of a place is necessary when taking decisions about its future. The degree of significance determines what, if any, protection, including statutory designation, is appropriate under law and policy. The current study focuses principally on the built historic environment. According to [EAHTR \(2007, p.14\)](#) in the built historic environment there is a difference between the so called 'intrinsic' values that can be ascribed to a place and the 'instrumental' benefits that can be derived. Those values are particularly relevant and are set out below:

The Intrinsic values comprise 4 aspects:

- Knowledge: this places heritage central to learning about ourselves and society.
- Identity: this relates to a person, community, region or country
- Bequest: meaning that heritage should be handed over to the future generations.
- Distinctiveness: refers to what makes something special.

The instrumental benefits relate to 4 aspects:

- Economic benefits in terms of regeneration, jobs, businesses and economic growth
- Area benefits such as improved profile, a safer environment, etc.
- Community benefits such as local pride, increased community spirit
- Individual benefits such as jobs, volunteering opportunities, etc.

In recent years, the instrumental value of heritage has gained importance and is recognised by many policy-makers.

[Dümcke and Gnedovsky \(2013, p.7\)](#) pointed out that heritage, if properly managed, can be instrumental in enhancing social inclusion, developing intercultural dialogue, shaping identity of a territory and improving quality of the environment. On the economic side; stimulating tourism development, creating jobs and enhancing investment climate which can generate return in a form of social benefits and economic growth. To summarise, culture heritage is now considered as one of the four pillars of sustainable development. [Mason \(2002b, p.5\)](#) highlighted that the heritage values are, by nature, varied, and they are often in conflict. The study of values is a useful way of understanding the contexts and sociocultural aspects of heritage conservation. As mentioned by [Dümcke and Gnedovsky \(2013, p137\)](#) one of the most important impacts of heritage-based strategies is the benefits for stakeholders which reflect the increased demand for studying the economic and social value of cultural heritage, within various groups of stakeholders:

- Heritage professionals, who are now looking for additional arguments to justify, advocate and secure funding for heritage projects.

- Policy-makers, who are concerned with the efficiency of the economic and social strategies for their territories.
- Businesses, which need to plan for profits while developing projects that directly involve cultural heritage.
- Communities, which want to be certain that heritage projects are worth spending local budgets on, as this is going to improve their economic situation and create a better environment.

3.6.1 Values identification and classification

This part is intended to identify the range of heritage values that may be attached to a place. As mentioned by [Historic England \(2008,p.27\)](#) there are many examples of cultural and natural heritage values in the historic environment that people want to sustain for the benefit of present and future generations. Places with heritage values can generate wider social and economic benefits, for example as a learning or recreational resource, or as a generator of tourism or inward economic investment, although their potential to do so is affected by external factors, such as ease of access. On the other hand, utility and market values, and instrumental benefits, are different from heritage values in nature and effect. [Historic England \(2008, p.27\)](#) stressed that values range from evidential, which is dependent on the inherited fabric of the place, through historical and aesthetic, to communal values which derive from people's identification with the place.

Evidential value: derives from the potential of a place to yield evidence about past human activity. Physical remains of past human activity are the primary source of evidence about the substance and evolution of places and of the people and cultures that made them ([Historic England, 2008, p.28](#)).

Historical value: derives from the ways in which past people, events and aspects of life can be connected through a place to the present. The historical value of places depends upon both sound identification and direct experience of fabric or landscape that has survived from the past, but is not as easily changed as evidential value. The authenticity of a place indeed often lies in visible evidence of change as a result of people responding to changing circumstances ([Historic England, 2008, p.30](#)).

Cultural/Symbolic value: History and heritage are core elements of all cultures, so cultural values are, like historical value, a part of the very notion of heritage. There is no heritage without cultural value. Cultural/symbolic value here refers to those shared meanings associated with heritage that are not, strictly speaking, historic ([Mason, 2002b, p.11](#)).

Aesthetic value: the ways in which people draw sensory and intellectual stimulation from a place. While aesthetic values may be related to the age of a place, they may also be amenable to restoration and enhancement. This is reflected in the definition of conservation areas and in current practices in the conservation of historic cities ([Historic England, 2008, p.31](#)).

Social Value: The social values of heritage enable and facilitate social connections, networks, and other relations in a broad sense, one not necessarily related to central historical values

of the heritage. The social values of a heritage site might include the use of a site for social gatherings such as celebrations, markets, picnics activities that do not necessarily capitalize directly on the historical values of the site but, rather, on the public-space, shared-space qualities (Mason, 2002b, p.12). Also referred to as communal value by Historic England, social values are closely bound up with historical and aesthetic values. Compared with other heritage values, social values tend to be less dependent on the survival of historic fabric. They may survive the replacement of the original physical structure, so long as its key social and cultural characteristics are maintained; and can be the popular driving force for the re-creation of lost places with high symbolic value. Spiritual value attached to places can emanate from the beliefs and teachings of an organised religion, or reflect past or present-day perceptions of the spirit of place (Historic England, 2008, p.32). They can also encompass secular experiences of wonder, awe, and so on, which can be provoked by visiting heritage places (Mason, 2002b, p.12).

Economic values: it is one of the most powerful ways in which a society identifies, assesses, and decides on the relative value of things. Economic values overlap a great deal with the sociocultural values described above, and they are distinguished most because they are measured by economic analyses. In other words, economic values are different because they are conceptualized in a fundamentally different way (Mason, 2002b, p.12).

3.6.2 The assessment of urban heritage values

Assessment of the heritage values is a very important activity in any conservation effort, since values strongly shape the decisions that are made. According to Mason (2002b, p.5) even though values are widely understood to be critical to understanding and planning for heritage conservation, there is still a lack of knowledge about how, pragmatically, the whole range of heritage values can be assessed in the context of planning and decision making. A wide range of methodologies are used in a large number of fields relevant to matters of heritage conservation. Assessing cultural values adequately requires a suite of different methods, both quantitative and qualitative and one of the goals of the suite approach is inclusiveness.

Assessment of values is a particular aspect of conservation planning and management. The conservation field has traditionally relied on expert appraisals (of artworks and buildings by art historians, architects, and archaeologists) for guidance on what to conserve and has relied on scientific and documentary methods to analyse the physical conditions of heritage and to determine the method of conservation. Conservation methods involve the development of standard approaches to the documentation and analysis of art/architectural histories, formal and material compositions, and physical conditions. The following diagram in Figure (3.1), by Mason (2002b) shows the general methodology applied in anthropology, archaeology, geography, sociology, city planning/urbanism, and various hybrid fields. It can be used in heritage value assessment and assessing values in conservation planning.

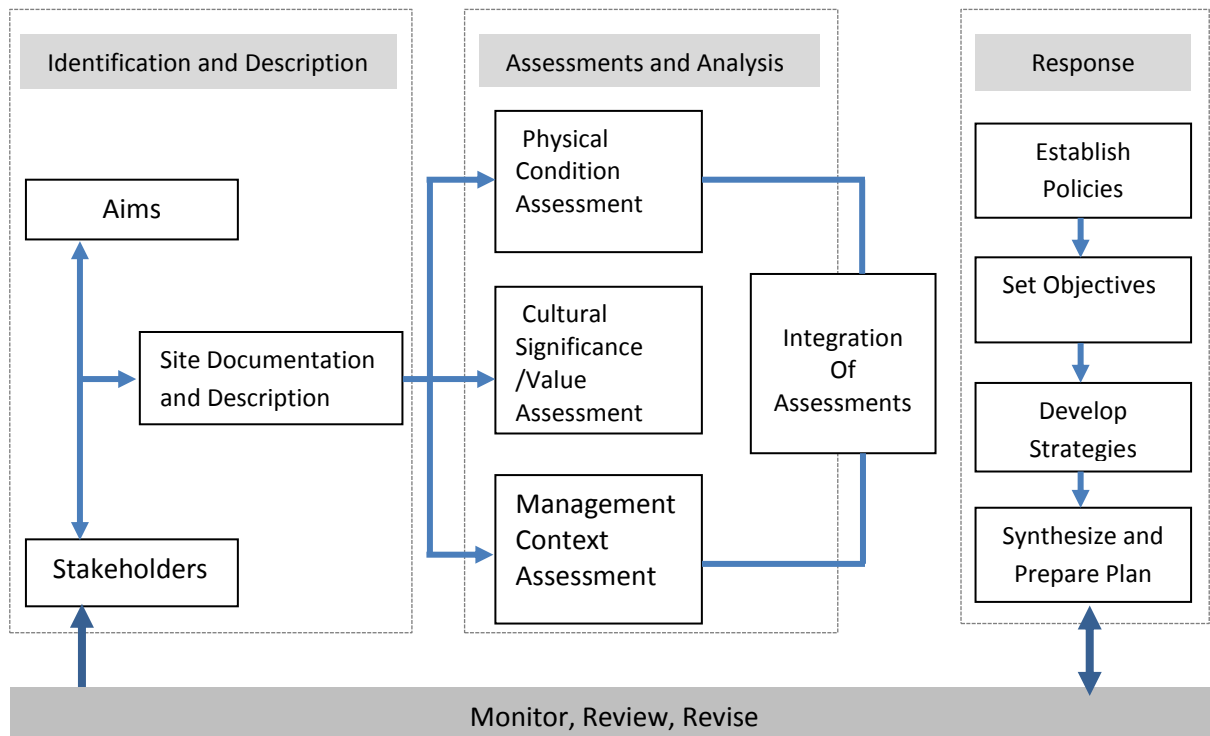


Figure3. 1 Planning process methodology. Source: modified by author from Mason (2002, p.6).

3.7 Linking the cultural heritage and urban regeneration

MAP (2004) mentioned that urban regeneration includes ‘renovation, rehabilitation of obsolete infrastructure and built-up land’ and ‘restructuring of urban fabric, renewal of urban economy and achievement of social equity’. Therefore urban regeneration is concerned with long-term community development in addition to physical environment enhancement. According to Tallon (2013, p.228) urban regeneration using culture in its broadest sense has emerged as a crucial feature of the post- modern city of consumption, and incorporates leisure and entertainment. Jones and Evans (2008) argued that in urban regeneration the term ‘culture’ tends to be used somewhat uncritically and embraces a wide range of issues from design and architecture to creativity and the knowledge economy.

The key contribution of heritage to urban regeneration as identified by EAHTR (2007, p.16), namely investing in heritage provides a key link between sustainable development and more traditional concepts of urban regeneration that focus on job creation, Improving the environment and securing the reuse of buildings which have historic value and can make an important contribution to the regeneration of urban areas. Tallon (2013, p.254) mentioned that culture has been used as a tool for attracting investment to regenerate urban areas, as a product in the market used to sell places globally as ‘cultural’ or ‘creative’ cities. Therefore the cultural quarters contribute effectively to the wider urban regeneration of an area; however, there are dangers of gentrification and questions over their long- term sustainability. In the post-industrial city, culture-driven urban regeneration is embraced as a central plank of the new urban entrepreneurialism, closely tied with cultural globalisation. Increasing globalisation and diffusion of cultural regeneration strategies are encouraging the

homogenisation of culture in city spaces. Cultural regeneration has positive and negative impacts upon the ways in which cities are evolving (*ibid*). Three important models through which cultural activity is incorporated (or incorporates itself) into the regeneration process were identified by DCMS (2004, p.5) these are: culture-led regeneration, cultural regeneration and culture and regeneration.

The culture-led regeneration model sees cultural activity as the catalyst and engine of regeneration. The activity is likely to have a high profile and to be frequently cited as a sign of regeneration. The activity might be the design and construction or reuse of buildings for public or business use; the reclamation of open space, for example the Garden Festivals of the 1980s and 1990s; or the introduction of a programme of activity which is then used to rebrand a place, for example Ulverston Festival Town in Cumbria. According to EAHTR (2007, p.17) an example for promoting heritage led regeneration was the investing in Heritage (INHERIT) project which aims to recognise the value of heritage and its potential contribution to urban regeneration and sustainability. The following working definition of heritage led regeneration, developed by the (INHERIT) project team: - “The investment in a city’s historic fabric, its buildings and spaces, in order to help secure physical, cultural and economic regeneration in that city for the benefit of all those living, working and visiting there. This development will be intrinsically linked to a city’s own unique culture and character and should have the following aims at its heart:

- To initiate lasting improvements in cities, to benefit the existing and future generations.
- To integrate economic, social and physical development to improve quality of life.
- To achieve the highest standards of design both aesthetically and energy efficiently.
- To focus on strong civic leadership processes, including those of creative partnerships, vision, management and community participation.

The cultural regeneration model, cultural activity is fully integrated into an area strategy alongside other activities in the environmental, social and economic sphere. Examples include Birmingham’s Renaissance where the arts were incorporated with policy and planning, and the exemplar cultural city of Barcelona which takes the cultural planning approach to cultural policy and city regeneration.

The culture and regeneration model, cultural activity is not fully integrated at the strategic development or master planning stage. The intervention is often small-scale and residents and cultural organisations respond and make their own interventions. Culture is frequently an add-on rather than an integral part of the scheme as local authorities and partnership bodies responsible for regeneration schemes are rarely structured to facilitate collaboration between those responsible for regeneration and those responsible for cultural activity (*ibid*)

Tallon (2013, p254) described the critical issues and policy implications that can be synthesised from the variety of approaches to urban regeneration which come under the banner of cultural regeneration:

1. The commercialisation and commodification of local culture.
2. Diversion of resources from social and community facilities and services towards investment in flagship cultural projects.

3. Selective narratives are often employed to sell and stage local events that can marginalise local and oppositional voices and favour elite groups.
4. Gentrification can be encouraged through cultural regeneration, the staging of 'middle-class' events, and the development of flagship property-led buildings.
5. Displacement of cultural producers and fracturing cultural networks are issues linked to the gentrification of the cultural landscape in city centres
6. Serial replication of the urban landscape has to be encouraged through the rolling out of similar types of cultural strategies and flagship buildings across cities.
7. Volatility of the market for culture and leisure, brand decay over time and long-term sustainability are issues to consider for the future of urban regeneration through culture.

Lu (2012, p.9) highlighted some features during the process of regeneration in historical city centres, including:

- Preservation and regeneration are not two opposite processes. How to fit the new requirements and protect the traditional value is the most important topic.
- The improvement in old urban fabric would not show the successful outcome at once, it is a long process.
- The impact of human activity; making use of the relationship among attraction, spatial configuration and movement to reform the structure and environment of the historical city centre.

3.8 Conclusion

This chapter introduced a brief outline about heritage and heritage values and their impact on urban redevelopment. The importance of linking between cultural heritage and regeneration initiatives was emphasised. Three important models were explained to show the mutual relation between cultural heritage and regeneration, namely culture-led regeneration, cultural regeneration and culture and regeneration. Based on the above, heritage led regeneration can be broadly categorised as economic, social and cultural or environmental. These outcomes can be either positive or negative and may be both quantitative and qualitative. This chapter represented a portal /entrance to the following chapters to accomplish the main research objectives in assessing and promoting sustainable regeneration in historic city centres in Iraq.

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Chapter 4: Integrated large scale urban design and urban regeneration projects

IBA Emscher Park regeneration projects - Ruhr area, Germany

4.1 Introduction

The aim of this chapter is to display some basic approaches and practices adopted from other countries for large-scale urban regeneration. According to [Couch and Fraser \(2003, p.7\)](#) there are many general reasons for undertaking international experiences: the furtherance of explanatory and predictive theory and the understanding and transfer of policy from one country to another, to improve planning practice and to bring about a unification of policy between countries. [White \(1978\) cited in Couch and Fraser \(2003\)](#) highlighted that the study or transfer of international experiences has a number of potential uses in planning research as an aid to understanding: Past successes and failures in planning policy; Contemporary planning processes; Future development scenarios in planning systems and Innovation diffusion processes in the exchange of ideas between nations.

Learning from international experiences which have evolved the urban regeneration process to a more comprehensive form of policies and practice enables the exploration of new tools and strategies of sustainable urban regeneration, in addition to assessing diverse strategies and solutions in different contexts. The International Building Exhibition Emscher Park (IBA) on both sides of the Emscher River in the middle of Germany's largest industrial region in the North Rhine-Westphalia (Nord Rhein-Westfalen) State, was a ten-year attempt to change a distinctive region permanently marked and damaged by industrial history and give it a new future ([Dahlheimer, 2008, p.6](#)). Therefore reviewing this experience helps to set up concepts and strategies in order to achieve the development vision for complex processes of regeneration including demographic, socio-economic and physical dimensions.

4.2 Urban planning and development policy in Germany

As mentioned by [Percy \(2003b, p.150\)](#) Germany as a country has over the years undergone geographical changes and its development has been subject to a wide range of external influences. One of the big changes involved the reunification of the country through the joining of East and West Germany, now made up of 16 federal states (Länder) figure (4.1). The decentralised and federal nature of government in Germany provides for three tiers of government, the federal government (Bund), the individual states (Länder), and the local government (Kommunes). [Danielzyk and Wood \(1993, p.130\)](#) point out that the states and authorities are legally independent bodies and not just extension of the tier above, due to

the crucial constitutional principles of 'federalism' and the autonomy of local authorities (Kommunalautonomie). However, there are numerous political, legal and financial interdependencies between the three tiers and the planning system in Germany consists of four levels (as shown in figure 4.2) these levels are:

- Federal regional policy (Bundesraumordnung)
- State planning for the area of a state (Landesplanung)
- Regional planning (Regionalplanung) for small units within the larger states
- Town and country planning (Bauleitplanung), devised by the local authorities.

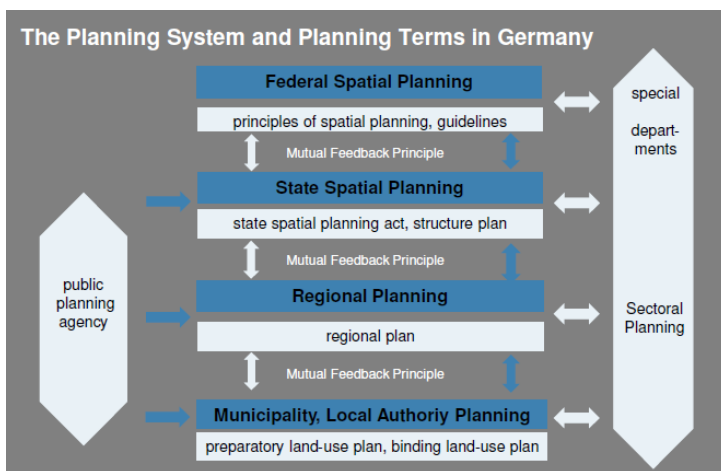


Figure4. 1 The organization of spatial planning in Germany (Räumliches Planungssystem). Source: [BMUB & Nationale Stadt Entwicklungs Politik](#).



Figure4. 2 State of regional planning - Federal states of Germany

As mentioned by [Clark \(2012\)](#) urban development policy in Germany is by nature complex. The German urban system is famously a distributed network of cities with different specialisation and advantages. Urban development policy is primarily a local concern, supported, to varying degrees, by state governments. There are two sorts of local plans: preparatory (Flächennutzungsplan) and binding development plans (Bebauungsplan), and according to [Danielzyk and Wood \(1993, p.130\)](#) the most important relationships and areas of conflict exist between (Landesplanung)-(Bauleitplanung) and (Regionalplanung)-(Bauleitplanung). However the planning autonomy of the local authorities which is safeguarded by the constitutional law makes it almost impossible to devise a structural concept for a state or a region without the consent of all local authorities involved. This may explain why spatial planning has become a long process. While local urban planning may be undertaken at the local level, many local governments are reliant on state funding as a means of putting these plans into action. Although legally the Federal Government is forbidden from establishing direct links with the local level, urban development is also an important issue for the German Federal Government.

Increasing interest for renewable energies and getting away from nuclear power, the local authorities, states and the government are all addressing the questions about how to make buildings and mobility affordable, yet eco-friendly, for all citizens. As mentioned by [BMUB \(2015, p.5\)](#) to embrace the change in the energy use, Germany has rigorously spoken out in favour of long-term reduction of green-house gases by expanding renewable energies, by saving energy and creating smart networks. After long discussions between European Member States, European institutions and other stakeholders, regarding the challenges that face European cities and the best possible solutions, the Leipzig Charter on Sustainable European Cities was formally adopted in 2007 by a meeting of EU Member State Ministers. According to [BMVBS \(2012\)](#) the Leipzig Charter contains two key messages:

1. To strengthen integrated urban development policy all over Europe.
2. Disadvantaged urban districts do fulfil important functions within the urban context.

In response to the Leipzig Charter, in July 2007 the Federal German Ministry of Transport, Building and Urban Development began to draft the “National Urban Development Policy – a Joint Initiative of the federal, state and local governments”. The National Urban Development Policy is a joint project by the Federal German Ministry of Transport, Building and Urban Development, German Association of Cities, German Association of Towns and Communities and the Conference of Building Ministers ([BMVBS, 2012, p.6](#)). As reported by [Clark \(2012\)](#) the essential elements of this development policy were discussed by experts, as well as representatives of local government associations and the Federal States in Berlin. As a result of the discussion, it was decided that the new National Urban Development Policy would have six fundamental strands of activity:

- i. **Civil society:** Focusing on actively engaging with citizens in their city.
- ii. **Social city:** Creating opportunities and preserving cohesion.
- iii. **Innovative city:** Focusing on developing cities as drivers of economic development.
- iv. **Climate protection and global responsibility**
- v. **Building culture and improving urban design**
- vi. **Regionalisation:** Focusing on the region as a critical part of the city’s future.

To achieve these goals a number of events were on offer, which promote exchange and help find innovative answers, as mentioned in [BMVBS \(2012, p.6\)](#) the general public is to be made more aware of the topics affecting cities and towns, new alliances and greater participation are to be encouraged. After the Policy was developed, the Federal Ministry of Transport, Building and Urban Affairs (BMVBS) began the development and dissemination of good practice in the context of urban development support and the launching of a series of projects to promote new ideas and civil commitment. The BMVBS called for project proposals in two phases, between 2007 and 2008. The proposals were elicited from all sectors of society, with projects ranging from professional conferences and exhibitions, to art campaigns ([Clark, 2012](#)).

4.3 Urban development policy in Germany-implementation instruments

According to [Difu \(2012, p.30\)](#) in 2007, the Federal Ministry of Transport, Building and Urban Development (Bundesministerium für Verkehr, Bau und Stadtentwicklung–BMVBS), the Conference of Ministers of Building and Urban Development (Bauministerkonferenz–ARGEBAU), the German Association of Towns and Municipalities (Deutscher Städte- und Gemeindebund – DstGB) and the German Association of Cities (Deutschen Städtetag – DST) launched an overall framework, the National Urban Development Policy (Nationale Stadtentwicklungspolitik– NSP), in an aim to bring together representatives and interested parties on city issues. Issues of civic engagement, new forms of collaboration and participation, social cohesion, innovative economic development, climate protection, building and architectural culture and regional cooperation were more specifically on the agenda.

The committee was under the direction of the Minister which, alongside partners of the *National Urban Development Policy*, was a central body for monitoring this policy approach. It was also attended by stakeholders from business, academia, associations and other social groups. A working group with representatives of the federal, state and local authorities has furthermore been established to address further development approaches.

4.4 The evolution of urban regeneration policy in Germany

This section considers some key approaches of urban regeneration that have been adopted in Germany over the past three decades. It considers the aims of regeneration policy, the problems that regeneration initiatives have sought to address, the agencies and processes of regeneration, and the policy achievement instruments and the remaining challenges it faces. [European Urban Knowledge Network \(2008\)](#) identified three periods in the development of urban regeneration policy in Germany:

- Urban renewal in the 1970s: reorientation of urban policy against the background of the economic crisis, more intensive orientation towards existing housing, revitalisation of inner-city neighbourhoods in the old federal states, and permanent construction of new housing and neglect of neighbourhoods with old buildings in East Germany.
- Urban reconstruction in the 1980s: stagnation of demographic development, shifting the focus towards home ownership assistance in housing policy, and orientation towards inner city development in urban policy.
- Integrated urban development since the 1990s: new challenges to urban development through increasing globalisation, German re-unification and integrated urban development and urban reconstruction as a response to social, economic and demographic challenges. Below are more details about these periods in the development of urban regeneration policy in Germany:

4.4.1 From urban reconstruction to urban renewal

Based on [European Urban Knowledge Network \(2008\)](#) and [\(Couch et al., 2011\)](#), this can be divided into four periods or stages:

1. After the Urban Renewal Act in 1971 (*Städtebauförderungsgesetz*), the local authorities received Federal and Land subsidies that mainly encouraged the physical approach to urban renewal which acknowledged the background of prevailing economic crises in that period and the act was seen as an instrument for economic stimulation. This law also contained the first aspects of urban renewal as it made it compulsory for projects to deliver a “preparatory report for the possible negative effects of the renewal strategy during the process of implementation”.
2. Mid 1970s there was growing resistance against the removal of populations from their familiar neighbourhoods. So the new phase of renewal preserved the outward appearance of streets and only interior blocks were demolished and densities reduced.
3. Until the late 70s urban renewal projects in Germany still focused mainly upon clearance and reconstruction. This approach of planning was criticised as being to the advantage of speculative stakeholders, by supporting their strategies to demolish the old housing stock. This led to a debate on the future of the existing housing stock, not only in single cases, but as a movement, especially in Berlin. In the badly damaged areas after the Second World War and between 1965 and 1975 redevelopment corporations bought up property, dwellings were demolished and then redeveloped in the manner of large housing estates.
4. Early 1980s, the squatters started to renovate vacant residencies to demonstrate an alternative future for the neighbourhoods. By the late 1980s, after political changes within the Berlin City Government, a new approach of ‘careful urban renewal’ was emerging ([International Building Exhibition Berlin, 1989](#)).

According to [Börstinghaus, \(1986\)](#) cited in [Couch et al. \(2011\)](#) these merging pressures and new ways of thinking led to change of perspective in urban renewal in Germany against a background, where the effects of the economic crises of the 70s had hit traditional working class areas hard. The indicators of this change of perspective were: more locally sensitive approaches to modernisation, self-help strategies, encouraging local people to invest in their housing stock, support for small businesses, reusing abandoned industrial and commercial facilities and buildings for local economic development, strategies for community participation concerning the quality of green and open space. This change also included a fundamentally different view on the social structure of these areas. This new approach sought stable development and securing existing structures. Some of the first projects using this approach appeared in the Ruhr area in 1984 ([Couch et al., 2011, p.29](#)). As mentioned by [Bodenschatz \(2008\)](#) a milestone in the development of this new approach was the 1984-1987 Berlin Building Exhibition/*Internationale Bauausstellung (IBA)*. In addition to promoting and demonstrating innovative new urban architecture (*Neubau*), there was a programme of urban regeneration and renewal (*Altbau*). This programme introduced the concept of “careful urban renewal/*Behutsame Stadterneuerung*”.

4.4.2 Integrated urban development, sustainability and the social city

The reunification of Germany in 1990 changed the spatial structure of the country and changed the priorities for urban and regional development. According to (Couch et al., 2011) four main themes can be identified that appeared in order to cope with the challenges of the new spatial structure, as follows:

Endogenous Potential (Endogene Potenziale): The new spatial structure of the whole country and the new priorities for urban and regional development put new challenges to areas for indigenous growth, to define and exploit locally specific characteristics that could be used as a foundation for city marketing and local economic development. In this context Schaal (1998) mentioned that the historical and topographical characteristics were starting points for development strategies, for example; the unique history of a whole region: launched in 1989, the IBA Emscher Park Project aimed to facilitate the ecological and economic renewal of the northern part of the Ruhr region.

The Sustainability Concept: after the Agenda 21 was passed in Rio de Janeiro in 1992 and World Habitat II by the UN in Istanbul June 1996, the industrialised states of the west of Germany made important steps towards sustainable spatial and urban development. This led to a “National Plan for Action towards Sustainable Development of Settlements” by the Ministry of Spatial Development, Building Affairs and Urban Planning in 1996 (BMRBS, 1996). Whilst this plan led to “Local Agenda 21” process, BMRBS (1996, p.2) mentioned that it created tension between dealing with the consequences of the reunification on the one hand and the demanding challenges on the way to sustainable urban development on the other hand. Some aims of the National Plan included sustainable strategies for cities like: the preservation and development of settlement structures; mixed land uses and social integration; higher development densities and the protection of open space; strengthening inner cities; protection of urban heritage and regional transportation systems (Couch et al., 2011, p.31).

The Social City (Die Soziale Stadt): after reunification, the challenges in the East were to be met with measures representing the state of experience in the west, in addition to redirecting most of the Government budget for regeneration of the new East states. As mentioned by (Couch et al., 2011, p.31) The federal subsidies for urban generation in the new states together with money from the EU were used to fund extensive programmes for the rehabilitation of historic city centres; the refurbishment of housing estates; the reuse of vacant and derelict land; the modernisation of infrastructure and the stimulation of economic development. Some large areas of East Germany began to suffer a severe loss of employment and population, becoming ‘shrinking cities’. Similar economic and social problems were also apparent in the older industrial areas in the west.

As a consequence, in 1999 the Federal and states governments extended urban development support by jointly adopting the programme “Districts with Special Development Needs: the Social Integrative City” (Die Soziale Stadt). Its goal was to counteract the widening socio-spatial rifts in cities and to foster participation and co-operation.

Urban Conversion (Stadtumbau): In the former East Germany much of the housing stock built in the post-war period comprised multi-storey housing, by the end of the 1990s many people had moved westward or sought better choices within the local housing market. This represented new challenges to a housing sector (Couch et al., 2011, p.32). In the new millennium the situation continued to be dominated by the loss of industrial jobs, migration from the city-centres to the periphery, from towns to suburbia and to the dynamic core regions. A debate began about the future of this vacant housing stock in the East. In 2002 the Federal government in Berlin started a programme for “Stadtumbau Ost” (Urban Conversion East), which aimed to reduce the housing-stock in centres and regions in the new states. These growing spatial inequalities and economic changes also applied to older industrial regions in the West, so in 2004 the Federal Government started an additional programme “Stadtumbau West” (Urban Conversion West). The Stadtumbau was criticized by Kühn and Liebmann (2007, p. 135) as it was not entirely successful in integrating the various actors and fields of urban policy, because “the dominance of housing market problems in the process has presented a barrier to finding a more complex approach to regeneration”.

4.4.3 Rethinking spatial and urban development beyond 2000

As cited by Couch et al. (2011) the adoption of new approaches to planning in the eastern new states also had a fundamental impact on the planning discourse in Germany as a whole. The aim of bringing equality in all parts of Germany is one of the main reasons for intervention of the federal government in regional and urban development. In 2006 the Federal Government and the Land Governments adopted a new overarching development framework entitled “Concepts and Strategies for Spatial Development in Germany”. The framework identifies three key principles: “growth and innovation”, “ensuring services of public interest” and “conservation of resources, shaping of cultural landscapes” (BMVBS/MKRO, 2006). This reflects awareness that the future spatial development will be moulded by trends such as globalisation and European integration. Both the Social City and the Urban Conversion programmes require integrated concepts as a condition for funding and they have represented the state of the urban regeneration in Germany today (Aehnelt et al., 2008).

In response to these points the EU Leipzig Charter for the Sustainable European City (EU Ministers for Urban Development, 2007) highlighted a special awareness of disadvantaged quarters in the overall urban context and called for this integrated approach at the EU level (European Commission, 2007). After that and to implement the Leipzig Charter, the German government launched a memorandum “Towards a National Urban Development Policy in Germany” (BMVBS, 2008), which is informed by the same principles and aims to make the cities fit to be the motor of progress and modernisation and to be strong contenders in the global, national and regional economic competition. The memorandum identifies integration as a central issue: sectoral policies have to be thought through spatially and coordinated accordingly. This memorandum includes programmes such as: “Active centres for towns and

urban quarters” and a series of pilot-projects “For the City and Urbanity”. The main component parts of this emerging national strategy include:

- Spatial integration of policies: In this context the Social City is cited as “best practice” depending on cooperation.
- Demographic Change: Adjusting cities to changed demands, family-orientated development as well as cohabitation of different generations in urban quarters.
- Identity and Individuality of the European City as an asset must be realised and further developed.
- Climate Change and Urban Conversion: Towards energy-saving architecture, in a “city of short distances”.
- Building Culture: The quality of architecture and urban design must be improved and become a subject of a public discourse.
- Regional Cooperation and Urban Networks: These are to be improved, especially where shrinking and redistribution are the issues.

All these aims were to be promoted through new programmes, pilot projects and competitions and be subject of a broad campaign for a public discussion of the subject “The Future of the City”. A call for participation within these themes was launched in 2007. In 2008 there was the second call for pilot projects and in February 2009 a call for participation in a national competition “Building and Living the City”.

4.5 Regeneration in the Ruhr region

This section will illustrate the factors leading to the decline of Ruhr region, examine the approaches taken to regenerate the area, and the institutional context, actors and agencies involved in the process. It will discuss the social, economic and environmental impacts, and will conclude by assessing the recovery of region. The Ruhr region (*Ruhrgebiet*) is located in the state of North Rhine-Westphalia (*Nord Rhein-Westfalen*) (NRW) in the north western part of Germany (figure 4.3). NRW is a highly urbanised state with a total population of nearly 18 million and is a polycentric region, with several major and many minor centres (Fig. 4.4) (Percy, 2003b, p.151). According to (Blotevogel, 1998, p.395) the State covers the old-industrialized Ruhr region (Dortmund, Essen, Duisburg), the service cities of the Rhine-axis (Düsseldorf, Köln, Bonn) as well as some light-industrial areas (Mönchengladbach, Wuppertal), the large cities such as Cologne, Düsseldorf and Bonn orientate themselves towards the Rhine and market themselves as international cities and try to distinct themselves from the industrial image of the Ruhr.

The industry within NRW is concentrated along the east–west flowing rivers Ruhr and Emscher and around their confluence with the river Rhine. The Ruhr area is a unique region in the heart of Europe. Industrialisation shaped the land between the River Ruhr in the south and the River Lippe in the north for 150 years. Spatial structures were subordinated to heavy industry and coal mining. The landscape was exploited on a large scale and industrially reshaped (Reicher et al., 2008, p.8). The Ruhr region covers nearly 4450 km² with a population of 5.4 million and 11 independent cities. It is a geographic region with certain

economic, demographic and historical continuity, more than an administrative region (Percy, 2003b, p.152). The Ruhr was a centre for military industry during the Second World War, afterwards, up until the 1960s the Ruhr flourished in response to a massive modernisation programme following the destruction of the war, when coal and steel production rebounded through the 1950s. Over five decades, the economy of the Ruhr region underwent dramatic restructuring, away from its original coal and steel-based economy to a more diversified service economy. The process was difficult, but the restructuring has been more successful than other similar cases around the world (Taylor, 2015, p.3). According to Seltmann (2007, p.2) the Ruhr area today is a very powerful economic region, 13 of the 50 largest German companies are based in the region, in addition to scientific networks from research institutions and the Universities. It is also considered a centre for logistics in Europe, because of the geographical situation with 40% of the European population living in a 500 km circle.



Figure4. 4 The NRW state. Source: http://wikitravel.org/en/North_Rhine-Westphalia

Figure4. 3 The location of NRW state and Ruhr region in Germany. wikipedia.org/wiki/Ruhr



Figure4. 5 The Ruhr region. Source: https://en.wikipedia.org/wiki/File:Ruhr_area-administration.png

4.5.1 Spatial structure and institutional context

As mentioned by [CABE1 \(n.d.\)](#) the Ruhr region is polycentric, made up of several similarly sized towns and cities. There are 17 local authorities and a population of 5.3 million. Politically, the cities are run separately. This meant that developing and implementing any sort of regional strategy would be difficult, and that the biggest challenge in regenerating the region would be political.

According to [Percy \(2003b, p.154\)](#) the Ruhr region is covered administratively by the State Government of NRW, various local authorities, and a regional organisation known as the *Kommunalverband Ruhrgebiet* (KVR). Over the last years the KVR has concentrated its efforts on regenerating the area and on improving the environmental conditions of the region by strong promotional activities and place marketing within Germany, Europe and worldwide. Place marketing is a central theme of the regeneration projects undertaken in the region to promote a viable, clean and accessible location for new business. This approach has been blamed for the support of prestige projects without solving associated problems.

As mentioned by [Percy \(2003b, p.154\)](#) over the past decades the NRW government made a efforts work out specific programmes to combat sectoral and regional problems of socioeconomic structural change. The main programmes concerning Ruhr area were:

In the late 1960s The Ruhr Development Programme (*Entwicklungsprogramm Ruhr*) was initiated, and merged into the NRW Programme in 1975 (*Nordrhein-Westfalen-Programm*). The aim of these programmes was to provide a planning procedure for the development of the region based on the modernisation of the mining industry and the encouragement of inward investment. This led to more infrastructure and the creation of new universities.

In 1979 The Ruhr Area Action Programme (*Aktionsprogramm Ruhr*) was established to encourage urban renewal, environmental protection and technology transfer. The programme 'helped to soften the impact of job losses, but it also held back the process of restructuring and creating a new economic basis' (*Kommunalverband Ruhrgebiet, undated*).

In 1984–1988, The Future Technologies Land Initiative (*Landesinitiative Zukunftstechnologien*) followed this programme.

According to [Percy \(2003b, p.154\)](#) and [CABE1 \(n.d\)](#) in the 1980s and despite these programmes, the Ruhr region still retained a poor image, high unemployment, social problems and declining population. The government began to question whether the way the money was being spent was achieving positive and lasting environmental and social change. It was recognised that past planning initiatives and programmes were not adequately solving the region problems, and hence new ideas were developed that reflected a growing interest in place promotion and image transformation.

[Blotevogel \(1998, p.408\)](#), mentioned the efforts in the Ruhr region at encouraging the development of a tertiary sector with a more flexible mode of production. Consequently the Ruhr region, within its restructuring process, saw a role for its industrial heritage in developing a new regional identity that included a cultural dimension in its economic development ([Percy, 2003b, p.154](#)). As mentioned by [Couch, et al. \(2011, p.30\)](#) the new priorities for urban development put new challenges to the areas to define and exploit

locally specific characteristics (e.g. historical and topographical) and strengths that could be used as a foundation for city marketing and local economic development. The launching of the IBA Emscher Park Project in 1989 was an example the unique history of a whole region.

4.5.2 The dilemmas to be faced and pressure to change

From the 19th century until the 1960s the Ruhr area was the largest industrial area in Europe; as a result, the region had plenty of jobs, but an environment that became much degraded (CABE1, n.d.). Thereafter, facing pressure from lower-cost producers, the coal and steel-based economy went through a sharp decline, causing massive job losses in those traditional sectors (Taylor, 2015, p.4). The first signs of an economic crisis began to emerge in the 1950s as the demand for coal declined. This was compounded by a recession in 1966–1967, and growing international competition during the 1980s led to the traditional industries plunging into a severe decline (Percy, 2003b, p.152). Under the economic pressure the number of coal mining jobs fell sharply. Then, in the mid-1970s, demand for the Ruhr's steel production also began to fall quickly, due the increasing availability of less-expensive steel on the global market (Taylor, 2015, p.4).

Kurpick and Weck (1998) pointed out that the severe unemployment was also accompanied by a mismatch in the qualifications requirements of the new tertiary industries (financial services and electronics) and by other social problems, including the breakdown of traditional social networks, housing difficulties, and the need to retrain people from the traditional labour force. Consequently social exclusion became a growing problem in NRW. Taylor (2015, p.4) mentioned that the environmental conditions founded on early and middle 20th century technology, had also deteriorated to reach levels that would be considered totally unacceptable today. The closure of the iron and steel plants and coal mines also left large areas of contaminated land requiring costly reclamation. Based on the above the regeneration policy in the Ruhr region has been tied into environmental improvement together with social enhancement (Percy, 2003b, p.153).

This situation was the regional background when the state government announced the International Building Exhibition IBA Emscher Park in May 1989 and in 1989 IBA Emscher Park GmbH called for projects submission. This 10-year programme aimed to change the urban and landscape quality of the Ruhr Region, in addition to facilitating the ecological and economic renewal of the Emscher zone in the Ruhr region (Reicher et al., 2008, p.10).

4.6 International Building Exhibition Emscher Park (IBA Emscher Park)

The main heartland of the Ruhr region was designated for the International Building Exhibition Emscher Park (Internationale Bauausstellung Emscher Park). As mentioned by Reicher et al. (2008) the international building exhibitions held in Germany since the beginning of the 20th century have presented exemplary architectural and urban planning projects to an interested public. The IBA Emscher Park, held at the centre of Germany's largest industrial region, tried to find a way to transform a unique region that had been

permanently marked and marred by industrial history and open up a new future for it, all within the space of ten years. According to [Percy \(2003b, p.156\)](#) the Emscher area is not an administrative unit, but is made up of collieries and steel works, many of which are now abandoned, interspersed with settlements and centred on the River Emscher. [Reicher et al. \(2008, p.8\)](#) pointed out that the IBA Emscher Park was created in 1989 by the NRW government and worked under the motto “Workshop for the future of old industrial regions”, to provide a focus and framework to assist the cities within the Emscher region in a total area of approximately 800km² along the River Emscher between Duisburg and Bergkamen, extending approximately 70 km east-west and 15 km north-south. The Emscher area was deliberately chosen at the IBA’s “workspace”, oriented towards specific projects and covering areas in 17 cities.

As mentioned by [Schaal \(1998\)](#) and [Percy \(2003b, p.156\)](#) the State of NRW founded in 1988-1989 an IBA planning company (IBA Emscher Park GmbH) as a subsidiary of the State of North Rhine-Westphalia, to act as the coordinating body for this workshop. The project was funded from a variety of sources and it was this initiative that started the transformation of the area that can be seen today. According to [Reicher et al. \(2008, p.9\)](#) IBA Emscher Park GmbH, led by Dr. Karl Ganser acted mainly as a motivating “engine for projects and a moderator of planning processes”, although it implemented no projects itself. Instead, it sought to guide the process, to stimulate and support cities, institutions, companies, infrastructure, providers and civic initiatives to achieve greater quality in urban and landscape development, in architecture and in dealing with former industrial sites. The IBA attempted to utilise existing resources, promote networks and secure the quality of results. Those that received its stamp of approval would be prioritised for public funding; this ensured an increasing focus on quality.

[CABE1 \(n.d.\)](#) mentioned that although the region was highly industrialised, 60 per cent of it was green space and the landscape park would be the central component of an integrated development strategy. The vision of the landscape park was focused on the Emscher River, although for decades the Emscher had been little more than an open sewer into which the many industries released their waste, and the state of the Emscher was one of the worst problems in the area that needed to be solved. A key factor in the IBA programme has been the regional marketing of the area to create a new image for the Ruhr, away from that of an environmentally contaminated industrial landscape to one offering a high quality of life and suitable for the new economic sectors ([Percy, 2003b, p.156](#)). Amongst the project headings, the “protection, renovation and reuse of the region’s industrial heritage” was one of the most prominent ones. Thus the unique character of the region was used as the basis for a culture-led regeneration programme, leading ultimately to the Ruhr winning the title “European Capital of Culture 2010”. Whilst the programme made a significant contribution to developing theory and practice in ‘sustainable’ regeneration it was not without criticism: some pointing to an emphasis on cultural regeneration and others questioning the ability to maintain the programme and the focus on sustainability into the future ([Shaw, 2002](#)).

4.6.1 The central themes of the IBA Emscher Park

The IBA Emscher Park, held in the Ruhr area from 1989 to 1999, was conceived as a structural policy programme of the state of North Rhine-Westphalia (Reicher et al., 2008, p.8). The program was set up as an 'experiment' and had no formal legal status or power; it had to rely on persuasion, so that it would not be perceived as a threat to the existing political structures (CABE1, n.d.). The IBA aimed to regenerate the Ruhr region from a base of manufacturing and heavy industry to one of service industries through the refashioning of space as places of consumption rather than production. Since the IBA sees regional quality in physical, social, environmental and cultural terms, as a key factor in improving the competitive edge of the area, the Ruhr regeneration has relied on comprehensive planning and ecological revitalisation (Percy, 2003b, p.157).

As mentioned by Reicher et al. (2008, p.9) in 1989, IBA Emscher Park GmbH started a public appeal for project proposals that met with a great response, with over 400 ideas submitted. Projects to be implemented and supported were selected using a previously drafted central strategy document, the first IBA Memorandum. Seltmann (2007, p.3) explained that the memorandum defined the focus points for the program and the methods for developing the projects. The members of the IBA Emscher Park represented the political parties and important groups of the society. According to Reicher et al. (2008, p.9) in terms of the regeneration of the Emscher area, the IBA Emscher Park projects were structured around six central themes:

1. The Emscher Landscape Park
2. The ecological reconstruction of the Emscher river system
3. Working in the Park
4. New residential and urban development
5. Conservation of industrial monuments and industrial culture.
6. New facilities for social, cultural and sporting activities.

4.6.2 The IBA Emscher Park projects

By 1999, 19 cities and municipalities and a series of initiatives and companies had planned and executed more than 100 projects. These were documented and presented in a "Project Catalogue" at the end of the IBA and almost all of them can be regarded as successes (Reicher et al., 2008, p.10). The project life was 10 years, with the fundamental aim of investing money, promoting a vision and implementing developments in the area over a relatively quick period of time, to bring about major structural changes in the Park. The range of projects stretched from the development of large areas of derelict land right down to much smaller-scale activities such as the creation of new ecosystems or the planting of trees (Percy, 2003b, p.157). According to Seltmann (2007, p.2) these projects implemented a strategic approach to link up urban development and landscape, to combine private investment and architectural quality and to systematic cross planning of 17 municipalities in the Ruhr Region. As mentioned by CABE1 (n.d.) during 10 years the region had become used

to running design competitions, holding events, and attracting visitors. At this point, as planned, the IBA came to an end.

Reicher et al. (2008, p.9) pointed out that the projects were implemented in various creative ways, using a combination of different planning methods based on planning competitions or similar procedures in which projects were implemented as a result of quality, mostly international competition. The IBA projects were 40% financed by private investors with existing government funding programmes of the state of NRW, the German Federal government and the European Union covering approximately 60% of the costs (ibid). In order of the central work areas and project themes, the projects are detailed as follows:

1. The Emscher Landscape Park

The Emscher Landscape Park is the central project and connecting topic of this Building Exhibition. It is designed to make the Emscher region's landscape "more attractive and give it a more comprehensive urban planning system" (Reicher et al., 2008, p.16). The IBA has been regenerating the landscape through the development and implementation of a regional park by coordinating a regional green space system that provides an ecological backbone to the area (Percy, 2003b, p.160).

The Ruhr area presented itself at the IBA as an urban landscape marred by urban sprawl and carved up by motorways, drainage canals, etc., and many areas were also polluted by old waste left on former industrial sites. The Emscher Landscape Park concept originated from this reality, the project's fundamental principles were the protection, linking and qualification of existing open space, developing new parks on old sites by transforming former industrial railways into cycle paths and integrating many projects into a connected regional park (Reicher et al., 2008, p.16). According to Shaw (2002, p.85) the initiative is based on the idea of 'regional green corridors' established in the 1920s but never properly put in place. The project encompasses 17 cities and covers an area of 320 km² (expanded recently to 457 km²); the aim was to create an ecological system of European significance. The region should be free from new settlement in the future and developed between the cities and inside the cities, many projects from small areas to large brownfield were developed as contributions for the Park (Seltmann, 2007, p.3).

Even after end of the IBA in 1999, the Emscher-Park concept is unique in the worldwide metropolitan areas and still growing with new opportunities. The task of transforming and sustainably designing the urban landscape in the Ruhr was by no means complete by the end of the IBA. The evaluator workshop in 2001 called for the continuation of the Emscher Landscape Park, as a result the state of NRW commissioned 'Projekt Ruhr' to draw up the Emscher Landscape Park[ELP] 2010 master plan, to establish the strategy of future park developments in conjunction with cities (Seltmann, 2007, p.3 and Reicher et al., 2008, p.19).

2. The ecological regeneration of the Emscher River system

The Emscher River 'the region's main central structure' gave the International Building Exhibition its name. The Emscher system, 350 km of Former River and stream course, has been an open canal system for disposing of the region's natural runoff and effluent for

around 90 years. The regeneration of this system in accordance with ecological principles forms the backbone of the Emscher Landscape Park (Reicher et al., 2008, p.54). According to Percy (2003b, p.159) the Emscher River was used as an open sewer running throughout the Ruhr valley, to collect the waste water of more than 2 million people and thousands of private enterprises (figure 4.7).

Shaw (2002, p. 85) considered that environmental improvement was deemed by the IBA planners to be a prerequisite for economic renewal on the basis that business is becoming increasingly sensitive to environmental considerations. As mentioned by Percy (2003b, p.159) canalisation of the sewerage system has helped to clean up the Park and cut down on the amount of pollution entering the River Rhine. The goal of the regeneration is to return the Emscher system's rivers and streams to a vital design feature of the landscape. Utilisation and districts along the rivers should in future again be oriented towards the waterside, so the regeneration is being carried out in close cooperation with municipalities. One pilot project was the ecological regeneration of the Emscher along a 2 km stretch in Dortmund's Westfalen park in 1991 (Reicher et al., 2008, p.54). Another example was a new housing development in Duisburg inner harbour, as a result of filter and clean surface water runoff from the development. After the IBA, the urgent goal was to develop a vision in the form of long-term guidelines for the new Emscher valley. To do this the Emscher Cooperative created the supra-regional "Emscher-Dialoge" discussion forum in 2001, which is held annually, and goes into details on special subjects such as "water and architecture, rainwater as a design element of the city" (ibid, p.56).



Figure4. 7 Emscher River,1960 as an open wastewater through a densely populated industrial region. Source: <http://www.eglv.de/en/water-portal/home/>



Figure4. 6 Emscher River- new water landscape and bike paths. Source: <http://www.emscherweg.de/>

3. Working in the Park

According to Seltmann (2007, p.4) with high unemployment rates, depopulation and loss of revenue from taxation for the urban areas, much effort has been put into economic growth, therefore the target was that new industrial or service areas should be implemented on brownfields, as opportunities for new investments. Reicher et al. (2008, p.74) highlighted that the 'working in the park' projects focused on developing high-quality commercial and industrial areas that would achieve more than conventional business locations, contributing to rebuilding the landscape through networking with the Emscher park, to conserving and

re-using industrial and engineering historical monuments and improving the business structures in the cities by creating new jobs. This was connected with the approach of viewing business, the landscape, the city and culture together as a whole.

Seltmann (2007, p.4) mentioned that the IBA has been active in providing suitable land for development through, for example, the redevelopment of contaminated sites realised by means of renovation and upgrading. Inspired by the low costs for the IBA land itself, many of those close to the city centres were developed by linking them to the near urban areas. According to (Reicher et al. (2008, p.74) During the IBA, the state of NRW gave priority funding to two types of projects: “Future locations” which is characterised by a potential to develop into locations for cultural economy with quality industrial architecture and appeal beyond the region, for example Minister stein-Neue Mitte Eving in Dortmund and Innenhafen Duisburg (Duisburg Inner-harbour- figure 4.8). The second type of projects involved start-up and technology centres, which were built at eleven locations. These promote innovation and company start-ups in cities by offering a range of services and have been developed as urban planning anchor points of business parks. 20 “Working in the Park” projects were developed and there are now approximately 13000 jobs in the projects, which are almost exclusively trades, technology, and service-oriented.



Figure4. 8 Inner–harbour Commercial Park, Duisburg. source: Reicher et al. (2008, p.89)

4. Urban Planning and social impetus for city district urban development

As mentioned by Reicher et al. (2008, p.122) the housing structures in the Emscher region grew and changed as a result of the industrialization process. The city centres, which had lost much of their importance and shrunk due to these influences, did not develop in the same manner as the housing estates that grew in the productive coal mining areas. The demise of the coal and steel industries, led to high unemployment and the loss of future prospects. Social problems followed, which were intensified by the neglect suffered by many districts. Percy (2003b, p.161) pointed out that the skill mismatch for the existing unemployed in the region was a major problem when restructuring the economics of the area. The decline of industrial processes led to the erosion of traditional social networks, with increasing social inequality; certain groups became vulnerable to social exclusion from the formal labour market, and from social and cultural opportunities. Thus, the

enhancement of the social fabric was an important aspect. To try and tackle social exclusion a number of initiatives have been pursued such as improvement of old housing stock.

According to [Reicher et al. \(2008, p.124\)](#) three categories of district projects have been discerned by IBA:

- The IBA focused on entire districts. These should be developed in terms of urban planning and design as well as economically.
- Strengthening of the local mobility plan throughout the Emscher region, the train stations and their surroundings were to be renovated and optimised by way of linking public transport and bicycle stations.
- Urban districts that particularly suffered due to the changes in the economic environment were aided during the IBA by way of the 'city districts with particular renewal needs' programme launched by the state of NRW in 1993.

In the interim phase of the IBA in 1995, citizens' initiatives offered "take the initiative" array of projects that were specifically designed to awaken and support citizen and civil society participation. These projects were focussed on the improvement of social and cultural infrastructures which could stimulate neighbourhood and urban development. These approaches that proved successful in the Ruhr Area were also carried over to regions of NRW and then developed in 1999 into the nationwide [Social City] programme.

5. The Emscher Park's housing projects "building it simply yourself project series"

IBA-housing projects stretched from the renovation of historic worker settlements to completely new settlements, but the general agreement was that no green spaces should be used as construction sites ([Seltmann, 2007, p.4](#)). The integrated housing and urban development initiative sought to take advantage of the abundance of traditional worker's housing which exists in the Ruhr. The region did not have to consider the issue of the housing shortages, instead they were able to benefit from existing stock in order to create high quality urban environments with higher environmental, social and design standards ([Shaw, 2002, p.85](#)). Although in the cities residential areas are not as visible or spectacular as new business- areas or the reused industrial buildings, many of them have influenced the process of implementing new technologies or redefining the housing construction ([Seltmann, 2007, p.4](#)). Within this initiative, a number of aspects are of particular importance to sustainability: participation by civil society; social interaction in the planning process; low energy buildings or with reuse of rain water, use of new materials; and provision of housing for people on low incomes ([Shaw, 2002, p.85](#)).

In the IBA Emscher Park housing projects, around 2500 new flats were built and a further 3000 flats in existing housing stocks renovated. The thematic background to these developments was the garden city workers' housing estates that characterised the estate tradition in the era of industrial growth and were also exemplary in forming social neighbourhoods. Resident participation played a central role in the project to incorporate social and ecological concerns in the execution of projects from outset. About 75% of the new flats built were publicly funded as rented council housing. The IBA has encouraged self-

build projects for low-income groups, giving them the opportunity to achieve ownership and as an encouragement to remain in the region (Reicher et al., 2008, p.206).

6. Industrial heritage, tourism and art in the Emscher Landscape Park

As mentioned by Seltmann (2007, p.4) the decline of former industries had left behind many unused buildings. The IBA idea based on the understanding, that these buildings were valuable because they were part of the region's history, gave identity to people and cities and offered countless opportunities for new uses. According to Reicher et al. (2008, p.264), Blast furnaces, coal mines, gasometers, coking plants and miners, etc. are among the era's most distinctive structural historical witnesses. With the crisis in the coal and steel industries and the incipient structural change, the issue of how to deal with industrial-cultural heritage and its value in the present and in future has gained in importance. At the end of IBA many projects in old industrial buildings had been completed-including working in the park activities or reusing some buildings for cultural purposes (Seltmann, 2007, p.4).

Reicher et al. (2008, p.264) pointed out that the IBA Emscher Park's strategy of developing industrial sites, through conversion and innovative reutilisation to provide impetus for the breaking of new ground and change in the Ruhr area, was continuously affirmed, even after its conclusion. Examples for these projects are the former Meiderich steel plant near Duisburg-Nord which has been transformed into a landscape park, with new recreational and leisure facilities. Another example is the former worldwide largest coalmine "Zeche Zollverein" in Essen which has been converted into the Design Zentrum Nordrhein Westfalen, an art and industrial park. The park includes an exhibition hall of industrial design located in a former boiler house that was remodelled by Sir Norman Foster. The project has become an icon and the region's international trademark, it has been announced as "World Cultural Heritage list in 2001" (see figure 4.8), (Percy, 2003b, p.159 and Reicher et al., 2008, p.264).

By taking "industrial cultural" as its central theme and promoting it as the authentic core of Ruhr area's regional identity, the IBA Emscher Park has made a sustainable contribution extending far beyond the effect of individual projects and places and beyond the period of the IBA itself (Reicher et al., 2008, p.264). Historical industrial buildings today are architectural witnesses, explaining the history of the region and serve as orientation points. They have been reused for housing, workplaces and leisure activities. All projects are linked with the "Route of Industrial Heritage" which is now one of the most successful tourist attractions in the Ruhr Area (Seltmann, 2007, p.4 and Couch et al., 2011, p.30).

Figure4. 9 The former worldwide largest coalmine "Zeche Zollverein" in Essen. Source:

<http://dienerdiener.ch/de/project/ruhr-museum-at-zollverein>





Figure4. 10 Zollverein Shaft XII Coal mine – Essen . Source: [F1RSTDESIGN.COM](https://www.firstdesign.com)

4.6.3 Lessons learned from the IBA Emscher Park as a large scale urban regeneration project

The Emscher area experienced important steps towards sustainable regeneration, with the IBA Emscher Park which was initiated from 1989 to 1999 and implemented by the then minister of city construction Dr. Christoph Zopel. According to [Reicher \(2015, p.92\)](#) projects such as ecological renovation of the Emscher system or the Emscher landscape park would not have been seen through without the IBA. Further, there would have been no Ruhr tourism, no European capital city of culture 2010, no regional city contract or Ruhr-forum without this project. The Ruhr region drew international attention with the new “industrial revolution”. This interconnection of various formats of urban development was mutually dependent even when the direct interrelationship can only be demonstrated on a case-by-case basis. [Reicher \(2015, p.92\)](#) identified the important values of IBAs especially the IBA Emscher park as an “action chain”, which means actions and targets are linked not only within a specific project but also work to provide inspiration for new ones. She discussed the important aspects of IBA Emscher park as follows:

1. IBA Emscher park: a milestone of national and international format

The IBA exhibitions began with Künstlerkolonie auf der Mathildenhöhe in Darmstadt in 1901 and their development can be traced impressively. Whereas the first IBAs were pure architectural exhibitions, nowadays construction is only one of many aspects of IBA. IBAs have changed from construction art exhibitions to events that operate regionally-recently beyond the borders as well-, demonstrate problem solving, are process and communication oriented and have a long term effect.

According to [Durth \(2010\) cited in Reicher \(2015, p.92\)](#) the IBA changed from architecture to building culture exhibitions, meaning, along the aesthetic and technological aspects, the social, economic and environmental aspects increasingly lie in the foreground as well as

quality of the processes and participation. It seems in this context that the consecutive exhibitions learned from each other, and built on the knowledge of the predecessors. So on the one hand the IBAs learn and build from each other, on the other hand each has a specialty and a strategy for urban/regional development. One example is the “principle recycling” (renaturation of industrial brownfields) that was employed for the first time in the context of IBA Emscher Park. Sustainability was present, albeit not explicitly stated.

According to [Reicher \(2015, p.93\)](#) the IBA Emscher Park was the first IBA on a regional scale. It met the international demands on many levels; it was dedicated to an international and community relevant theme ‘change without growth’ and also to the handling of the industrial heritage. A large worldwide interest for IBA Emscher Park was created, so the route of the industry culture experienced an ongoing international development. [Kunzmann \(2011\)](#) discussed the international perspectives of IBA Emscher Park and its effect on various parties abroad. He sees that the format of IBA is not applicable internationally, but he suggests a steady international representation of IBA Emscher Park in the form of an IBA academy. Overall, a large number of international presentations and workshops regarding IBA Emscher Park were and are present, for example the international meeting ‘what can Paris learn from IBA?’ in the summer of 2009.

2. IBA as link in a chain

The position of the IBA format as part of a comprehensive long-term chain is obvious in structural developments of the Ruhr area since the 1960s. [Reicher \(2015, p.93\)](#) highlighted that the development chain of Ruhr can be divided into 4 phases of regional structural change that sets different thematic topics and may react to contemporary challenges, these phases are:

Phase 1: science and image formation

The university program of the state of NRW in 1966 was a central basis for the establishment of the new university sites and with that, a sound foundation for science and education which changed the image of the region towards more regional awareness. [Collinet \(2011\) cited in Reicher \(2015, p.93\)](#) mentioned that In the 1970s Karl Ganser (the future director of IBA Emscher park) was already preoccupied with the question of the regional image as a soft location factor and an important foundation for a regional success strategy. Ganser had the idea ‘not to negate the strikingly burdensome picture of an old industry region, rather, the industrial buildings and the heritage should be the starting points of all the memorial strategies so that a distinctive identity could be created’.

Phase 2: IBA Emscher Park

[Reicher \(2015, p.95\)](#) mentioned that the aspects of image formation and the reinforcement of the regional awareness were to a considerable extent relevant for the decision to carry out an IBA in the Ruhr area, which led to a new phase for the “change without growth”. IBA Emscher Park has left behind many traces, such as: *Impulse provider for new building and planning culture; Motor for regional thinking; Cause for perception change.* By renovating

existing old industry structures it ensured the building hardware and so the requirements for a follow format.

Phase 3: European cultural capital and culture

Cultural capital Ruhr 2010 depended less on reconstruction of structures but rather on: the activation, use, value adding of existing industrial conserved structures. Before the naming of Essen -in Ruhr area- as European culture capital, many cultural sites were in continuous use. Since 2001 the culture festival Extraschicht in the Ruhr area, draws attention to old industry testimonials as a culture venue in the Ruhr. Further, the Ruhr triennial - an international art and culture festival – whose venue is the regional industrial monuments that were achieved by the IBA.

Phase 4: green capital and climate expo

Following Ruhr 2010, a special emphasis was given to the theme climate change and resource efficiency. As mentioned by Reicher (2015, p.96) in the pilot areas of the project 'Innovation City Ruhr' the energy expenditure would sink to around 50% by the year 2020 and exportable experiences regarding energy efficiency in old industrial areas would be produced. The Ruhr area applied for the title European Green Capital in 2015 in order to present the region's relevant environmental activities regarding city, climate changes and education. Another big green project is the Klima Expo 2020, undertaken by Initiative Group Ruhr and the government of NRW, Based on the insights of 'Innovation City'.

3. The current debate on the format IBA

Reicher (2015, p.96) pointed out that the IBAs that are at the time being in planning or have been accomplished, as instrument of urban planning are highly controversial among professionals and the community. This is seen in the IBA Hamburg -2013, while the supporters see this exhibition as a new type involving less architectural spectacle and more innovative social, educational, cultural and sustainable measures that encourages more integrated urban development, the opponents criticize the thematic arbitrariness and the citizens' participation. IBA Hamburg raised the following queries regarding the format. Are the IBAs exchangeable, replaceable and inflationary? Is the promotion of urban development processes achieved only through exceptional exhibitions? Aren't the aims of present IBAs the obligatory tasks of communities and federal states and should be addressed in the course of urban planning? And what about the future funding?

Reicher (2015, p.96) confirmed how the IBA as a format in Germany experiences a high conjecture as in Heidelberg with 'knowledge makes a city' and how it develops into a format beyond borders as in Basel area that became an 'export hit'. The park city Limburg in Holland has also begun an IBA.

4.7 Conclusion

German IBAs in general and IBA Emscher Park in particle represent one of the integrated and sustainable regeneration approaches where the principles and objectives of sustainable urban regeneration are very clear in the IBA Emscher theory and practice. The IBA has

become a format for urban planning and sustainable development, not just in Germany but also beyond border and its international influences have appeared recently in different regeneration initiatives worldwide. Therefore it can be considered as a format and a guide for planning future urban regeneration in the Iraqi local context, after making the necessary adjustments to be applicable at the local level.

Part II: Methodology and Data Analysis Methods

Chapter 5: Urban Regeneration Assessment Approaches

5.1 Introduction

According to [Devuyst \(2001a, p. 420\)](#) the successful shift of cities to a more sustainable state is dependent on a number of critical factors, for example; the presence of people in positions of local authority who stand behind the principles of sustainable development and who are able to motivate is an important catalytic factor in the introduction of measures for more sustainability. As mentioned by [EC \(2011\)](#) the administrative boundaries of cities no longer reflect the physical, social, economic, cultural or environmental reality of urban development and new forms of flexible governance are needed, therefore sustainable development at the national level cannot be detached from international initiatives.

To advance the understanding and awareness of the development and regeneration assessment process, this chapter discusses the sustainable urban regeneration evaluation tools and how these should be used to link planning evaluation theory and urban design practice. The first part of this chapter reviews a range of conceptual models of the assessment process in which the different dimensions of this process can be identified. The second part discusses the process of determination of relevant sustainable urban regeneration evaluation tools. Understanding these processes is necessary to develop a comprehensive conceptual framework to assess the urban regeneration projects.

5.2 Definition and importance of sustainability assessment

Sustainability assessment is identified by [Devuyst \(2001, p.9\)](#) as a tool that can help decision-makers and policy-makers decide which actions they should and should not take in an attempt to make society more sustainable by checking whether new policies, plans, or other initiatives are in line with principles for sustainable development. The aim is to steer societies in a more sustainable direction by providing tools that can be used to measure progress towards a more sustainable state. According to [Bentivegna et al. \(2002\)](#) several sustainability evaluation methods and frameworks have been developed by Academia and Governments to support decision making during the urban development process. Due to the

complexity of each planning's process and objective, there is not a unique evaluation approach. It is appropriate for specific stages of the urban development process, for specific spatial or temporal scales of development, and often for specific sustainability issues (Gil and Duarte, 2013, p.311).

Depending on the assessment purpose, the assessment should make it possible to identify imbalances and deficiencies between the dimensions of environment, society and economy, to highlight opportunities for optimization, and to attain a long-term equilibrium between the three dimensions (ARE and DETEC, 2004, p.12). Therefore the focus is less on the question of whether or not a project is sustainable than on designing projects in the most sustainable manner (ibid). As mentioned by Llewelyn and Baxter (2007, p.110), the evaluation tools of sustainable urban development can support the assessment of alternative urban design options at different scales and are applicable from the early stages of the urban design process. The aim here is to assess the adequacy of these evaluation tools for use in urban design practice in order to facilitate the choice of tool or to guide the future development of new tools. The term 'tool' here is used in a broad sense, encompassing a range of design and decision support instruments. Hence, evaluation procedures are necessary to assess if local urban development initiatives can contribute to progress towards the national goals of sustainable urban development (Oliveira and Pinho, 2010).

Sustainability assessment functions most effectively if it can rely on a clear framework, such a framework can take the form of a local community vision for sustainable development or a local sustainable development policy (Devuyt, 2001a, p.421). As mentioned by ARE and DETEC (2004, p.12) the assessment conceptual framework is intended to form a common instrumental basis for addressing the various expectations and requirements arising from the different subjects to be examined, such as draft legislation, programmes, strategies, concepts and plans. The local authorities have to develop their own vision for sustainable urban area, based on the specific urban problems with which that area is faced and these visions may be influenced by the size, economic status, and the stage of development of the city.

5.3 Sustainable urban regeneration assessment

As mentioned by IOER (2005, p.9) the sustainable urban regeneration assessment (SURA) is made up of a family of methods that can help policy-makers and decision-takers decide what they should do to make their cities more sustainable. Devuyt (2001, p.9) identified the assessment family that includes: Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Social Impact Assessment (SIA), and Health Impact Assessment (HIA). The author also noted that Impact assessment alone is not sufficient, tools and indicators for measuring progress towards sustainability goals are also required, along with procedures for linking these with policy and decision-making processes. USAL (2005, p.7) determined the role of assessment in the regeneration process, i.e. to underpin decision-making throughout the regeneration process. The assessment activities should

integrate the planning steps in the course of sustainable urban regeneration, from the recognition of distress, through to establishing objectives, programming and implementation to the monitoring and final evaluation of outcomes. According to [SBE \(2005\)](#) the important aims of SURA is to improve decision-making about urban development and to make them transparent and open to external scrutiny through public participation. Implementing SURA should encourage decision-makers to give appropriate attention to sustainability issues in the realization of their initiatives as well as raising public awareness and understanding. A wide range of assessment types have been developed to assist in understanding the economic, social and environmental impacts of planned changes. According to [USAL \(2005, p.8\)](#) the assessment activities can be divided into four categories (as shown in figure 5.1):

1. *Baseline assessments*: an analysis of the current conditions of an area is usually carried out at the beginning of the regeneration in question.
2. *Prospective assessments*: look ahead to support decision-making before changes are implemented, they include:
 - Predicting the probable forthcoming events and devising different scenarios of the future in visioning.
 - Analysing possible future implications of the alternatives. The suitable options are chosen by comparison and benchmarking against various criteria in programming and implementation.
3. *Formative assessment*: It consists of a range of assessment procedures undertaken throughout the life cycle of the regeneration programme and individual projects.
4. *Retrospective assessment*: These methods are used in the monitoring stage of the regeneration process. This type of assessment is a critical judgement of the performance, impacts and sustainability consequences of the selected alternative.

As a result of the regeneration process, each type of assessment form will ensure more sustainable outcomes and improvements to the urban area. The term “regeneration programme” in the current research refers to the master plan approach in providing an outline of the future redevelopment of the area which must be planned in accordance with the standards established in the plan. According to [USAL \(2005, p.28\)](#) the master plan - a set of plans, illustrations, and descriptive text specifying the policies developed earlier in one document - is guidance rather than a detailed blueprint, as the individual projects are selected later in the implementation step.

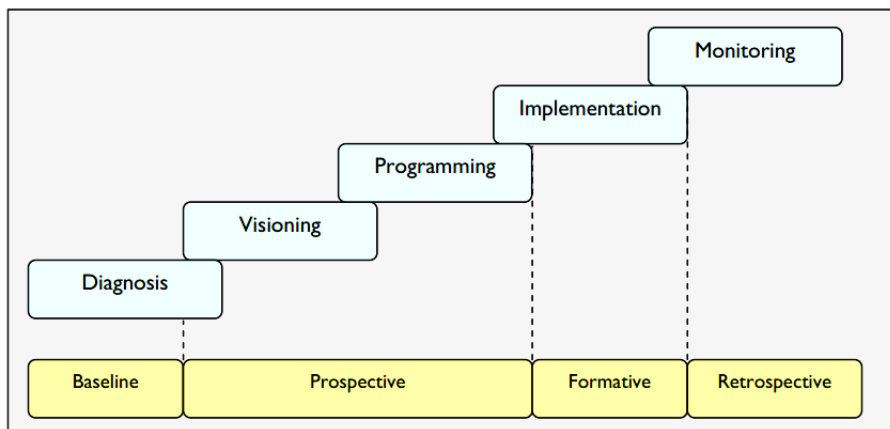


Figure5. 1 Relationships between steps and types of assessment in LUDA regeneration process. Source: [USAL \(2005, p.9\)](#).

5.4 Integrating sustainability assessment into the regeneration process

According to [SBE \(2005, p.19\)](#) in relation to the main methods of evaluating the sustainability of urban regeneration, which includes EIA (Environmental Impact Assessment) and SEA (Strategic Environmental Assessment), a tiered approach relating policies, plans, and programmes is necessary. A policy provides a framework for the establishment of plans; plans provide a framework for programmes; and programmes lead to projects as shown in figure (5.2). Therefore a policy would be considered as the inspiration and guidance for action, a plan as a set of coordinated and timed objectives for implementing the policy, and a programme as a set of projects in a particular area.

The strategic policies and plans provide the context and constraints within which regeneration initiatives have to develop. As illustrated in Figure (5.2) the SEA has largely been introduced to ensure that environmental issues are addressed earlier in the policy making process. As mentioned by [\(SBE, 2005, p.19\)](#), policies and plans are required within regeneration in support of strategic decision-making in the programme (e.g. to direct project selection, formulation and prioritisation) and for tactical decision making within projects (e.g. a design guide is an instrument to influence decision making in projects). Sustainability appraisal is a procedure for assessing policies and plans in some countries as part of regional and national spatial strategies and local development plans or it can also be used as stand-alone method.

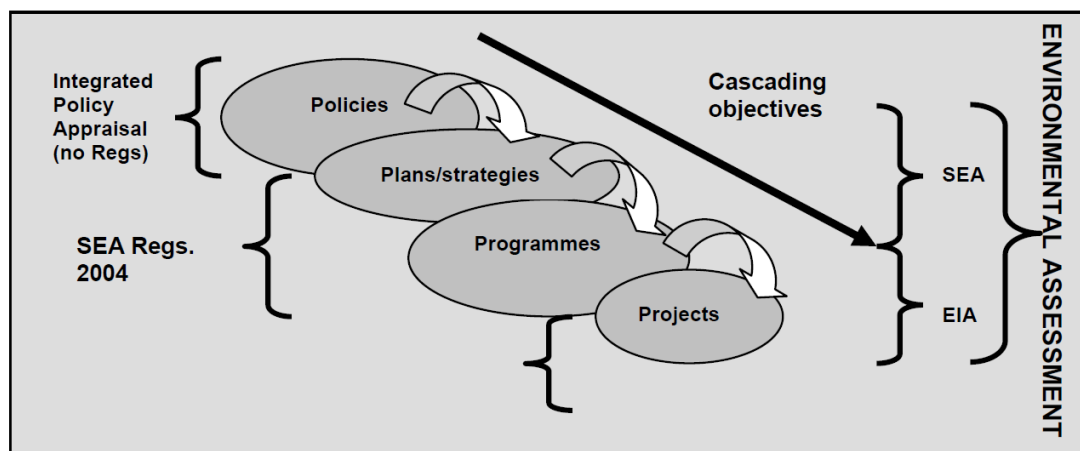


Figure 5.2 The tiered system of policies, plans, programmes and projects in relation to environmental assessment. Source: [SBE \(2005, p.20\)](#).

In order to achieve the objectives of community-based approach to urban regeneration which aims to tackle urban decline and support sustainable regeneration, sustainable assessments are needed to evaluate the impacts of these 'bottom-up' community planning, to help recognise good practice and to inform stakeholders of the potential impacts. [SBE \(2005, p.13\)](#) identified five main assessment steps which include; diagnosis, visioning, programming, implementing and monitoring. These steps can be described as follows:

5.4.1 Diagnosing

According to [\(SBE, 2005, p.31\)](#) the main actions involved in this stage are identifying driving forces of change, determining main issues and trends, stakeholder analysis, resource and

limitation assessment, identification of sustainable design indicators and targets, information collection and identification of problems and potentials. Different methods and techniques can be used during diagnosis to encourage the planning process for sustainable urban regeneration and encourage the process towards a common goal or vision. Some tasks are particularly useful at this stage:

Identify driving forces of change: identifying a broad-ranging set of the forces shaping the future in different directions. Horizon scanning is a useful technique to use at this stage for data collection to identify emerging trends and issues of change in the external environment.

Determine the main issues and trends: consideration of emerging or unforeseen factors by horizon scanning. Additionally, strategic conversations represent an important starting point during diagnosis because they invite the foresight of experts into the process.

Identify the critical uncertainties: are the issues or trends that are most likely to play a significant role in the future. This can be carried out using survey questionnaires which are useful techniques for collecting data about attitudes, beliefs and opinions from predefined individuals or experts. Both the problems and potentials help to enable the formation of strategic objectives, targets and indicators in the next step [visioning]. Other useful methods include: cross impact analysis, SWOT and expert Judgement (SBE, 2005, p.33).

5.4.2 Visioning the sustainable regeneration

Main actions of this stage are; formulation of strategic objectives, targets and indicators and generation of alternatives (or scenarios). The way to implement these is during futures workshops which provide a fertile environment for active participation and imaginative thinking for problem-solving. The following are methods that can be implemented during workshops (SBE, 2005, p.34):

Scenario Development: This step of the workshop usually involves developing out three or more scenarios for each alternative generated in which the participants 'rehearse' the future so that the readiness to act in the face of uncertainty almost becomes second nature.

Wind Tunnel Testing: Testing alternative policy options ensures that the most appropriate policy measures are suggested during the workshop on the basis of the scenarios created. Following the construction of the future scenarios, policy proposals should be formulated.

Visioning: is a step to produce a preferred future vision. The vision is created during the workshop following an in-depth analysis of the alternative scenarios created and the ideas and thoughts provoked by them. The scenarios also help highlight areas of future opportunity as well as future threat that render consideration when producing the vision.

5.4.3 Programming - assessing plans, programmes and projects

The actions involved at this stage of the assessment process include; preparing plan/improvement programme, predicting impacts, evaluating alternatives and impact mitigation. In terms of assessment and evaluation, the preferred vision has to be translated into a coherent set of practical options, policies and proposals which make up the draft plan or

what is alternatively named 'improvement programme'. These will include a number of physical, social and environmental improvements and usually involve the design of a small number of alternative scenarios, which then have to be evaluated in terms of their positive and negative impacts. The application of design principles through development of a master plan plus a design guide is important at this stage of the process. After the scenarios have been designed and proposals put into place it is then necessary to identify the predicted changes to the baseline environment. Impact assessment methods will be employed at this stage, such as environmental and social impact assessment (SBE, 2005, p.38). The evaluation of alternatives will often include their comparison using the indicators and objectives developed earlier in the process.

5.4.4 Implementation

This stage involves: Improvement action plan and Implementation of key projects. This stage is the most significant when it comes to the rehabilitation process but the least involved in evaluation terms. This stage involves implementing a number of projects, such as physical rehabilitation of land and buildings as well as social and economic measures. The impact of the projects has to be evaluated using the above mentioned techniques. The improvement action plan will ensure that the strategic action is implemented in the most sustainable manner possible and includes priority actions, critical mass for take-off and monitoring requirements. The designation and prioritisation of key projects will be carried out by stakeholders who will decide on the organisation of responsibilities for implementation. The feedback of the results of the implementation, coupled with the ongoing process of strategic sustainability assessment will determine the longer-term success of projects and the overall programme (SBE, 2005, p.40).

5.4.5 Monitoring

This stage involves: evaluation of indicators, remedial action and evaluation of good practice and lessons learnt. Monitoring and evaluation should occur throughout the process, both in terms of assessing changes to the baseline criteria and making judgements about what has been achieved. However, the most significant stage of monitoring and evaluation occurs after the implementation of programmes and projects when the necessary physical, social and economic actions have been put into place. At this point the evaluators will be able to determine the extent to which the programme or project achieves the set of objectives and targets (Roberts and Sykes, 2000). The monitoring system should be based on a set of indicators which takes into account the devised objectives. The fields used to categorise the indicators may be based on literature search, the main objectives of the programme and/or emerging perspectives which attempt to assess quality of life. All information collected should be compared with the data collected at incremental stages throughout the process, most notably with data relating to the baseline objectives (diagnosis) (SBE, 2005, p.41).

5.5 Constructing a framework of sustainability assessment for urban regeneration

Gil and Duarte (2013, p.312) pointed out that there has been a constant development of planning assessment methods, this reflects recognition of the complexities of the evaluation process in urban planning and has resulted in a move towards scientific and technical methods; from simple calculation methods to complex assessment frameworks, from an environmental focus to an integrated sustainability agenda or from an aggregated or reductionist strategy to a multi-dimensional approach. Devuyt (2001, p.9) highlights the importance of linking between the available instruments and the planning, policy-making, and decision-making processes.

Two types of tools for sustainability assessment are identified by Devuyt (2001, p.421) these are the tools to be used in the decision-making process, and tools for setting a baseline and measuring progress. The tools to be used in the former follow an impact assessment approach; whereas tools for the latter use an audit approach. The impact assessment approach aims to predict the sustainability consequences of certain initiatives before a decision is made. This means that this has an advantage over the audit approach because of its preventive nature. The audit approach measures effects when the activity is already in operation, possible damage has been done and the possibilities for taking corrective measures have become more limited. The next paragraphs illustrate the main steps to develop and establish an assessment tool to evaluate the sustainability of urban regeneration initiatives; furthermore, they will contribute to the methodology employed in the current research.

5.5.1 Categorisation of Assessment methods and techniques

The sustainability assessment instruments are considered to be the tools in the impact assessment family that includes according to Devuyt (2001, p.9) and Gil and Duarte (2013, p.312): Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Social Impact Assessment (SIA), Health Impact Assessment (HIA), cost benefit analysis (CBA), planning balance sheet (PBS) and multi-criteria analysis (MCA). LUDA team in the LUDA project categorised the assessment methods and techniques into three main groups (SBE, 2005, p.10):

Multi-criteria methods (MCA): Antunes (n.d.) identified MCA as a decision-making tool used to evaluate problems when faced with a number of different alternatives and expectations and the best solutions with regard to different objectives are desired. MCA has the ability to deal with complex and unstructured decision problems, which involve a number of ecological, environmental, societal and economic objectives. According to (SBE, 2005, p.9), examples of MCA methods include: analytic hierarchy process (AHP), flag model and concordance analysis. MCA methods usually rely on the scoring and weighting of options according to a defined set of objectives and/or performance criterion.

Impact assessment methods (IA): these assess the potential direct, indirect and cumulative effects of the alternatives of the programme or project. Impact assessment methods are

useful for predicting the magnitude, geographical scope and likelihood of each impact, making judgements about whether the impacts are significant for mitigating impacts. IA methods usually target one particular issue, for example, environmental impact assessment, or in some cases can cut across all the major issues, e.g. community impact assessment. Other examples of impact assessment methods include: economic impact assessment and social impact assessment, depending on effects of urban regeneration proposals (SBE, 2005, p.10). These methods also find their application in assessment of the baseline conditions (diagnosis) and evaluation of change in these conditions (monitoring).

Futures methods and techniques: these are creative ways of examining complex and uncertain issues during the initial stages of the planning process. They encourage people to adopt the longer-term perspective so that any future changes can be anticipated, prepared for, and ultimately managed better. Examples of futures methods include: strategic conversations, horizon scanning, brainstorming, scenario development and wind tunnel testing. Consequently, they encourage policy-makers to make more intelligent decisions by focusing on the most important issues in order to design better policy. In the regeneration process, these techniques support the diagnosis and visioning step (USAL, 2005, p.9).

Additional methods and techniques: There are some techniques that cannot be categorised according to these three main groups. These include: data collection tools, e.g. survey questionnaires; analytical tools, e.g. geographic information systems (GIS); and generic techniques, e.g. SWOT (strengths, weaknesses, opportunities, threats) analysis and expert judgement. Data collection methods in the diagnosis step are used to analyse the baseline situation. In monitoring, data collection methods provide materials for assessment of the performance of the regeneration projects above the baseline (USAL, 2005, p.9).

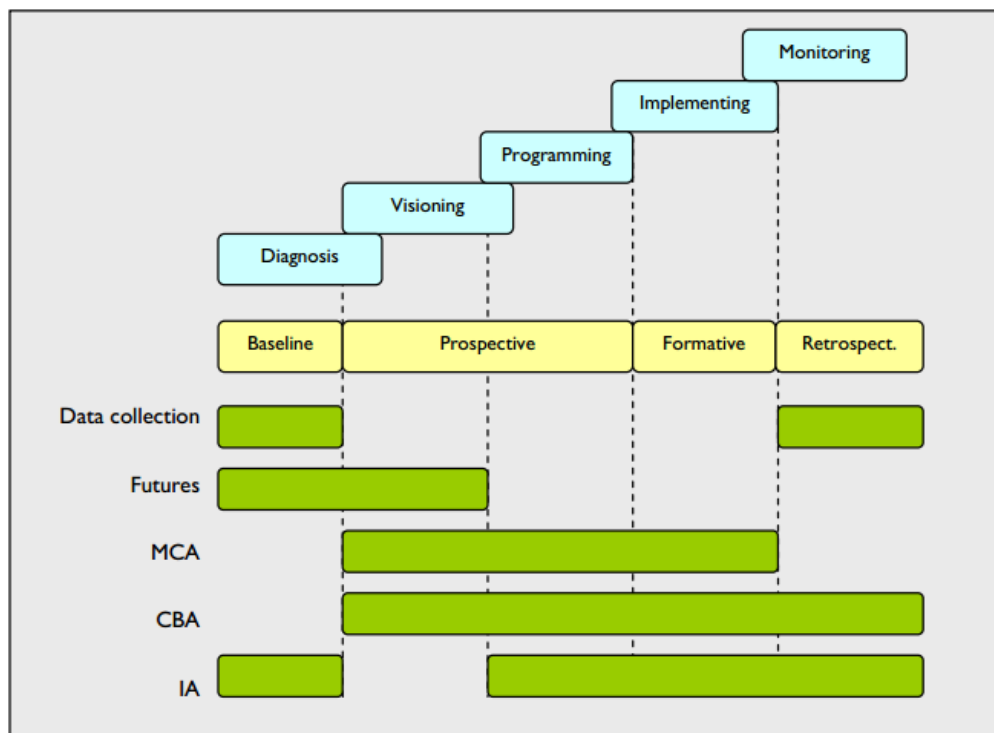


Figure5. 3 Relationships between types of assessment and applicability of assessment methods in the LUDA regeneration process. Source: USAL (2005, p.9).

5.5.2 Analytical framework for sustainable urban regeneration assessment tools

Urban regeneration poses long term effects on the physical, environmental, social, and economic development. Therefore, the assessment procedure should be dynamic and based on time series data (Peng et al., 2015, p.2). This section introduces the analytical framework used in a selection of sustainable urban regeneration evaluation tools in response to the needs of urban design practice. Gil and Duarte (2013, p.313) highlighted four main elements of the tools that assessment framework focuses on, namely; *format*, *structure*, *content* and *output*. The format is about their type and what they offer. The structure is about how the concept of sustainable urban development is implemented and organises the system of indicators. The content is about the different themes addressed by the individual indicators. Finally, the output is about the presented way of results.

1-Tool format: Jensen and Elle (2007, p.236) classified the selected tools according to one of the following typology tool types, to fit the specificities of the urban design process.

- *Process guide*: Tools on how to manage a project or policy on sustainability; which phases to go through, how to involve stakeholders, types of tools to be used, how to analyse the situation, etc. This type includes frameworks, environmental assessments, policies, strategies, programs and checklists as practical instruments to guide the design process.
- *Calculation tools*: tools for calculating the environmental outcome from different types of solutions, products or procedures, in different sectors and including life cycle analysis, economic and social evaluation tools, system simulation tools, etc.
- *Assessment methods*: Tools to weigh the sustainability dimensions in order to illustrate differences or prioritise between different solutions. This group includes multi-criteria assessment tools, evaluation procedures, surveys and public discussions.
- *Monitoring tools*: Tools for selection of indicators and benchmarks for monitoring and policy formulation on sustainability. They require precise calculation of indicators and include target values and weights for aggregating the results into the final score.

2- Tool structure: Based on Gil and Duarte (2013, p.313), the proposed structure for sustainable urban regeneration evaluation tools consists of the five hierarchical levels. Figure (5.4) shows these levels in the general structure of the tools, indicating a top-down definition and a bottom-up interpretation of the system of indicators and benchmarks. These levels as follows:

- *Sustainability dimensions*: based on the three pillars; environment, society and economy.
- *Urban sustainability issues*: the themes of concern for sustainable urban development that need to be addressed to achieve the core goals (e.g. resources, accessibility, viability).
- *Evaluation criteria*: the aspects that need to be assessed in order to verify the response of the plan to the issue (e.g. energy consumption, access to public transport or access to jobs).
- *Design indicators*: measurements that are indicative of the performance of the design, with specific measurement units and methods (e.g. percentage of residents within 400 m walking distance of a public transit stop).

-*Benchmark values*: the reference or target values that the indicators need to meet to achieve specific quality levels: reference values come from a baseline assessment of similar cases, while target values are objective goals from a more universal sustainability vision.

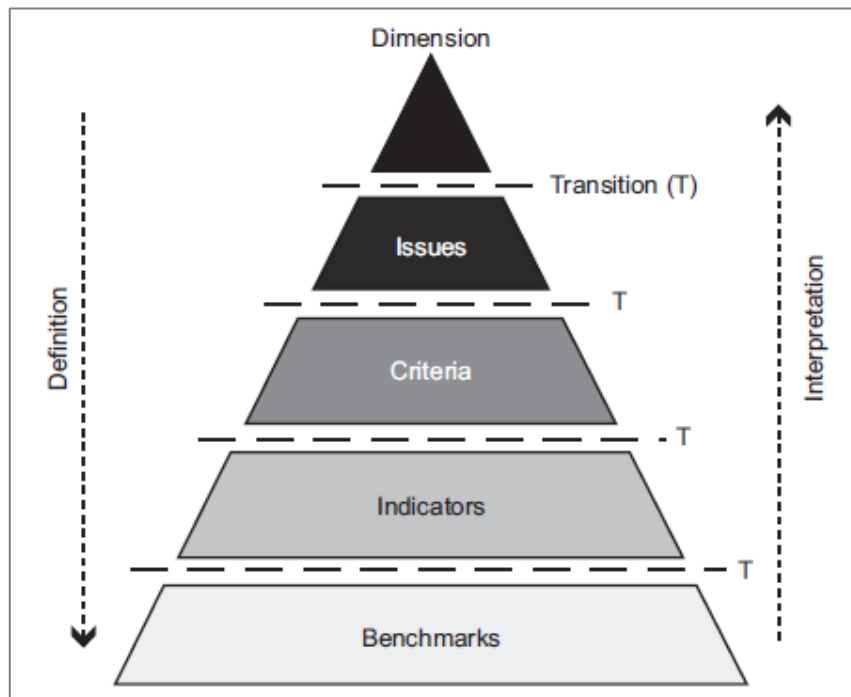


Figure 5. 4 General structure of sustainable urban development evaluation tools with five hierarchical levels. Source: Gil and Duarte (2013, p.314).

3-Tool content: The content of tools is reviewed by identifying what each individual indicator is measuring and viewing it under two different lenses (Gil and Duarte, 2013, p.314). The first examines how far the tools have evolved from building assessment methods which includes; quantifying the indicators for aspects of detailed building design, quantifying the numbers of indicators covering each pillar of sustainability and finally, determining indicators for the urban context and planning process. The second lens examines to what extent the tools directly measure the design outcome. This is defined by the dimensions of urban form as proposed by Dempsey et al. (2009) i.e. land use, density, mobility infrastructure, street layout and building type, as well as accessibility, which is identified as a unifying measure.

4-Tool output: This stage looks at the tools' output and what strategies they offer to tackle the serious difficulties in assessing the results of indicators and how the various targets are set in benchmark values (Gil and Duarte, 2013, p.315). According to Briassoulis (2001) and Hunt et al. (2008) having pre-set values is satisfactory if the levels are adequate for the local policy context, or to obtain results that are comparable with reference cases. The various disaggregate indicators are summarised using weights. As mentioned by Becker (2004, p.208) effective graphic communication of the results allows the involvement of a wider group of stakeholders and can provide a clearer overview of the strengths and weaknesses of a proposal, thus operationalising the evaluation process.

5.5.3 Principles for sustainability assessment

According to [Pintérd et al. \(2012\)](#) since the early 1990s a growing number of organizations have been involved in the development of indicator systems for sustainable development. In response to the need for improved ways of assessing sustainable development, in 1997 an international group of leading measurement and assessment experts reviewed the progress in this area which resulted in the so-called Bellagio Principles for Assessment ([Hardi and Zdan, 1997](#)). These principles present an important basis for any attempt at sustainability assessment, but in the opinion of ([Pintérd et al., 2012](#)); new developments in policy, science, civil society and technology have made their update necessary. These principles are intended to be used as a complete set, which includes eight principles as shown below with their definitions and application:

Table5. 1 The Bellagio principles for sustainability assessment (Bellagio STAMP). Source: based on ([Hardi and Zdan, 1997](#)) and ([Pintérd et al., 2012](#))

<p>Principle 1: Guiding vision</p> <p>Assessment of progress toward sustainable development should be guided by the goal of delivering well-being within the capacity of the biosphere to sustain it for future generations.</p>	<p>Principle 2: Essential considerations</p> <p>Assessment of progress toward sustainable development should consider: The underlying social, economic and environmental system as a whole and the interactions among its components; dynamics and interactions between current trends and drivers of change; uncertainties and activities that can have an impact; implications for decision making, including trade-offs and synergies.</p>
<p>Principle 3: Adequate scope</p> <p>Assessment of progress toward sustainable development should adopt: an appropriate time horizon to capture both short- and long term effects of current policy decisions and human activities; an appropriate geographical scope.</p>	<p>Principle 4: Framework and indicators</p> <p>Assessment of progress toward sustainable development should be based on: a conceptual framework that identifies the domains within which core indicators to assess progress are to be identified; standardized measurement methods wherever possible, in the interest of comparability; comparison of indicator values with targets, as possible.</p>
<p>Principle 5: Transparency</p> <p>Assessment of progress toward sustainable development should: ensure the data, indicators and results of the assessment are accessible to the public; explain the choices, assumptions and uncertainties determining the results of the assessment; disclose data sources and methods; disclose all sources of funding and potential conflicts of interest.</p>	<p>Principle 6: Effective communications</p> <p>In the interest of effective communication, to attract the broadest possible audience and minimize the risk of misuse, assessment of progress toward sustainable development will use clear and plain language; present information in a fair and objective way; use innovative visual tools and graphics to aid interpretation and tell a story; make data available in as much detail as is reliable.</p>
<p>Principle 7: Broad participation</p> <p>To strengthen its legitimacy and relevance, assessment of progress toward sustainable development should: find appropriate ways to reflect the views of the public, while providing active leadership; engage early on with users of the assessment so that it best fits their needs.</p>	<p>Principle 8: Continuity and capacity</p> <p>Assessment of progress toward sustainable development will require: repeated measurement; responsiveness to change; investment to develop and maintain adequate capacity; continuous learning and improvement.</p>

Devuyst (2001, p.9) pointed to issues of sustainability assessment not only as an instrument of the impact assessment family, but also how it pertains to other non-impact assessment-related tools such as indicators, targets, and ecological footprint analysis. He defined the procedure to study the sustainability assessment in following parts:

- Discusses the problems of development at the local level of urban areas. Sustainability assessment at this level can function only when it is linked to policies and visions for urban sustainability.
- Examines tools for sustainability assessment to be used in the decision making process where any policy, plan, program, or project approval by local officials could be subjected to assessment before a decision is made.
- The tools for setting a baseline and measuring progress in sustainability assessment by using Indicators for sustainable development.

5.5.4 Indicators for sustainability assessment of urban regeneration

As mentioned by Agenda 21, the action plan adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, calls on countries, governmental and non-governmental organizations, to develop the sustainable development indicators (SDIs) that can provide a solid basis for decision-making at all levels (UN, 2007, p.5). At the national level each community should develop its own set of SDIs that reflect the priorities set in the local community vision on sustainable development. As defined by Wijngaarden, (2001, p.251) the indicator provides insight into a matter of larger significance or makes a trend or phenomenon perceptible, the indicators provide baseline and monitoring information to decision-makers to achieve sustainable development. Braat (1991) regarded sustainability indicators as a method to provide information, directly or indirectly, about the future sustainability, such as environmental quality and natural systems amenity.

As mentioned by Wijngaarden (2001, p.254) Indicators have the function to simplify information about complex phenomena, to quantify information and to improve the communication of information to the user. Three main objectives can be served by indicators of sustainable development (*ibid*):

1. To create agreement about the factors that contribute to the quality of life and ecological well-being.
2. To provide a formal framework for data gathering, data coordination, agreement over methods of collection and interpretation, and mechanisms for continuation.
3. To generate a policy-integrative approach to administration and political action through which economic, ecological, and social considerations are enriched with shared meanings.

In this respect three levels of indicators were mentioned by Dalal-Clayton (1993) for the measurement of sustainable development: *environmental indicators* that measure changes in the state of the environment; *sustainability indicators* that measure the distance between the change in the state of the environment and a sustainable state of the environment; and *sustainable development indicators* that measure progress towards the broader goal of

sustainable development. According to [Hemphill et al. \(2004a, p.729\)](#) the selection of indicator depends on the nature of the research being carried out, the policy under evaluation and the importance placed upon the results in terms of decision-making, further, the following criteria should frame the selection of performance measures: appropriateness and validity; uniqueness, accuracy and reliability; completeness and comprehensibility; controllability; cost and feedback time.

According to [Devuyt \(2001, p.13\)](#) sustainability assessment makes sense only when linked to an assessment framework. This framework should clearly state what the assessors consider to be positive and negative evolutions for sustainable urban regeneration projects. To ensure that key indicators are not overlooked in the selection process, [Coombes and Wong \(1994, p.1298\)](#) identify a four-step procedure in the selection of indicators on a systematic basis and break down the selected procedure into manageable steps each of which can be undertaken in the current research in a systematic manner as following:

Step 1 Conceptual Consolidation: Clarifying the basic concepts to be represented in the analysis, as well as focusing on the interconnections of the different factors which shape regeneration potential of an area and the key issue to be targeted ([Coombes and Wong, 1994, p.1298](#)). According to [Hemphill et al. \(2004a, p.731\)](#) The Bruntland Report (WCED, 1987) provided the starting-point for sustainability. This agenda requires that regeneration and sustainability are successfully integrated with good practice. Likewise, in terms of evaluating regeneration and sustainability, there is a shared agenda that reflects the placing of economic, environmental and social factors at the heart of sustainable urban regeneration policies, for examples: the involvement of local communities; the integration of public transport systems and land use; cost- and energy-efficient design and buildings.

Step 2 Analytical Structuring: Involves setting out the accurate list of issues to be covered by the analysis and providing the rationale for the identification of the indicators, to create a basis for indicators closely related to the issues which policy-makers need to address ([Hemphill et al., 2004a, p.731](#)). Top-down or bottom-up approaches can be used to identify the relevant factors, [Coombes and Wong \(1994\)](#) state that the 'top-down' approach requires a preliminary analysis of the concept, before breaking it down into a typology of factors, and in contrast, the 'bottom-up' approach lists the factors that can be argued to be individually important. [Hemphill et al. \(2004a, p.731\)](#) advocated a combination of the 'top-down' and 'bottom-up' approaches by initial disaggregation of the term sustainable urban regeneration into manageable parts through the design of a hierarchical model which used to frame the issues derived from the conceptual phase. Regarding the built form, the relative weightings to be applied to the model can be derived by utilising a Delphi method: including for example the existing building, infrastructure, internal services and the public realm.

Step 3 Identification of Indicators: The selection of indicators has to be rigorously assessed, with the value and practicalities of each potential indicator in terms of the following: data availability, geographical specification, time-series prospects, implementation and interpretability. [Hemphill et al \(2004a, p.733\)](#) split the selection of the indicators into two parts: Firstly, a review of the literature to identify potential indicators and, secondly, the

presentation of these indicators to key experts for their opinion. Different urban aspects are covered by sustainability and represent the indicators in regeneration policies such as:

Economy indicators: reflects the economic characteristics of the urban regeneration process, (the investment side of regeneration).

Resource use indicators: The use of non-renewable and renewable resources within projects such as; waste minimisation, the conservation of built heritage and the incorporation of environmental buildings.

Buildings and land use indicators: such indicators as: the ratio of open space to build form; reclamation of contaminated land; the quality and usage of public space. This will help to achieve the balance between what development has occurred and the quality of that development in accordance with sustainability principles.

Transport and mobility indicators: developed from review of transport literature, and the survey of the transport and mobility in regeneration area, for example: travelling habits of the working population and residents, as well as how the road network has been redesigned to positive or negative effect as a result of the regeneration scheme.

Community benefits: incorporates the social aspects of regeneration and sustainability. These factors acknowledge the importance placed upon improving the quality of life of the residents', for example: access to open space and retail facilities; retail facilities located on site; the sense of community ownership fostered; entertainment and cultural facilities.

Step 4- Creation of an Index: The step of creating the final index and the process of synthesising the proposed indicators into a single or composite measure. Sustainability and urban regeneration both encompass such a wide range of issues which make it desirable to weight the indicators to produce an aggregated index of progress. This process brings with it the challenge of selecting an appropriate weighting method to combine the individual indicators into a single index according to their relative importance. The weightings used will reflect the relative contribution of each factor. The scoring and weighting system developed can provide an overall indication of performance and areas where improvement is necessary (Hemphill et al., 2002).

Application of this four-step procedure has been adopted in this research as it leads towards the derivation of appropriate indicators in a systematic way, with each step representing its own set of methodological procedures. The weighting system utilised in this research involved a Delphi-style questionnaire survey to score the elements of the hierarchical model in terms of their contribution to sustainable urban regeneration. The experts occupied an essential position in the methodological approach in that the scores provided contributed to the derivation of weights for the components tier of the strategy model. A suitable level of consensus was needed, to enable these scores to be transformed by multi-criteria analysis into the relative weightings to be applied to the model. A comprehensive listing of the critical factors of physical regeneration was presented to independent experts using a questionnaire conducted on the basis of Delphi procedures and employing an appropriate scale.

5.6 Relevant studies

Various studies have been conducted to measure the sustainability of urban regeneration. As mentioned by Tallon (2013, p.4) these studies have proposed different methods for sustainability assessment. Among these studies, the “indicator system approach” emerges as a widely used method for assessing urban regeneration in terms of physical, economic, ecological, and social sustainability. Peng et al. (2015, p.2) mentioned that the indicator system is usually developed according to the special concerns and local context of the targeted urban regeneration project. The existing studies provide valuable references to the practice of determining the indicator system and developing an assessment strategy for sustainability of urban regeneration and to improve the assessment procedure itself. Some examples are selected and illustrated to link theory and practice as demonstrated below.

Study 1:

An alternative model for measuring the sustainability of urban regeneration: the way forward – by Peng et al. (2015)

Fuzzy set theory and Monte Carlo simulation MCS were introduced to solicit critical measurement indicators that would lay a unified basis for comparison. Entropy method was also used to determine the weights of relevant critical measurement indicators to avoid subjective judgment. The study proposed a general decision-making framework for dynamic monitoring of urban regeneration based on the dynamic change of sustainability of urban regeneration (V_k) and urgency of urban regeneration (U_k). By discussing four cases, sustainable urban regeneration can be compared through the V_k - U_k coordinate system, and the best practices of urban regeneration can be determined.

This model claims to process the fuzzy (subjective) nature in indicator assessment of urban regeneration, which is an improvement when compared with existing studies. As well, the decision-making framework could assist policy-makers in determining the sustainability of an ongoing urban regeneration as well as in performing long term monitoring of the process. In particular, fuzzy set theory integrated with MCS is used to determine a list of critical indicators for evaluating the sustainability of urban regeneration and to address the subjective nature in determining such indicators. The entropy method is employed to determine the weight of critical indicators. As mentioned by the authors a conceptual model for measuring the sustainability of urban regeneration was developed and dynamic assessment model is presented based on the critical indicators and relevant weights. The measurement is conducted by following a series of analytical processes:

- Step 1 Soliciting preliminary list of measurement indicators.
- Step 2 Questionnaire survey to judge the significance of preliminary indicators.
- Step 3 Determining critical measurement indicators (*CMI*) through fuzzy set theory integrated with *MCS*.
- Step 4 Collecting performance data of *CMI*
- Step 5 Determining weights through entropy method.
- Step 6 Dynamic assessment and monitor.

Study 2:

Towards environmentally sustainable urban regeneration: a framework for Baghdad city- by Al-Akkam (2012)

According to the researcher (Al-Akkam, 2012) a central objective of this investigation is to explore how the urban regeneration of Baghdad city centre could be carried out via the practice of urban development, in a way that promotes environmental sustainability. The study findings illustrate a common phenomenon, which is that conservation-led regeneration for compact city centres is more environmentally relevant than a large scale development process. In order to reduce the risk factors connected to the destruction of urban heritage in city centres under the pressure of transformation, it should restrict the decision-making in environmentally urban regeneration to a multiple evaluation process (Al-Akkam, 2012, p.58). The study suggested three objectives that could be used to guide and justify the alternatives of urban regeneration city centre of Baghdad.

- Increased cultural activities in the city centre, with the idea being that the conservation would be a locomotive for cultural development supported by the revitalisation of riverbanks, which would in turn increase tourism to the city centre. This process would move gradually from inside the city centre outwards.
- Large scale urban development of neglected or deteriorated parts of the city centre, so that the existence of new activities of commercial and office building, would attract investors to modernise and reconstruct the area. Thus, this urban regeneration process would move away from intermediate parts of the city centre.
- Distributed small spots for urban development, with the idea being that qualitative distributed spots according to varied land uses would increase attention to urban regeneration and may accelerate urban regeneration. This process moves in different areas from the outer city centre.

The proposed alternatives described in table (5.2) are used to illustrate how the evaluation methodology can be used for urban regeneration at city centre. The aim is to make a rough assessment of urban regeneration processes and projects seen from different perspectives . The evaluation is made essentially as a qualitative assessment based on available information from previous studies. In order to identify evaluation criteria and establish a basis for comparison between alternatives, two stages were used in the study: The first relied on EIA (Environmental Impact Assessment) criteria for the process of urban regeneration, while the second assessed the projects resulting from previous processes dependent upon five criteria: *efficiency, effectiveness, relevance, impact and sustainability*. Evaluation is based on what little factual information exists in the alternative preliminary phase, the results were either negative or positive in varying degrees (Al-Akkam, 2012, p.70).

Table5. 2 The alternatives of urban regenerating city centre of Baghdad. Source [Al-Akkam \(2012, p.70\)](#)

Alternatives	Alternatives A	Alternatives B	Alternatives C
Main concerning aspects	Increased cultural and tourism activities	Urban development of neglected areas and deteriorated structures	Distributed spots of urban regeneration
1. Identifying the spatial dimensions of the city centre and future expansions.	The boundaries of the city centre within the historical area only, whereas future expansion will be vertical.	The boundaries of the city centre would begin with the eastern station of Baghdad, and the Khermanh Square to the south, and to the north, the Door of the Great Expanse. Future expansion will be both horizontal and vertical.	The boundaries of the city centre beyond the first ring road extension southward to the Karadah outside street, whereas further future expansion will be horizontal.
2. Finding efficient and balanced distribution of land use.	Conserve historical neighbourhoods and Rashid street.	Establish a commercial area in Karhk, and maintain the use of administrative activities scattered across. Establish a residential complex in Sheik Omer street in Rusafa.	Increase the percentage of commercial use, social and cultural facilities, and communication to stress the importance of the central area of mixed uses.
3. Transportation, organizing a network of movement and enhancing accessibility.	Emphasize light lines for fast transfers integrated with metro network with secondary centres.	Integrate bus transportation with the proposed metro network.	Emphasize bus transportation
4. Forming a distinctive urban scene of the center and the riverfront.	Develop the riverfront to enhance the ecosystem. Establish functional axes of movement for pedestrians through historic sits that link with the river.	Deal with the riverfront as an integrated part through establishing certain elements	Divide the riverfront of the city centre into several areas with different mixed urban features and functions
5. Regenerating the historic fabric in the heritage centre.	Conservation-led regeneration of major parts of the old historic area.	Conserve some neighbourhoods, upgrade the system of paths, and redevelop major parts of the old historic area.	Conserve memorial old buildings and develop majority of historic areas.

Study 3:

Assessment methods to improve urban regeneration quality- by [Lotto \(2008\)](#)

The study explores briefly the global context of urban regeneration and cultural aspects regarding the ecological approach, analyses the regulatory apparatus in force in Italy, and finally presents results about an integrated evaluation process of the renewal master plan applied in three ex-industrial areas sited in Pavia. It aims to promote an assessment procedure able to synthesize the plurality and complexity of themes that a renewal plan involves, in order to provide an instrument to support the decisions of planners and stakeholders.

The study adopted different procedures for assessment: the Environmental Impact Assessment (EIA), the Strategic Environmental Assessment (SEA) and the Incidence Assessment (IA) ([Lotto, 2008, p.165](#)). The study highlighted the importance of understanding the exact scale of the consequences that a new urban organization have on the existing system, to find an integration among all the evaluation procedures (SEA, EIA, Landscape Assessment) and among the specific themes that they develop (environmental and landscape issues). [Lotto \(2008\)](#) believes that the “Masterplan” is the most useful instrument for a preliminary design of a renewal project, it synthesizes classical planning issues with architectural ones and the *impact matrix* is a well-known technical methodology to evaluate the impact and the efficiency of a plan with regard to specific criteria (or sustainability aims, or indicators). The most difficult aspects in the implementation of such a procedure are: The choice of the criteria to synthesize the positive aims that the renewal plans have to reach

and the assignment of specific weights for each criterion, in order to define a hierarchy among them.

Table (5.3) shows the structure of impact matrix, the column total expresses the global performance of the solution, and it can be evaluated using different mathematical formulas such as: Multi-criteria Analysis, Shimpeler and Grecco Method, Schlager Analysis (Lotto, 2008, p.166). A series of criteria were defined in the study, based on a SWOT analysis of the whole city and of the specific contexts, and the available bibliography. The study analysed the global urban system in the three subsystems: *built and settlement system, environmental and green system, mobility and accessibility system*. For evaluation, in the first case a benchmarking analysis points out the better solution; in the second case the more desirable solution is the one that satisfies the maximum number of requirements; in the last one, the mathematical processing detects the best performance (Lotto, 2008).

CRITERIA/ SOLUTIONS	Cr.1	Cr.2	.....	Cr.M	TOTAL
	Weight 1	Weight 2	.....	Weight M	
Solution 1	X ₁₁	X ₁₂	.....	X _{1M}	T1
Solution 2	X ₂₁	.....	.....	.....	T2
.....
Solution N	X _{N1}	.....	.....	X _{NM}	TN

Table5. 3 Impact matrix structure. Source: Lotto, (2008, p.166)

The study concluded that the different calculation methods usually provide similar but not identical results: Multi-criteria Analysis underlines the weight of each criterion; Shimpeler and Grecco Method privileges the proposal with the greatest number of best partial performances; Schlager Analysis leads to a more feasible solution. The three selected lists of criteria developed in the Pavia context are Built and settlement system: Environmental and green system; Mobility and accessibility system, each containing multiple indicators (Lotto (2008, p.166). The assessment methods provide a statistical evaluation among the several components of a complex system. The methodology of comparative assessment demonstrated a satisfactory level of plausibility in selecting the solution with the best environmental and landscape general performance; thus it can be a useful instrument for stakeholders to identify the best among many renewal proposals (Lotto, 2008, p.168).

Study 4:

An Indicator-based approach to measuring sustainable urban regeneration performance: by Hemphill et al (2004a, b- part 1 & 2)

The study aims to evaluate the use of indicators as a means of measuring the performance of regeneration against sustainability criteria. The merits of sustainability indicators are explored with a discussion of the indicator selection process and the derivation of a points

scoring framework. The extent to which the sustainability performance of regeneration projects can be evaluated and subsequently benchmarked is examined. Conclusions are drawn on the robustness of the indicators selected, the versatility of the points scoring framework in capturing the sustainability performance of regeneration projects and the potential to identify 'best' practice.

The study concentrates on the indicator selection and points scoring phase within the context of earlier work that discussed model development and weighting. The early stages deployed techniques such as *hierarchical modelling*, *Delphi* and *multi criteria analysis* to establish appropriate weightings for five key indicator groups, based upon iterative questionnaire consultation with two expert panels of academics and professionals. The study adopted a four-step procedure in determining the selection of indicators on a systematic basis: conceptual consolidation, analytical structuring, identification of indicators and creation of an index. According to [Hemphill et al. \(2004a\)](#) the application of this procedure leads to the derivation of indicators in an orderly and logical fashion. Figure (5.5) show the methodological approach of the study.

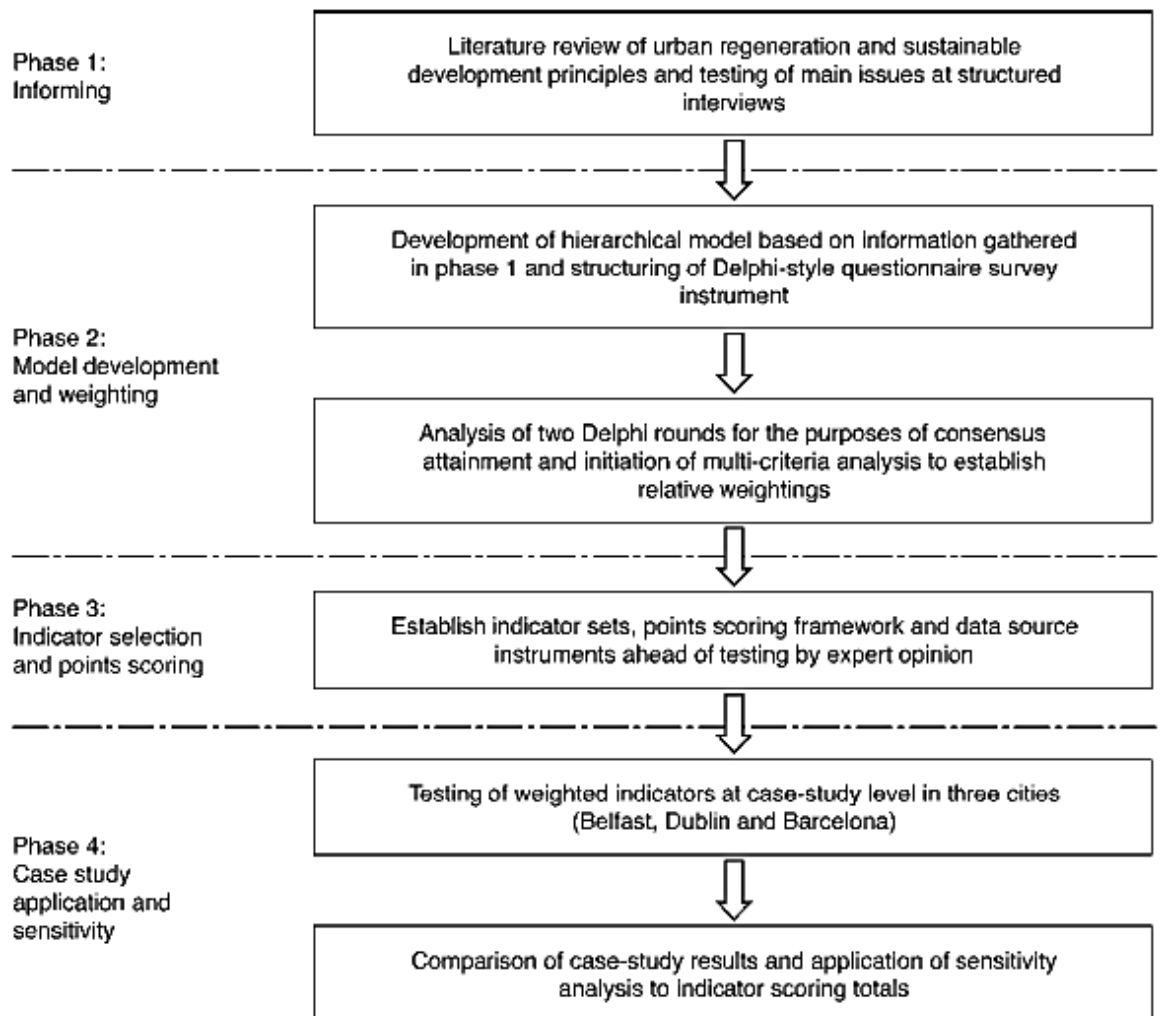


Figure 5.5 Methodological approach of Hemphill study. Source: [Hemphill et al. \(2004b, p.760\)](#).

In Part 2 of the study the empirical evaluation and case-study analysis were examined through the application of weighted indicators and a points scoring framework. The analysis applied the hierarchical model to case studies of waterfront areas and cultural quarters in three European cities: Belfast, Dublin and Barcelona. Performance comparisons were made between the case studies. Conclusions are drawn concerning the extent to which sustainability principles are adhered to, potential policy benefits and the applicability of the model. The study deals primarily with the application of the evaluative model at case-study level. The model is based on 52 individual indicators which have been weighted into five main groups (indicator sets): Economy and work (21.5 per cent); Resource use (17.5 per cent); Buildings and land use (18.9 per cent); Transport and mobility (22.1 per cent); Community benefits (20 per cent).

To test the validity of the model and to achieve a meaningful set of results, selection criteria were drawn up to ensure that the same basic characteristics were present in each case-study area thereby enabling a full comparative evaluation between individual schemes. A number of potential urban regeneration schemes embracing 'good practice' were identified (Hemphill et al., 2004b, p.759). The five separate indicator sets for each case study were evaluated on both an individual and collective basis in accordance with the points scoring criteria. The study demonstrates that the more established and mature regeneration locations deliver better sustainability performance than those areas which are less well developed. Regeneration performance outputs are increasingly expected to show joined-up holistic thinking across programmes by promoting physical, social, economic and environmental criteria. The indicator-based model developed in this study allows an evaluation of the extent to which integration is being achieved and sustainability objectives delivered within urban regeneration (Hemphill et al., 2004b, p.771).

5.7 Conceptual framework - Formation of the assessment strategy

According to Baxter and Jack (2008, p.553) the conceptual framework serves several purposes such as, describing what relationships may be present based on logic, theory and/or experience and providing the researcher with the opportunity to gather general constructs into intellectual bins. Therefore it is difficult to fully describe or provide a model of a conceptual framework as a reference. The framework should continue to develop and be completed as the study progresses and the relationships between the proposed constructs and themes will emerge as data are analysed. The conceptual framework ensures that the analysis is reasonable in scope and that it also provides structure for the final report (ibid). It is necessary to identify an appropriate way to turn abstract sustainability concepts into a solid urban regeneration strategy to ensure that such an approach is effectively adopted and the sustainable development objectives are met through urban regeneration process.

Lee (2008, p.45) provides an example of regeneration of the Hulme area in Manchester, the example showing how urban design helps to meet the sustainable development

objectives through urban renewal. In this project the city council attempted to integrate economic, environmental and social concerns when preparing the regeneration programme for Hulme. With regard to urban regeneration policy and practice [Hemphill et al \(2004b, p.770\)](#) stressed that the application of performance indicators is becoming increasingly significant in measuring sustainability outputs. According to [\(Cookson Smith, 2000\)](#) the sustainable urban regeneration objectives can be achieved by means of urban design and broad principles of the sustainability concept into practical design policies which can be interpreted by the urban design.

With reference to literature review and relevant studies, it is obvious from the above facts, the role of urban design in achieving sustainable built environment, therefore this study advocates using urban design tactics when preparing urban regeneration proposals in order to create a sustainable community. Upon commencing the projects, the successful urban regeneration should be design led. Drawing from the insight provided by the content of the theoretical review that has been explored in the previous chapters, the main concepts and variables are addressed by a conceptual framework for the sustainable urban regeneration assessment strategy. The aim of this framework is to understand the nature and scope of the different processes that may be used as a base for the development of an analytical framework for the urban regeneration process. To allow a better understanding of the conceptual framework adopted in this research, figure (5.6) indicating the interrelationship among different components is presented and summarised.

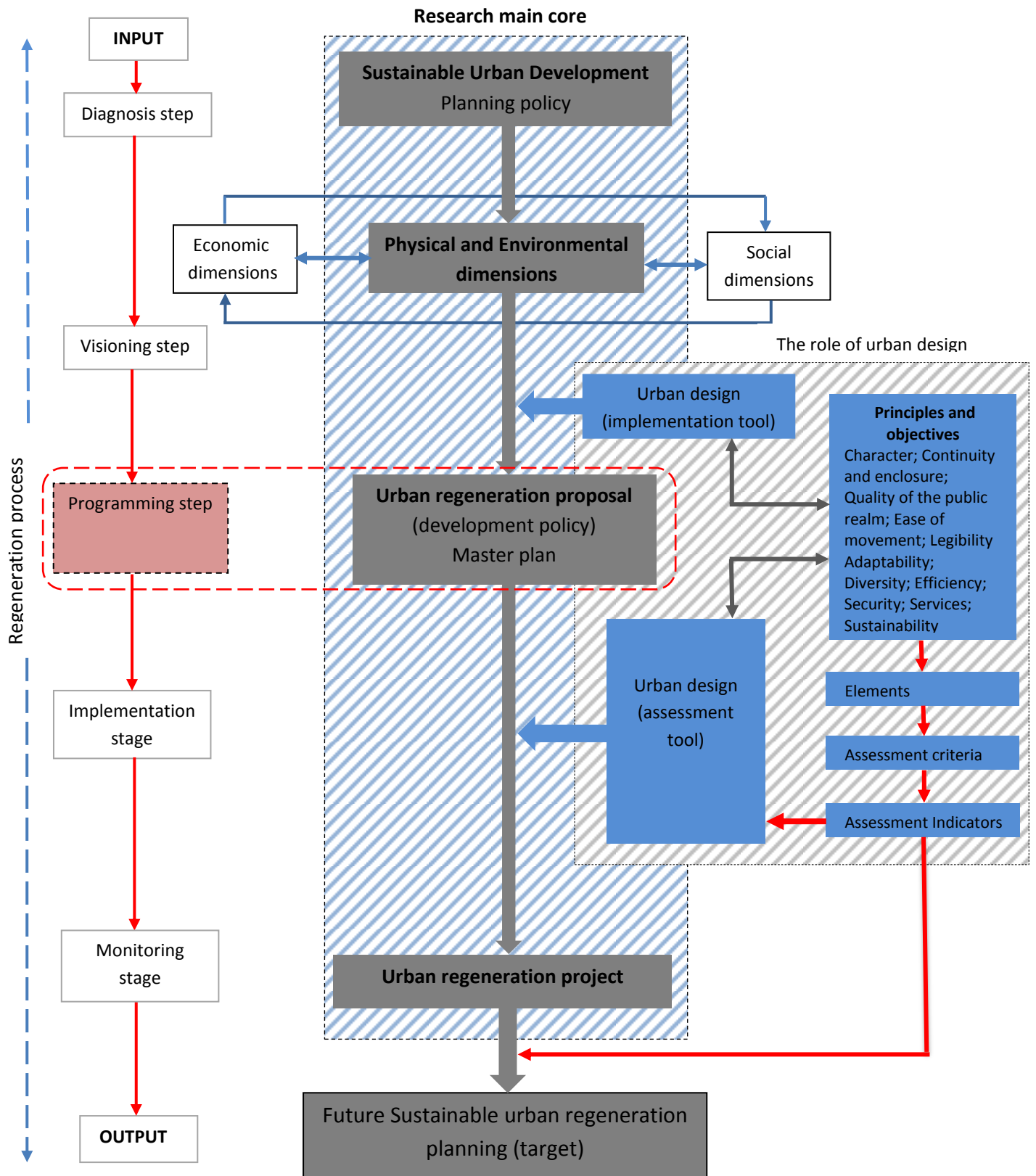


Figure 5.6 Conceptual framework of urban regeneration assessment and its link with the regeneration process. Source: developed by Author

5.8 Establishing assessment criteria for urban regeneration in historic city centres

For the purpose of this research, the study takes into consideration the physical elements and the cultural regeneration in the process of undertaking sustainable urban regeneration in historic cities as illustrated in the conceptual framework figure (5.6). Based on the current research context and as mentioned before the success of urban regeneration projects from the physical and environmental aspects depends on the extent to which the regeneration policies solve the spatial and physical problem of the development area, such as: provide good quality of urban design; supply attractive open spaces and good amenities; preserve the historical and cultural heritage values; change the images of the place; use the existing spatial and physical potentials of the i.e. reuse of redundant building, vacant and derelict lands; improve accessibility, infrastructure, transport services and utilities.

According to [Vehbi and Hoskara \(2009\)](#) good sustainability indicators - relevant, valid, consistent, reliable, comparable, measurable and comprehensive - are usually developed as site specific and designed to measure progress toward sustainability in one urban area. Depending on the area concerned, this procedure may not be appropriate for another city depending on the particular area. To facilitate a multidisciplinary approach to sustainable urban regeneration, as well as to come up with the desired criteria for historical cities, key themes and indicators were adopted to provide a range of analytical measures from literature research and good practices to assess the effectiveness of the regeneration strategy and the impact of actions taken. As stated by [Hemphill et al \(2004a, p.725\)](#) the targets and outcomes of programmes should match the needs of the area and community concerned and focus on a coherent vision of holistic regeneration.

Based on previous ideas extracted from the literature and good practices, the possible indicators to evaluate a regeneration project have been identified. These indicators are identified based on key performance criteria as shown in chapter 2. The researcher feels that these criteria can effectively contribute to sustainable regeneration applicable to the local context to create a sustainable community in the relevant area.

5.9 Conclusions

This chapter has set out a conceptual framework based on the theoretical framework concerning concepts and approaches of “sustainable urban regeneration” discussed in the previous chapters. This conceptual framework will be used to formulate the model of assessment strategy for measuring the sustainability of urban regeneration in historic urban centres by linking research questions and objectives to conceptual framework. The research also indicated that there is a direct relationship between urban design and achieving sustainability of urban regeneration in a particular area. The results of the theoretical background were the extraction of appropriate assessment indicators, which may vary in their relevance according to the local context and the purpose of their measurement and monitoring. These indicators should be measurable, relevant and highlight linkages among

economic, social and environmental structures and besides the selection requires long-term and public participation.

The selection process of the indicators should be characterized by loops and feedback between the various Influential people involved. However, data of some of the indicators cannot be reached properly and therefore their measurement will be based on observations in case study areas. Together with its positive and negative aspects, it can be argued that the proposed model provides various opportunities to be applied in more or less similar contexts and scales, to be repeated within the same context(s). After determining the main components of the assessment strategy the next chapters will help to formulate the final form of the model, which is regarded as a useful tool in measuring the level of sustainability of regeneration initiatives in historic urban areas. In other words, after application of the model, a strategic approach for creating more sustainable historic urban centres can also be developed based on the qualitative and quantitative data.

Chapter 6: Research Methodology

Data collection and analysis methods

6.1 Introduction

After having presented a general overview of the research justifications, scope and the theoretical background concerning the main research concepts and themes, it is then necessary to illustrate the methodologies employed and the logic of the research strategy and design. The aims of this chapter are to provide a methodological approach to find logical answers to the main research questions and to describe the research design and methodology on which this study is built. It provides a detailed description of the research flow, data collection methods, the measurement tool of variables and the data analysis procedures used in this research. Finally the evaluation methods that are adopted are given. The research methodology undertaken provides a structured and systematic way of conducting these tasks, to gain a better understanding of the philosophical and conceptual basis of the research. The following presents some definitions of important related terms that are used in this chapter and in the study in general:

Research methodology: Dawson (2007, p.15) identified methodology as the philosophy or the general principle which will guide the research, it is the overall approach to studying the specific topic and includes issues, such as the constraints, dilemmas and ethical choices within research that need to be thought about. IOER (2005, p.11) identified methodology as a body of procedures, principles, methods and techniques used – for example, to conduct research – in a coherent, consistent, accountable and repeatable manner for a specific programme, project or activity. According to Creswell (2009, p.11) the qualitative, quantitative, and mixed methods are strategies of inquiry that provide specific direction for procedures in a research design and considered as types of research methodologies.

a. Qualitative research methodology: As mentioned by Creswell (2007, p.249) qualitative research is an inquiry process of understanding based on a distinct methodological tradition of inquiry that explores a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of information, and conducts the study in a natural setting. The approaches of inquiry in qualitative research that are synonymous with research design are: narrative research, phenomenology studies, ground theory studies, ethnographies, and case study Creswell (2007, p.81). According to Harwell (2011, p.149) and based on Creswell (2003), there are six phases embedded in each research design (1) philosophical or theoretical perspectives; (2) introduction to a study, which includes the

purpose and research questions; (3) data collection; (4) data analysis; (5) report writing; and (6) standards of quality and verification.

b. Quantitative research methodology: According to Dawson (2002, p.15), quantitative research generates statistics through the use of large-scale survey research using methods such as questionnaires or structured interviews, and this type of research reaches many more people. Bryman (1989, p.116) mentioned that quantitative methodologies test theory deductively from existing knowledge, through developing hypothesized relationships and proposed outcomes for study, while qualitative research is guided by certain ideas, perspectives or hunches regarding the subject being investigated. Table (6.1) shows the differences between quantitative and qualitative research. As cited by (Harwell, 2011, p.150) a quantitative research design involves phases that are ostensibly similar to qualitative research, but are quite different in purpose and execution: (1) introduction that includes the purpose and research questions; (2) theoretical perspectives; (3) methodology that encompasses sampling (evaluation of external validity), instrumentation (evaluation of construct validity), experimental (evaluation of internal validity), data collection and analysis that includes an evaluation of statistical conclusion validity; (4) reporting the results; and (5) conclusions and implications.

Table6. 1 Fundamental differences between quantitative and qualitative research strategies. Source: Bryman (2008, p.22).

	Quantitative	Qualitative
Principal orientation of the role of theory in relation to research	Deductive: testing of theory	Inductive: generation of theory
Epistemological orientation	Natural science model, in particular positivism	Interpretivism
Ontological orientation	Objectivism	Constructionism

c. Mixed methods research: Mixed methods research is a study designed to use quantitative and qualitative methods, both of which are needed to address the research questions of interest (Yin, 2011, p.10). As mentioned by Harwell (2011, p.151) the mixed methods research is an expansive and creative form of research, not a limiting form of research, it is inclusive, pluralistic, and complementary, and it requires that researchers take a broad approach to method selection and the conception and conduct of research.

Research methods: it means a mode of procedural way of doing something, especially in accordance with a particular theory as associated with a particular person (IOER, 2005, p.11). According to Dawson (2007, p.15) the research methodology is different from the research methods—these are the tools used to gather data such as questionnaires or interviews, methods of sampling and data analysis. The specific research methods represent the third major element in the framework that involves the forms of data collection, analysis, and interpretation that are proposed by researchers. Creswell (2009, p.15) mentioned that it is useful to consider the full range of possibilities of data collection and to organize these methods, for example, by their degree of predetermined nature, their use of closed-ended

versus open-ended questioning and their focus on numeric versus nonnumeric data analysis as shown in Table (6.2).

Table 6. 2 Quantitative, mixed and qualitative methods. Source: [Creswell \(2009, p.15\)](#)

Quantitative Methods	Mixed Methods	Qualitative Methods
<ul style="list-style-type: none"> • Pre-determined • Instrument based questions • Performance data , attitude data , observational data , and census data • Statistical analysis • Statistical interpretation 	<ul style="list-style-type: none"> • Both pre-determined and emerging methods • Both open- and closed –ended questions • Multiple forms of data drawing on all possibilities • Statistical and text analysis • Across databases interpretation 	<ul style="list-style-type: none"> • Emerging methods • Open-ended questions • Interview data , observation data , document data , and audio-visual data • Text and image analysis • Themes , patterns Interpretation

6.2 The development of the research process

This section introduces an action plan for the research, identifies an appropriate strategy for conducting the study, explains the focus period of the study, and the levels of investigation. Based on the research context, the current study attempts to develop an assessment strategy to evaluate the sustainability of urban regeneration initiatives for Iraqi historic city centers. In addition, this study enhances the understanding of the role of urban design in urban regeneration leading to sustainable outcomes, by highlighting a number of important urban design aspects that should be taken into account in project planning and design.

The process of formation of the assessment strategy for the regeneration projects in Iraq will be through two main steps; initially, a comprehensive literature review was carried out with related concepts dealing with sustainable urban regeneration and urban design. Secondly, structured questionnaires survey were performed with experts in relevant fields to evaluate the status of Iraqi heritage context, to reach the definition of sustainable state criteria, to come up with a refined assessment strategy and finally to evaluate the reliability of the developed strategy. The outcome of this process will be a strategy model, consisting of criteria and indicators that draw a sustainable urban regeneration approach for the Iraqi context. This strategy aims to form the basic knowledge for what constitutes sustainable heritage regeneration and presents the national sustainable state that was hypothesized in the conceptual framework. Accordingly, the methodology of the current research has been divided into four stages, according to the development of research process, these stages are as follows:

- Stage 1 – The research design which outlines the critical steps to be followed
- Stage 2 – Data collection procedures
- Stage 3 – Data analysis techniques
- Stage 4 – Evaluation process adopted in the assessment strategy

Table (6.3) shows the research flow according to the methodology of the current study.

	Stage	Processes	Methods
Theoretical and Conceptual Framework	introductory stage	<ol style="list-style-type: none"> 1. Identification of the main research themes: <ul style="list-style-type: none"> - Sustainable development - Urban regeneration and its theoretical foundation - Urban design and its sustainable principles - Linking the main concepts with sustainable urban regeneration 2. Identification of the underlying factors in the relationship between design principles and sustainable development objectives 3. Recognition of the significance of selected urban design principles with regard to urban regeneration. 	<ul style="list-style-type: none"> - Literature review - technical reports, analysis - Exploratory factor analysis
Research design and concepts	Development stage	<ol style="list-style-type: none"> 1. Examining the existing knowledge, programs, and strategies 2. Development of sustainable urban regeneration assessment strategy by: <ul style="list-style-type: none"> - Identification of related sustainable design principles and its corresponding criteria - Development of indicators for benchmarking each criteria in the model 3. Evaluation of the assessment strategy of urban regeneration projects, by collecting comments from the experts on the assessment tool composed of a set of predetermined indicators and a point scoring system. 	<ul style="list-style-type: none"> - Literature review - Structured experts questioners survey - Documentation analysis
Implementation and case studies analysis	Empirical and evaluation stage	<ol style="list-style-type: none"> 1. Demonstrating background of historic city centers in Iraq 2. Reviewing the background, application and limitations of urban regeneration processes in Iraq 3. Applying the developed assessment strategy on selected cases studies 4. Evaluation of the practices of urban regeneration projects at the local level, by collecting the assessment results from the experts in addition to evaluating the applicability and the reliability of the developed strategy at the local level. 	<ul style="list-style-type: none"> - Related Literature review - Analysis of reports, maps, technical reports and photos - Field direct observation - Structured experts questioners survey - Reliability analysis
	Final stage	Key findings, Conclusion and Recommendations	

Table6. 3 The research flow according to the methodology of the current study.

6.3 Stage 1 – Research Design

According to [Monette et al. \(2002\)](#) research design is a detailed plan outlining the critical stages in a research to be followed by a researcher when conducting the study to show how all the major parts of the research are designed to address the central research questions. As mentioned by [Hancock and Algozzine \(2006, p.86\)](#) the research design introduces the key stages of the study, outlines briefly their content and identifies the relationships between these elements in the research concepts, which support the preview of the research development from theoretical concept to conclusion. It provides a basis for the recognition of an appropriate research strategy as ‘the elements used to structure the research. As noted by [Kothari \(2004, p.31\)](#) the research design must, at least, contain: (a) a clear statement of the research problem and objectives; (b) procedures and techniques to be used for gathering information; (c) selecting the case(s) to be studied; and (d) methods to be used

in processing and analysing data, and finally reporting the finding. According to [Creswell \(2009, p.12\)](#) the researcher not only selects a qualitative, quantitative, or mixed method study to conduct the inquiry but also decides on a type of study within these three choices, table (6.4) shows the alternative strategies of inquiry.

Table 6. 4 Alternative strategies of Inquiry. Source: [Creswell \(2009, p.12\)](#).

Quantitative	Qualitative	Mixed methods
<ul style="list-style-type: none"> • Experimental designs • Non-experimental design , such as surveys 	<ul style="list-style-type: none"> • Narrative research • Phenomenology • Ethnographies • Grounded theory studies • Case study 	<ul style="list-style-type: none"> • Sequential • Concurrent • Transformative

[Lee \(2008, p.105\)](#) highlighted various types of research designs such as cross-sectional design, experimental design, longitudinal design and case studies, and each of them has its own features and inherent limitations. To choose the appropriate type for a study, it is important to determine which one has the most potential to achieve the study goals, provide convincing evidence to answer the research questions and produce the results that can be generalized at the national level.

The composition of the current research is explorative and evaluative. It explores new concepts for future physical regeneration, the urban regeneration pattern, and the driving forces influencing the regeneration process in Iraqi historic cities. This is supported by the evaluative strategy for these projects and initiatives. From the various possible research strategies, a case-study approach was employed to conduct this research. It is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources. As mentioned by [Baxter and Jack \(2008, p.544\)](#) this approach ensures that the issues are explored through different views, which allows for multiple facets of the phenomenon to be revealed and understood. According to [Shaheen \(2009, p.61\)](#) the case-study approach offers special opportunities and allows the investigation of real life events within a specific context. Here the Iraqi historic city centres represent the actual context of the study.

By adopting a case study approach, the consistency between theoretical basis and empirical data can be identified, and the pattern of the relationship among variables in urban regeneration can be clarified. The variables in this study refer to a set of urban design principles affecting physical, economic, environmental and social interactions in a community. Accordingly, the proposed methodology combines qualitative case study research with the involvement of expert questionnaires. The research flow in table (7.3) represents the key stages of the research including: the identification of the aim and objectives of the research, the development of research questions based on the conceptual framework which is derived from the literature review and review of the regeneration assessment approaches in chapters (2,3,4,5), the exploratory phase of the investigation, the evaluative study based on the developed conceptual framework, and finally the concluding stage of the research process which provides responses to the research questions, findings and the main themes.

After illustrating the research approach, it is clear that the research methods comprised an initial literature review, fieldwork and case study analysis, which were followed by the experts structured questionnaires survey. Following the elaboration of the theoretical research framework, two cases were selected after an in-depth review of urban redevelopment projects across Iraq. These cases were selected to appraise the regeneration projects at the national level and to evaluate the effectiveness of the developed assessment strategy by the current research. In the final stage of the research, both the literature review and case study analyses were instrumental in producing an assessment strategy, in the context of urban regeneration in Iraqi cities. Figure (6.1) represents an illustrative diagram to the research strategy.

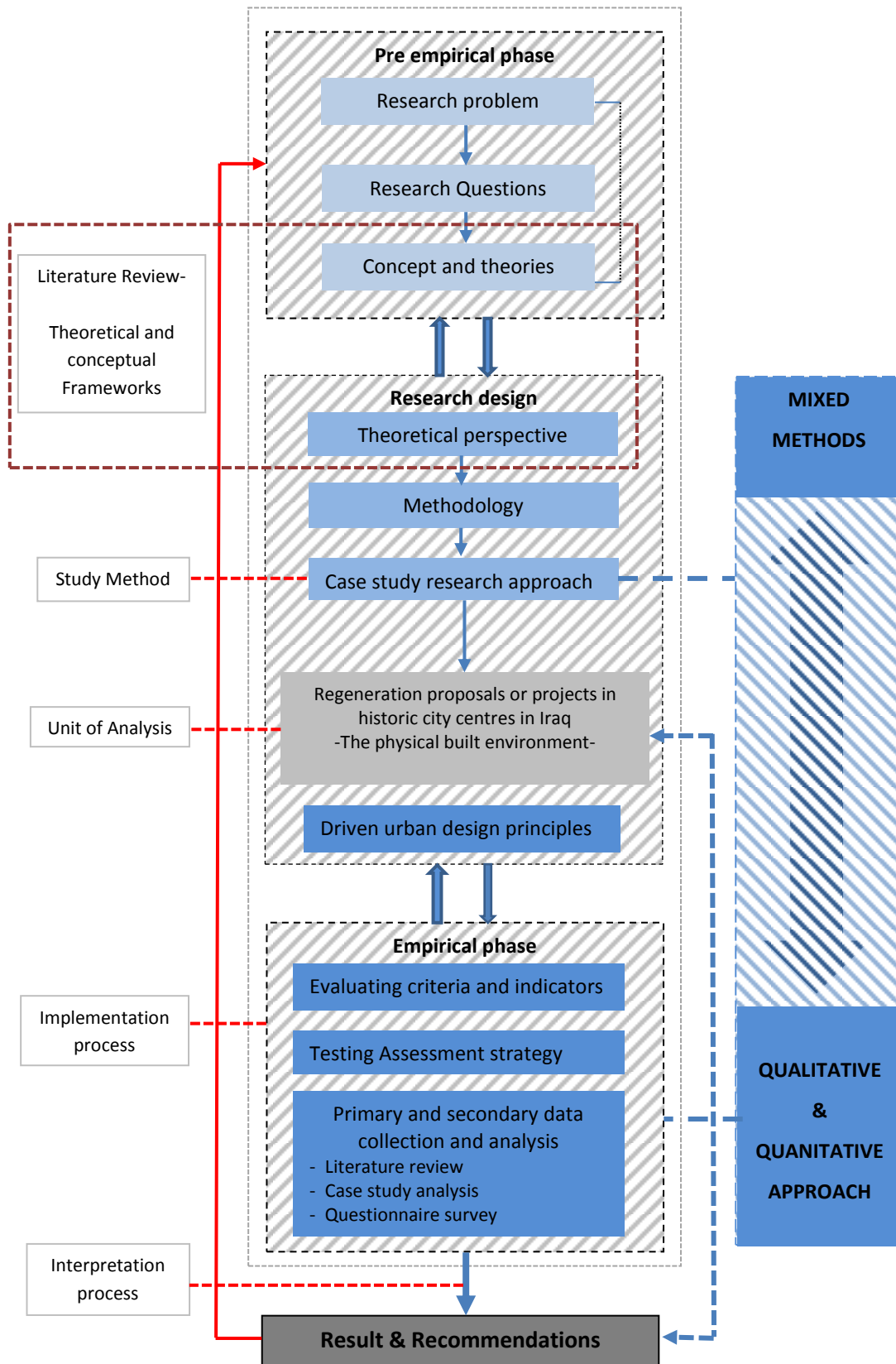


Figure6. 1 The research strategy, in relation to the whole research process. Source: developed by author

6.3.1 The case study strategy: definition and procedures

As mentioned before and due to the exploratory and evaluative nature of this research, the current study followed a case study strategy for conducting a detailed study of cases within clear physical boundaries. Yin (2003, p.13) defined the case study approach as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” and the research strategy has to be relevant to the type of research questions. Masser (1986, p.14) points out that case study approach does not imply the use of any particular type of evidence or data collection technique, but the essential strengths of case studies lie in their ability to take account of a large amount of detail at the same time, and flexibility in practice.

A case study may rely on quantitative or qualitative data (or both) but usually involves some field-based data and make use of fieldwork techniques, verbal reports, and observations, either separately or collectively. Qualitative methods are usually adopted for conducting empirical research in real world settings (Yin, 2011, p.307). There are different terms used to describe a variety of case studies; Yin (2003) categorizes case studies as explanatory, exploratory, or descriptive. He also differentiates between single, holistic case studies and multiple-case studies; while Stake (1995) identifies case studies as intrinsic, instrumental, or collective and states it is not a methodology but a choice of what is to be studied. Creswell (2007) chooses to view it as a methodology, a type of design in qualitative research, or an object of study, as well as a product of the inquiry. Case study research is a qualitative approach in which the investigator explores bounded systems over time, through in-depth data collection involving multiple sources of information (e.g., observation, interviews, and documents and reports).

The exploratory qualitative case study research strategy was adopted to conduct the empirical part of the current study. According to Mason (2002) the exploratory qualitative case study research establishes a research area for clarifying greater insight into boundaries and phenomena. It is well suited for building a deep understanding of the phenomena being studied. Therefore this strategy has been the empirical core of this research, since it provides large quantity of data and the results provide an indicative basis from which to answer the research questions. To guarantee the validity of the collected data as well as to enhance confidence and generalization to the findings of the study, the multiple case studies approach was chosen for this research. According to Stake (2000) the multiplicity promotes richness and depth from diverse cases that share one phenomenon. Miles and Huberman (1994, p.29) mentioned that the multiple case study approach enhances generalizability to the findings of the study through "strengthening the precision, the validity and stability of the findings by looking at a range of similar and contrasting cases". Several steps are available for conducting case studies, Creswell (2007, p.74) summarized some of these procedures as following:

- Determine if the case study approach is appropriate to the research problem. A case study is suitable when the inquirer has clearly identifiable cases and seeks to provide an in depth understanding of the case(s).

- Identify the case(s) which may involve an individual, several individuals, a program, or an event.
- The data collection in case study research is typically extensive, drawing on multiple sources of information such as documents, archives, interviews, direct observations, and physical artefacts.
- The type of data analysis can be a holistic analysis of the entire case or an embedded analysis of a specific aspect of the case.
- The final interpretive phase where the researcher reports the meaning of the case, whether that meaning comes from learning about the issue of the case (an instrumental case) or learning about an unusual situation (an intrinsic case).

6.3.2 Case study selection and application

The research methodology comprised an initial literature review and fieldwork, which were followed by case study analysis and expert mixed questionnaires survey. Following the elaboration of the theoretical and conceptual research frameworks, the researcher selected and identified the appropriate cases to apply the conceptual framework of the current study. According to [Couch et al. \(2003, p.12\)](#) The essential strengths of case studies lie in their ability to take account of a large amount of local detail at the same time as generally comparable information, and their flexibility in practice to expose similarities and differences of experience and policy, and pose questions for future research. Two cases were selected after an in depth review of urban redevelopment projects across Iraq, these cases represent redevelopment or regeneration projects conducted or proposed for redevelopment of the historic city centers or historic parts in Iraqi cities.

Case 1 is the urban redevelopment scheme for Al-Rusafa historical zones in Baghdad in 1980. This case is representative of the previous national urban redevelopment projects to historic centers in Iraq (before the emergence of the concept of urban regeneration).

Case 2 is the urban regeneration project of Najaf city center that was proposed by Dewan in 2015. This case is representative of the contemporary national urban regeneration initiatives in historic cities in Iraq.

The projects were selected because it was felt that they could provide examples for evaluation of the urban redevelopment practices at the national level and exemplify the lessons learned from local regeneration approaches. These cases were adopted as the analysis unit of research and were selected to rate the evolution of regeneration policies at the local level and to evaluate the effectiveness of the developed assessment strategy by the current research. Moreover these projects may provide good practice examples to assess the integrated regeneration approaches and the related measurement of physical sustainability. More details about these cases will be given in chapters 9 and 10. Based on the research design the final stage of the case studies analysis (part 3 questionnaires) will help to obtain expert views about the validity of the developed assessment strategy to be adopted for assessment of the urban regeneration projects in the Iraqi historic environment.

6.4 Stage 2 – Data Collection procedures and methods

The process to attain the different inquiries as sought in the research questions will be explained in the following parts using different data collection methods. As mentioned by Yin (1993) the case-study research approach is not restricted or limited to any specific method of data collection. Due to the complex and diverse themes of the research, data for this research were collected using both qualitative and quantitative methods, in order to draw upon a comprehensive range of information and adequately address the research themes and variables. Depending on the qualitative exploratory and quantitative evaluative case study approach that is employed by the current study, literature review, field observations, case study analysis and expert mixed questionnaires survey were used to collect the relative data. Figure (6.2) shows the data collection procedures adopted in this study.

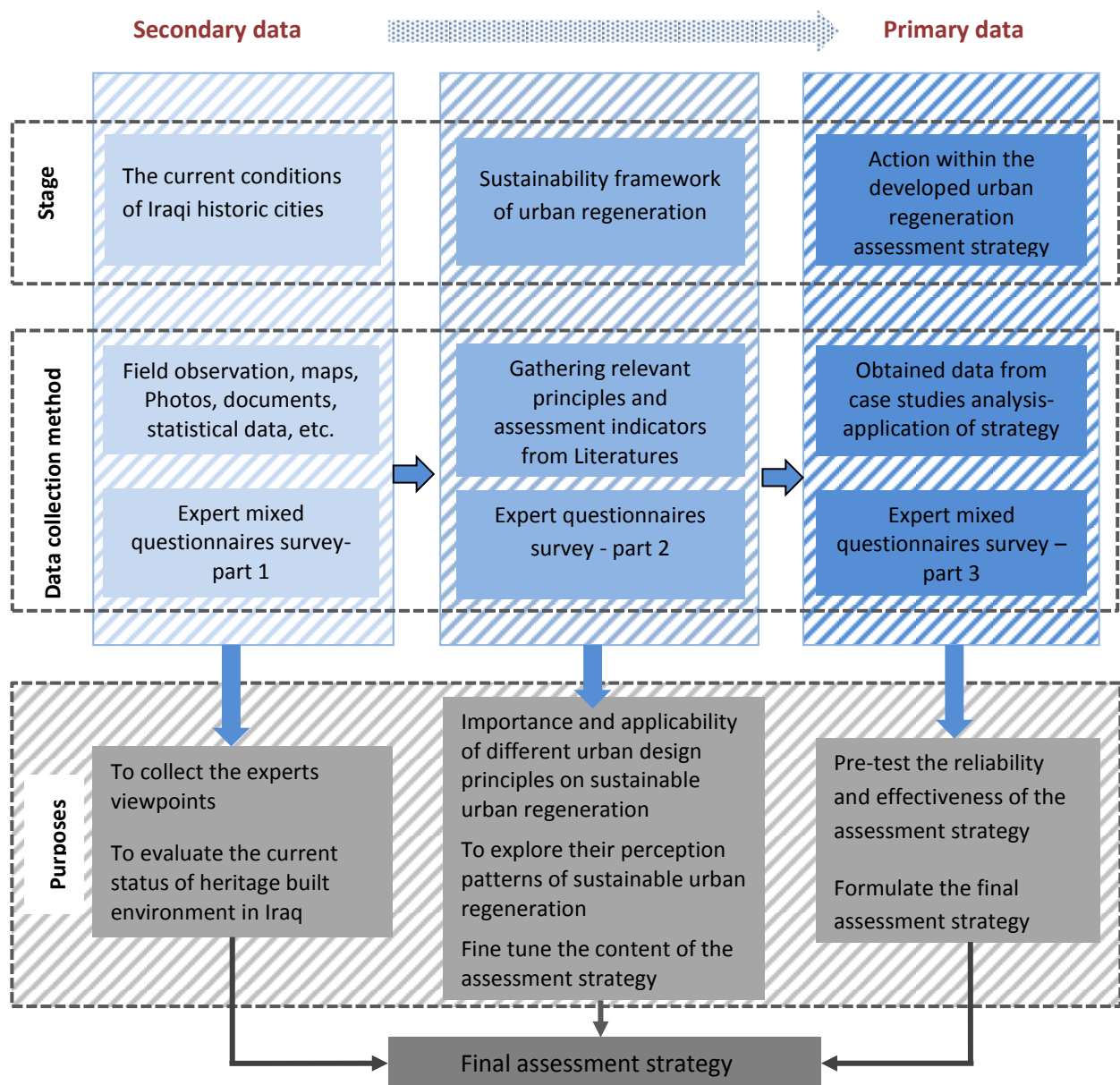


Figure6. 2 Data Collection Procedures adopted in this Study

Regarding the qualitative data, [Flick \(2007, p.77\)](#) identified some methodological approaches for collecting data which focus on: Interviews: where verbal data are to be analysed and mostly transcripts of recorded interviews; Observations that focus on producing descriptions of what has been observed and Documents such as photos and reports are to be transformed into texts. The questionnaire represents the quantitative approach of collecting data. The current study makes use of a variety of primary and secondary sources to collect data. These various sources are considered as highly complementary where triangulation of the different sources will increase the validity of information.

6.4.1 Primary and secondary data sources

The research employed a combination of qualitative and quantitative data collection and analysis methods. The use of multiple sources of evidence helps to substantially improve the validity and reliability of the research. The current study makes use of a variety of primary and secondary sources of evidence to collect data as follows:

Primary sources: include direct physical observation of the cases (on-site observations, discussions with the stakeholder, review of document sources such as maps, studies, reports and photographs) and mixed questionnaires survey conducted with the experts involved in these processes, to: evaluate the heritage values and current status of Iraqi historic cities; to identify the role of urban design principles and values in the process of assessing and achieving sustainable urban regeneration in the historic cities. The importance of physical sustainability in the process of planning policies and urban regeneration in Iraq were also examined. It is important to look at the processes that shaped the regeneration trends and look at the outcome and their impacts. The primary database created by the case studies represents the different changes that have been occurring in Iraqi historic cities in the last decades and provides a basis for the current investigation.

Secondary sources: the first source of secondary data represents the literature review that discussed the concepts of sustainable development, urban regeneration and urban design together with its main research approaches, assessment methods and indicators. The second source represents information that has already been processed or interpreted about the Iraqi cities in general and the selected cases in particular. This information includes published and unpublished local and international studies, as well as planning reports, visual materials, unpublished PhD theses, published books, journal articles relevant to the subject of the study and internet sources were also used to support this research. Other documents, such as studies undertaken by the Iraqi Ministry of Planning and the Ministry of Local Government were also used, in addition to reports prepared by the planning department in Iraqi historic cities and UNESCO planning reports about the Iraqi cities. Whilst the secondary sources could be read as a literature review, it is rather hoped that the combining of the materials from the primary data and these sources helps to provide a clearer picture of the

urban development and regeneration in Iraq. And at the same time it is used as a means of validating the primary data and vice versa.

The collected data in the current study are categorized into three main areas: data concerning the regeneration policy at the national level (policies and approaches, stakeholders and agencies involved, development factors and contexts), data concerning the case studies (city and its historic core transformations, regeneration initiatives), and finally, data concerning the regeneration projects selected as the case study for each area. The latter as the main part of the research was categorized into three main themes: the background about the study area, data concerning the process of the regeneration scheme (decision-making, planning, design and implementation) and the evidence of the impact of the product on the social and spatial structure of the areas.

Another source of information was the author's personal knowledge of the process of urban conservation and regeneration in the local context as a member of the teams involved in some urban redevelopment projects. This source of information has been used to support the data that were obtained from the other sources. The use of different materials was important in order to analyse the city's development pattern, expansion, land uses, density, form, transport system, open lands and green areas.

6.4.2 Methodology of collecting Data

Data collection is a critical point in a research. According to [Monette et al. \(2002\)](#) survey is a widely used research method for data collection and it can be used for descriptive, exploratory, explanatory and evaluative studies because of its flexibility. [Lee \(2008, p.108\)](#) mentioned that the survey can collect large amounts of data to be analysed by different statistical tools to achieve various purposes, and there are numerous data collection methods and techniques such as observation, interview, questionnaire survey, etc. which are the most common ways of data collection in survey research, to gather valid and reliable information.

The questionnaire survey was selected in the current research as the main primary data collection strategy to identify how urban design principles and values help to achieve urban regeneration projects in the historic cities in Iraq, and how they improve the sustainability of these projects. The questionnaire was designed to assess the value of elected urban design principles in meeting the sustainable physical urban development objectives by analysis of the experts' perceptions which leads to making more appropriate decisions for future regeneration in the territory. This quantitative method has been supported by qualitative methods such as observation and expert's input. By using different research methods, triangulation can be achieved in order to increase the validity and reliability of the results. Consequently the primary data were collected mainly by two major methods, namely expert mixed questionnaires survey and on site physical observations, more details about the employment of these methods is described below:

6.4.3 Field observation method

Observation is a technique used in collecting qualitative data. The on-site physical observation is considered as a vital source of information, especially at the beginning of an inquiry. The experience of the researcher regarding the study area helps to reflect on the on-going process of development and the quality of the living environment, and to sense the apparent conflicts and problems in the city. Many observations were documented by photos or by writing short notes and comments.

In correspondence with the key research questions propounded earlier, the researcher conducted a fieldwork investigation during two fieldwork trips in 2014 and 2015, to collect the relevant data; this investigation was conducted in two phases. The first field survey covered the collection of preliminary data required for assessing the context of the historic Iraqi cities and the performance of urban development. The second field survey concentrated on collecting specific data and information about the pattern of urban redevelopment or urban regeneration in the elected case-study areas (Al Rusafa redevelopment scheme in Baghdad and Najaf historic centre regeneration), the physical problems in the city and the future prospects and expectations regarding the city development and expansion. The obtained information from direct observation of the sites was supported by discussions conducted with the key members involved in the process of development such as decision-policy makers, urban planners, urban designers and architects. In addition to the descriptive and analytical materials published by government institutions, various reports and documents prepared by the project consultants such as master plans and detailed city center development plans were also considered.

6.4.4 Survey by Questionnaire method

[IOER \(2005, p.32\)](#) identified questionnaires survey as a useful technique for collecting data about attitudes, beliefs and opinions from a carefully selected, predefined panel of individuals or experts. The data is obtained by asking the group to respond to a set of pre-prepared questions. They can be useful as future techniques as they facilitate the collection of data concerning complex issues about future uncertainty that might not easily be examined using other research techniques. According to [Qanzua \(2013, p.115\)](#) questionnaires rely on written information given directly by respondents in response to questions asked by the researcher, and this kind of data is different from that which is obtained from interviews, observations or documents. Information from questionnaires tends to fall into two broad categories „facts“ and „opinions“. It is vital that the researcher, at all stages of using the questionnaires, is aware that the information being sought relates to facts or opinions ([ibid](#)). In addition the supply answers must be easy to arrange and this sort of standardisation ensures that all respondents reply to the same set of questions.

[Kothari \(2004, p.101\)](#) classified the general form of a questionnaire into structured or unstructured. Structured questionnaires are those questionnaires in which there are definite, concrete and pre-determined questions. The form of the question may be either

closed ended format or open ended format. Thus a highly structured questionnaire is one in which all questions and answers are specified and comments in the respondent's own words are held to the minimum. While in unstructured questionnaire, the respondent is provided with a general guide on the type of information to be obtained, but the exact question formulation is largely his own responsibility and the replies are to be taken down in the respondent's own words to the extent possible. Structured questionnaires are simple to administer and the provision of alternative replies helps in understanding the meaning of the question clearly. They too have limitations, for instance, wide range of data and the respondent's own words cannot be obtained with structured questionnaires. In such situations, unstructured questionnaires may be used effectively. In some cases on the basis of the results obtained in pre-test operations of unstructured questionnaires, one can construct a structured questionnaire for use in the main study.

Therefore and due to the current research goals, the structured questionnaires were used mainly in the study with mixed questionnaires in some parts (consisting of closed as well as open-ended questions), to obtain the opinions of experts in three aspects. The first is concerned with evaluating the status and driving forces behind the deterioration of historic city centres in Iraq. The second is concerned with assessment of the value of urban design principles in meeting the physical objectives of sustainable development. The third is concerned with obtaining the opinions of experts on the extent of implementation of the developed assessment strategy at the local level and to evaluate the validity of the proposed model to assess the regeneration proposals or projects. The data collected from the questionnaire will be used to support and modify the design of the assessment strategy that was developed earlier to evaluate the urban regeneration initiatives in aspects of physical and cultural heritage values in a sustainable manner.

Questionnaire design:

The questionnaires were developed to gather three major types of data from the target respondents. Experts were sent a copy of the questionnaire and they were asked to give comments on these parts:

The first part: to carry out a systematic assessment of urban heritage values in Iraqi historic cities, the respondents were requested to assess the current status of the historical urban fabric of the city where respondents live or had lived (different cities in Iraq) according to the predetermined evaluation criteria. This part of data collection was designed mainly with closed ended questions and only few open ended questions. The questionnaire in this part also aimed to confirm the validity and revise the proposed assessment criteria with their associated indicators. The assessment strategy at this level proposed 5 design criteria and their associated assessment indicators which were derived by analysis of literature review conducted during the research process. The assessors were asked to grade the historical urban fabric according to predetermined values to each parameter. The sum of the grades assigned to the indicators defined the heritage values of city centres or historic quarters and the average of these grades defined the overall grading of the city. Furthermore, photos of

these different cities were supplied by the assessors to reinforce the evaluation results. The identification of significant physical aspects that contribute to the identity of the historical urban fabric is important to consider when planning national conservation and regeneration projects in the future. More details about this part are given in chapter (8) as an assessment approach to the heritage values of Iraqi historic cities.

The second part: contained the main research objective, where the respondents were asked to evaluate to what extent the derived urban design criteria and their assessment indicators are appropriate to be used in the local context. According to the comprehensive literature review, this study derived 71 indicators for 15 urban design criteria for sustainable communities, i.e. 4-5 indicators per each criterion, to be included in the questionnaire. The questionnaires were sent to the target respondents through email and they were asked to determine whether the proposed indicators were accurate in representing the design criteria, and to give suggestions under the open ended questions when the indicators were considered inappropriate. The respondents were also encouraged to provide comments on the content of the proposed indicators and their corresponding point scoring system.

With reference to the comments of the practitioners in the questionnaire survey of the predetermined sustainable urban design principles, the list of design criteria and assessment indicators was revised, and the structure of the questionnaire and some wordings inside were also amended for the next part. As results of this part, the final list of urban design indicators and criteria was revised and the model of the assessment strategy was also amended for the main questionnaire survey in part 3. Table (6.5) shows the final list of urban design criteria and their corresponding definitions which were adopted in the current investigation.

The third part: refers to the possibility of using the developed assessment strategy in the practical field at the local level. In this part of questionnaire, the assessor was asked to apply the developed assessment strategy on the specific case studies in order to identify the extent to which an urban regeneration project being assessed achieves sustainable development in terms of various design criteria. The indicators that were developed through the research processes will play an important role in the assessment mechanism. To identify the applicability of the developed strategy at the local context two case studies were selected, the first represents the previous trends in urban redevelopment in Iraq. The second case represents the recent trends in urban regeneration in Iraq.

Due to the large number of assessment indicators and to facilitate the assessment process in this part, the same respondents were divided into two groups and each group evaluated one project or proposal. The assessor was provided with all relevant information about the projects that are mentioned in chapters 9 and 10, such as the development schemes, plans, photos, etc. Some of the indicators could only be roughly assessed, since not all details of the projects are accessible for public inspection. In some cases the designer/person in charge of the projects should be contacted in order to identify the missing link and verify the preliminary assessment results.

To ensure that the questionnaire items are understandable to experts, the questionnaire was designed in the following way:

1. The questionnaires were sent at three stages depending on the research process development and the goal of each survey, the first part of the questionnaire was sent at the beginning of the investigation to get the experts opinions about the status of Iraqi historic cities. The second part was sent to the same group of experts after assembling the urban design criteria and assessment indicators to evaluate the validity of the elected indicators. The third part was sent after the assessment strategy was developed and the cases were analyzed to get the experts opinions about the validity and reliability of the developed strategy and to give a viewpoint about the sustainability of the urban regeneration initiatives at the local level. The experts were divided into two groups for this part, one group for each case to facilitate the assessment process.
2. A cover letter was attached to the questionnaires, indicating the significance and the objective of the survey, as shown in an example in the appendix, in order to facilitate quick and convenient completion of the questionnaire. The questionnaires were distributed through email to respondents.
3. The key concepts of the research (the role of urban design in achieving sustainable urban regeneration) were defined with some given examples, to aid the respondents in answering the questions. In addition, the purpose of each part was also explained to facilitate the questionnaire process.
4. Check boxes were provided in the questionnaire to select the answers easily.
5. Language of the questionnaire was English.

Table 6. 5 Final list of urban design criteria and their corresponding definitions which were adopted in the current investigation.

Urban Design principle A and its related criteria -Character-	
Performance Criterion 1	<p>Context: <i>It refers to the response of development to its surrounding</i></p> <p>The positive features of a place contribute to its special character and sense of identity. They include landscape, building traditions and materials, patterns of local life etc. that make one place different from another (DETR, 2000, P.19). According to Tribal et al. (2009, p.14) the new development should improve on the existing situation, and at the same time be sensitive to its context. When the design has undergone a thorough site analysis, context review and appropriate response, this will aid the dialogue in the design process between developers, their agents, local authorities and the community.</p> <p>As mentioned by DETR (2000, P.19) The best places are memorable, with a character which people can appreciate easily. Where such distinctiveness is ignored, a new development may reflect only the marketing policies or corporate identities of national and international companies. Designing for local distinctiveness involves the creative reconciliation of local practices, with the latest technologies, building types and needs. The figures below show an abstract example of how integrating a new development into its landscape setting reduces its impact on nature and reinforces local distinctiveness.</p> <div style="text-align: center;"> </div> <p>Skylines are sensitive to being obscured by high buildings in front of existing buildings or having their silhouette spoiled by high buildings behind them. Source: DETR (2000, P.19)</p>
Performance Criteria 2	<p>Detailed design: <i>concerns physical characters and configuration of building and landscape design including appearance, density, height, mass, etc.</i></p> <p>Llewelyn and Baxter (2007, p.85) referred to the importance of detailed design where the identity and quality of a place is finally won or lost. Detail meant here is the design of the buildings and public realm, and most particularly, the interface between them. The building elements include elevations, corner treatments, roof lines, doors and windows, materials, floorscapes of colour and texture etc. The public realm elements concern the street, the pavement, the square, planting, street furniture, lighting and public art. The interfaces are the steps, the fences, front gardens, walls, and the hinge between the horizontal and vertical planes. An important tenet of good urbanism is for buildings to give positive definition to the shape and function of outdoor space, and for this outdoor space to be designed to encourage a range of activities to take place (see the figures below).</p> <div style="text-align: center;"> </div> <p>Source: Llewelyn and Baxter (2007, p.86)</p>

Urban Design principle B and its related criteria
-Continuity and Enclosure-

Performance Criteria 1	Layout: <i>It refers to the creation of people friendly streets and spaces by redevelopment proposals.</i>
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According to [Llewelyn and Baxter \(2007, p.33\)](#) the layout or urban structure refers to the pattern or arrangement of redevelopment blocks, streets, buildings, open space and landscape which make up urban areas. It is the interrelationship between all these elements, rather than their particular characteristics that bond together to make a place. [Tribal et al. \(2009, p.52\)](#) mentioned that the layout of a site is one of the key determinants of successful places. The layout of development can help to determine an area's character and sense of place, its safety and security and how well it works. It can affect a scheme's sustainability in a number of key ways, including solar orientation, provision of sustainable drainage systems, and encouraging residents to walk and cycle in preference to using the car. The mistakes that are attributed to bad planning are often errors of layout; for instance, a dead end that does not connect with the route to the school, or a lonely footpath that is a haven for crime and anti-social behaviour or in reverse like in example below ([ibid](#)).



In this figure a no-through road allowing a continuous pedestrian and cycling route but restricting vehicle movement. Source: [Tribal et al. \(2009, p.55\)](#)

Performance Criteria 2	Privacy and Amenity: <i>It refers to the a decent standard of amenity provided by building</i>
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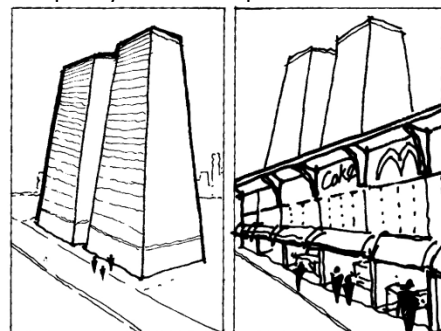
Privacy and amenity are one of the basic human needs. As mentioned by [Yeang et al. \(2008,p.76\)](#) such matters are particularly important in higher density schemes where good space standards, sound insulation and access to private open space can make the difference between acceptable urban living and a poor living environment. The core objective should be the creation of places that encourage people to continue living in the development and contribute towards a strong, sustainable community.


Urban Design principle C and its related criteria
- Quality of the public realm-

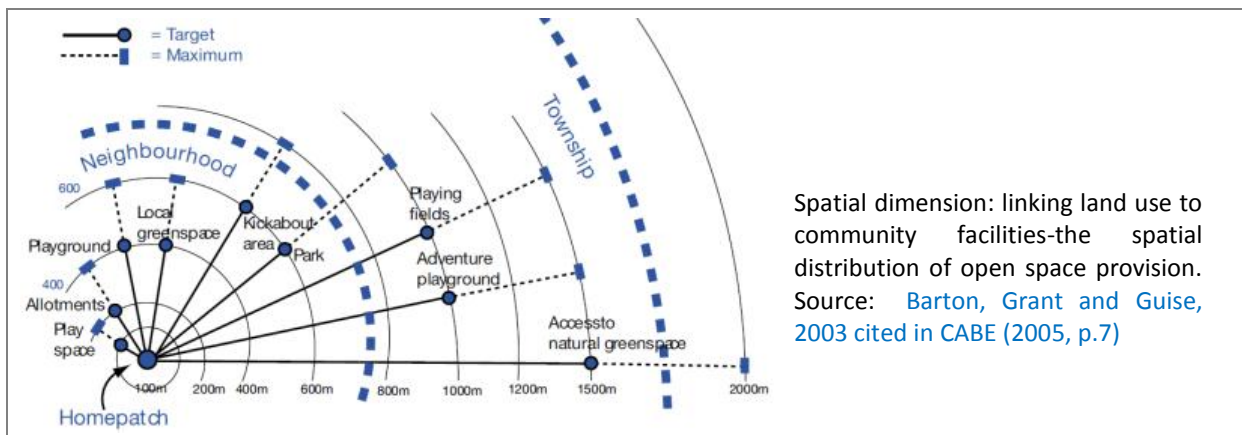
Performance Criteria 1	Public realm: <i>It refers to creating safe, secure and attractive outdoor spaces</i>
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[RBC \(2007, p.45\)](#) stated that streets and spaces form the 'public realm', those parts of cities that are available for use by everyone. Good quality streets, squares, parks and public gardens are the most important factors which contribute to the success of places. According to [Yeang et.al \(2008, p.60\)](#) poor quality public spaces will rarely be improved by even the highest quality architecture, whilst a neighbourhood of ordinary buildings can be transformed through improvements to the public realm. The quality of public realm will form the impression of a place and is a key determinant of the image that people form of the quality of a development as a whole

Human scale design elements such as perimeter arcades should be provided in order to create an intermediate scale between humans and buildings. Building façade and podium edge, in terms of architectural design and in the choice of building materials, should be interesting, particularly at ground floor (as shown in Figure). Source: [Planning Department \(2015, p.16\)](#)



Performance Criteria 2	Open spaces and Parking: <i>refers to creating secure and attractive open spaces parking.</i>
<p>Where and how the cars are parked can be a major factor in the quality of a development and the main consideration is how to incorporate parking in a development without allowing it to dominate everything around (Llewelyn and Baxter, 2007, p.78). According to Yeang et al. (2008, p.82) the most successful developments tend to provide sufficient parking to cope with demand in a way that does not overwhelm the appearance and amenities of the public realm. Whilst developments should be laid out to encourage the most sustainable modes of transport, people will still expect to be able to own and safely park a car. Providing sufficient parking can also help the residents to choose more sustainable modes of transport. Llewelyn and Baxter (2007, p.78) referred that cycle parking is often overlooked in popular destinations. The consequence of limited car parking spaces can be informal parking elsewhere in the scheme which can inconvenience residents and detract from the quality of the place (Yeang et al., 2008, p.82).</p>	
<p>Urban Design principles D and its related criteria definitions -Ease of movement-</p>	
Performance Criteria 1	Inclusivity: <i>refers to the easy use and access to the redevelopment scheme</i>
<p>Yeang et al. (2008,p.26) defined the inclusive design as that which meets the needs of all users and creates places that can be enjoyed by people from different cultural and socio-economic backgrounds, for example by providing steps for the able bodied and ramped access for wheelchair users. In addition to provision for different groups in different ways inclusive design promotes an approach which allows all people to use space in the same way and on equal terms (Yeang et al., 2008, p.26). Example for diverse public spaces provided as part of the masterplan, which ranging from formal spaces for walking and sitting; formal and informal games areas; smaller semi-private spaces, or development facilitates such as: public park organised around landscape feature and Communal courts.</p>	
Performance Criteria 2	Connections: <i>how to get to and move through new redevelopment places</i>
<p>Yeang et al. (2008,p.20) pointed out that the quality and sustainability of a new development can be measured by how well it is connected to important destinations, and how pleasant, convenient and safe those links are to use. Successful places tend to be well connected to facilities that support a good quality of life. RBC (2007, p.23) mentioned that some developments cut themselves off from the surrounding area, and they are dominated by traffic creating barriers to people’s mobility. Successful places tend to give priority to pedestrians, so that walking is easy and pleasant. Consequently people choose a neighbourhood that permits easy or close access to the places that they need for their day-to-day activities. Without easy access, the range of these activities is curtailed (RBC, 2007, p.23 ; Yeang et al., 2008, p.20).</p>	
	
<p>Connecting streets together creates an environment that is easy to move through. Source (RBC, 2007, p.25)</p>	
<p>A cul-de-sac layout does not connect the site to the surrounding streets, so restricting access, especially for pedestrians and cyclists. Source (RBC, 2007, p.25)</p>	



Spatial dimension: linking land use to community facilities-the spatial distribution of open space provision.
Source: Barton, Grant and Guise, 2003 cited in CABE (2005, p.7)

Urban Design principles E and its related criteria definitions

-Legibility-

Performance Criteria	Distinctiveness: <i>refers to creation of a sense of place with a clear image that is easy to understand by users and visitors.</i>
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As mentioned by Yeang et al. (2008, p.46) each successful community has a distinct and special character, that makes people choose to live there over other places. According to ULDT (2004, p.27) people often use physical features to find their way around, these are referred to as landmarks, they can be large objects or smaller local landmarks such as a distinctive buildings or a piece of public art. DETR (2000, p.28) highlighted that vistas create visual links between places, greenery can emphasise pedestrian routes or destinations, and a visible choice of routes will contribute to making a place feel safe. The location of these landmarks, routes, and built form is important in providing visual linkage through the built environment and creating focal points along vistas. Designing these elements to work together helps to create a more coherent urban form and influence the legibility of a place (ULDT, 2004, p.27).

Places where form, layout and signage make them easy to understand function well and are pleasant to live in or visit. Equally, some places draw their charm from their lack of clear routes (DETR, 2000, p.28. Using grid streets is one of the ways to create easily navigable urban areas; this might be a regular, rectilinear grid, or an irregular and more organic network. The process of design needs to take account that people do not all interpret and enjoy a place in the same way. In addition, routes that are clear, direct and logically connect with other routes are desirable (ibid).

Urban Design principles F and its related criteria definitions

-Adaptability-

Performance Criteria	Adaptability: <i>refers to buildings and places that can cope readily with change.</i>
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Adaptability identified by ULDT (2004, p.27) as encouraging developments which can adapt to changing social, technological, economic and market conditions. RBC (2007, p.31) pointed out, it is important that buildings and spaces can respond to changes in technology and living circumstances. This quality enables buildings and spaces to have a long life, so creating a flexible and sustainable environment. Even though people may live in different ways, the basic structure of the physical fabric of such places proves to be grounded in unchanging patterns of human life, rather than being unalterably fitted to some very specific purpose (DETR, 2000, p.29). Places need to be adaptable at every scale, cities as a whole have to adapt as industries rise and decline, demand for housing and the nature of workplaces changes, and buildings and infrastructure age.

According to Yeang et al. (2008, p.70) The sustainability of a housing development for example can be measured by its longevity and ability to adapt to changing circumstances (such as: adapting to changing family size and increased car ownership) this has environmental and economic advantages. These benefits can also be extended to designing whole neighbourhoods that are able to change to meet the needs of residents. Such neighbourhoods are often higher density, compact and walkable places that prioritise pedestrian movements.

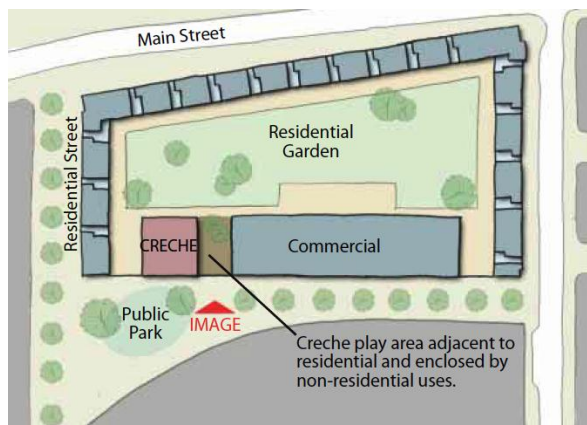
Urban Design principle G and its related criteria definitions

-Diversity-

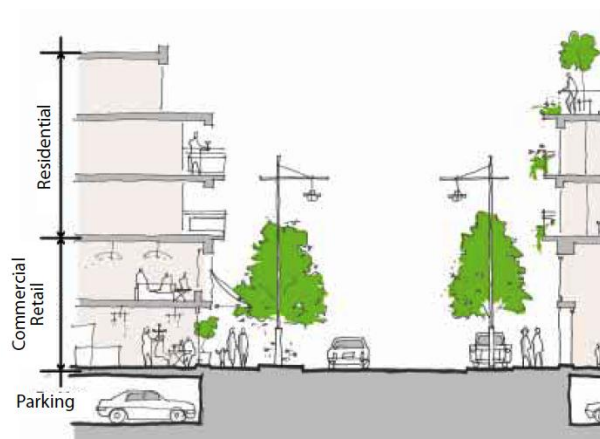
Performance Criteria	Variety: <i>refers to promoting a good mix of activities and uses, to create vital and viable places</i>
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The different activities of people contribute to the vitality and viability of places. According to [ULDT \(2004, p.35\)](#) If the urban environment is to remain active and vibrant, a mixture of uses is required within compact areas. This may include mixing uses vertically within buildings, horizontally along streets or as small zones located adjacent to each other. [DETR \(2000, p.31\)](#) mentioned that the mix of uses can help to determine how well-used a place is, and what economic and social activities it will support. A mix of uses may be at a variety of scales: within a village, town or city; within a neighbourhood or a street; or even in a particular building.

[ULDT \(2004, p.35\)](#) pointed out that mixing has economic benefits as well as social ones. Locations that mix a variety of residential, commercial, retail and leisure development ensure that there are employees for jobs and demand for services. Mixed-use development can make the most of opportunities for higher densities and intensive activity at locations with good access to public transport ([DETR, 2000, p.31](#)). In addition [Yeang et al. \(2008, p.32\)](#) mentioned that the most successful and sustainable urban environments are the ones that contain a good variety of activities. For smaller infill developments, it means ensuring that the proposed uses complement those that already exist so that a balance is struck.



In this example, apartment buildings form a courtyard which accommodates a creche, creating a protected outdoor space for this private use. Source: [Yeang et al. \(2008, p.35\)](#)



This mixed use proposal places apartments at second floor above an active street of shops and cafes. A first floor of offices provides a 'buffer' to the noisier uses. A set back at second floor gives further privacy. Source: [Yeang et al. \(2008, p.35\)](#)

Urban Design principle H and its related criteria definitions

-Efficiency-

Performance Criteria	Green construction: <i>refers to the appropriate use of land and site resources in the development scheme.</i>
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According to [Yeang et al. \(2008, p.40\)](#) there are two main strands to designing places for climate change - mitigation and adaptation. Mitigation addresses how places can be designed to reduce the impact of development on climate change. Redevelopment policies and climate change strategies establish the importance of reducing the energy requirements and greenhouse gas emissions associated with development initiatives. Designers need to be able to demonstrate how material type and sourcing have been selected to contribute towards the mitigation of potentially climate changing effects. A balance will often need to be struck between the energy embodied in new construction and the energy that will be needed to run the buildings over their lifetime. Providing energy efficient in terms of construction requires a great deal of thought and can increase construction costs to ensure that the buildings grow into sustainable, successful communities ([ibid](#)).

Urban Design principle I and its related criteria definitions	
-Safety and Security-	
Performance Criteria	Sense of safety : <i>refers to places that are welcoming, secure and are as safe as possible</i>
<p>Llewelyn and Baxter (2007, p.106) mention that safety and security are vital elements in any urban redevelopment, and the perception of safety or danger does not always relate directly to actual incidence of crime. We feel comfortable and confident using areas where there is good visibility and effective lighting, where we feel we can be seen and heard by other people. RBC (2007, p.15) mentioned the visitors must feel that places are welcoming, and businesses must be able to operate in a safe and secure environment.</p> <p>Llewelyn and Baxter (2007, p.106) believe that the integrated design is an important instrument in enhancing the sense of well-being and making places more user-friendly, easy to understand and secure. In this regard, the most effective measure for community safety and crime prevention is the creation of lively, lived-in urban areas and public spaces which are easy to overlook and oversee. The combination of good design, good management and community involvement is an effective factor in creating more secure environments.</p>	
Urban Design principle J and its related criteria definitions	
-Services provision-	
Performance Criteria	Compactness: <i>refers to the provision and access to public facilities and appropriate high quality services infrastructure</i>
<p>According to Lee (2008, p.122) public facilities refers to the facilities that are essential to support the daily necessity of the community, and quality of life of the public, which include as example; public buildings, structures, or systems used for functional, institutional, educational, medical, recreational and cultural purposes. The access to these facilities refers the possibility of approaching the places where the public facilities are located by roads, streets or pedestrian walkways. Another important aspects in services provision is the maintenance, RBC (2007, p.41) mentioned that good design is only successful if it lasts. Spaces and buildings that are difficult or expensive to maintain will not achieve good, long-lasting quality in their design. Proper consideration must be given at the design stage to the effects of ageing, weather and climate conditions, and normal wear and tear on buildings, streets and spaces, and landscape. So good processes of maintenance are as important as designing for easy maintenance</p>	
Urban Design principle K and its related criteria definitions	
-Green Design-	
Performance Criteria	Environmental improvement: <i>refers to minimising the impact on our environment.</i>
<p>According to Lee (2008, p.2015) This criterion refers to incorporating the principles of passive design in response to the natural environment. These aspects include investigation of the surrounding environment e.g. ventilation assessment, and sunlight and shadow studies; building orientation/ deposition; design of building envelop in terms of building shape, form and size of openings; selection of glazing/ building materials, and landscape design. It is believed that an optimum use of natural lighting and ventilation can be achieved effectively when the passive design principles are considered in various aspects.</p>	

Target Respondents:

In order to ensure that representative comments were obtained, a potential group of 36 experienced practitioners representing different disciplines of urban planners, urban designers and architects, all of which have 10 years or more work experience and who are actively involved in planning and implementation of urban redevelopment projects were invited to join the study. Since this study aims to identify the importance of urban design in the achievement of sustainable urban regeneration in Iraqi historic cities, it is important to obtain data from representatives in leading roles in the local urban design and urban redevelopment projects. About 60 % of the respondents have achieved a master degree or

above. Architects and urban designers are regarded as major urban design professionals in Iraq, in which architects focus on the design of buildings and their surroundings while urban designers and planners are concerned with preparing the masterplans, land use planning and development control. In short, the target group of respondents in this study consists of Iraqi professionals in the field of urban design and urban redevelopment. As the design professionals have different expectations for the urban regeneration schemes, considering their view not only prevents the needs of different groups of people from being ignored but also helps to reach a general consensus on the goals of urban regeneration policy.

6.4.5 Main study conduct

The questionnaire survey was adopted in the current study as the primary data collection method to identify how urban design aspects lead to achievement of sustainable urban regeneration in the historic part of cities and used also to identify the priorities of experts and stakeholders. As mentioned before and due to the research goals, the structured questionnaires were used mainly in the study with mixed questionnaires in some parts (consisting of closed as well as open-ended questions). The sequence of questionnaire parts followed the evaluation of research stages. By using different research methods triangulation could be achieved in order to increase the validity and reliability of the results. The target respondents were sent a copy of the questionnaire and they were asked to give comments on three aspects;

Part I: Evaluation of urban heritage values in historic city centres in Iraq

This questionnaire survey is to verify the representation and validity of assessment criteria and its associated indicators proposed for evaluating the urban heritage values which will then be used to assess the status of heritage property, and the driving forces behind the deterioration of historic city centres in Iraqi cities. The assessment strategy proposed 5 design criteria that will be illustrated in chapter eight. These criteria were derived by exploratory and analytic process of literature review conducted during the research process, representing the most significant physical and intangible aspects contributing to the physical identity of historical urban fabric. These criteria should be considered when planning national regeneration projects in the future.

Part II: Evaluation of the Assessment strategy

The questionnaire survey in this part is to verify the representation and validity of elected urban design principles, criteria and assessment indicators in meeting the physical objectives of sustainable development that will be used to assess the success and performance of urban regeneration projects. The respondents were requested to rate the extent to which the predetermined urban design principles and indicators contribute to physical sustainable development objectives of urban regeneration projects and to national urban regeneration policies in the future. This part was followed by an open ended question asking the respondents whether they can think of other design considerations that might make the

areas undergoing urban regeneration more sustainable. The final form of assessment strategy contained 15 design criteria and 71 related assessment indicators derived from urban design principles by exploratory and analytic process of literature review conducted during the research process. These will be utilised in the third part of the questionnaire survey.

Part III: Implementation of the developed assessment strategy

After revising the design criteria and their related indicators, the main part of the study was conducted. The third part was made up of the final form of assessment model. The assessor was asked to apply the developed assessment strategy on the selected local case studies, to give an opinion on the extent of implementation of developed assessment strategy at the local level and to identify the extent to which an urban regeneration project (selected case studies) being assessed achieves sustainable development in terms of various design criteria. 71 urban design assessment indicators were contained in the final form of the assessment model in this part and a five-point Likert-type scale was used for rating each of the indicators (more details about the assessment mechanism will be provided in chapter7). As mentioned before in this part, the respondents were divided into two groups and each group evaluated one project or proposal.

6.5 Stage 3 – Data analysis techniques

As mentioned before the current research primarily uses qualitative data sources, although quantitative data are also utilised. Thus the study adopted a combination of qualitative and quantitative approaches in collecting the necessary data, in order to develop an assessment strategy for examining the sustainability level of urban regeneration projects in Iraq. After the data organisation, content analysis is used to match the gathered information with the aim and questions of the research, which were developed earlier based on the methodological approach of the study. The collected data in this study were analyzed by a number of analytical techniques depending on the type of data and required results. However, statistical forms of analysis are not specifically used.

The secondary and direct observation data related to the case studies represent the main qualitative source of information. As the nature of the research is more qualitative than quantitative this study has an emphasis on understanding the multiple critical factors affecting regeneration at the local level which become the basic components of a strategic framework by which the data are analysed. The study explored and analysed the available secondary data in order to generate necessary information that explain the existing phenomenon/status of the case studies and approaches behind their regeneration initiatives. Some of the qualitative data were structured and coded according to the expert's point of view, aiming to understand the current situation of the historic centres in Iraq and the proposed regeneration projects for these centres. By identifying the strengths and the opportunities that exist as well as present challenges, solutions to the weak aspects that might affect the regeneration process could be found.

The questionnaire survey process was carried out as a quantitative strategy to collect data from experts to calculate a set of priority ratings of the extracted factors with respect to physical sustainable development objectives. The results of the data analyses related with the urban design principles and aspects were calculated to identify the underlying factors that might contribute positively or negatively to local sustainable urban regeneration.

The final analysis results and key findings will organize and deliver the respondents' perspectives and researcher opinions on the various issues by using descriptive qualitative methods, to illustrate and complement the results discussion. Before presenting and discussing the results of the analyses and key findings in chapters 11 and 12, the justifications for applying those factors and methods are discussed in the beginning of each of these chapters. It is obvious from the above that the study relies on multiple sources of evidence, this helps to substantially improve the validity and reliability of the research. To conclude and according to [Stake \(1995\)](#), by studying every aspect of the problem from as many angles as possible, and by using various sources of evidence, the case study research strategy is a powerful research tool in the hands of an investigator.

6.6 Stage 4 – Evaluation process adopted in the assessment strategy

The main outcome of this study is a model of an assessment strategy for urban regeneration projects in historic city centers in Iraq. In order to examine the reliability and applicability of this framework, a number of evaluation processes were conducted. Case studies analysis and questionnaire survey were utilized in the research for evaluation of the main components of the strategy. The experts were invited to join the three parts of questionnaires survey, they were asked to comment on the assessment tool that was made up mainly of qualitative indicators.

In this study, the evaluation approach has been structured on the basis of the multi-criteria analysis methodology, this being a decision-making tool developed for new proposals or projects. The aim of this approach is to underscore the strengths and weaknesses of the different regeneration initiatives concerned with the historic environment, while also taking a critical look at the limits of the tool which is used. The evaluation of urban regeneration proposals/projects enabled us to show the multiplicity of dimensions which must be taken into account in such a process.

As mentioned by [Pérez and Rey \(2013\)](#) a *multi-criteria evaluation* does not exempt from the need to make choices and potentially accept responsibility for some arbitration between the different dimensions of the operation, however, it does enable decisions to be taken in a more aware and more explicit manner. According to [IOER \(2005, p.10\)](#) Multi-Criteria methods (MCA) can be used to identify a single most preferred option, to rank options, or to short-list a limited number of options for subsequent detailed appraisal. In particular, MCA are useful for comparing options and proposals when evaluating alternatives of the plan or

programme. MCA methods usually rely on the scoring and weighting of options according to a defined set of objectives and/or performance criterion.

To facilitate the investigation of the complex and multidisciplinary approach of urban regeneration and arrive at the desired evaluation criteria in regard to the heritage context, the evaluation criteria have been developed based on literature review and good practices. Many previous studies have been conducted for the purpose of identifying the potentials and challenges in the historic urban areas. The evaluation criteria of the current research aim to highlight the processes of urban change, to identify the various impacts of implementation of the regeneration process and to determine whether or not these are acceptable to initiate sustainability according to the principles of sustainable urban regeneration. Thus, the researcher considers the multi-criteria analysis as a dynamic tool to deal with the internal and external forces influencing the heritage quarters. The final structure of the proposed assessment model to answer the queries about how the value of urban design could be measured and its role in evaluating the urban regeneration initiatives will be presented in details in chapter 7.

6.7 Validity and reliability

Validity/Internal validity: According to Yin (2012, p.78) validity is a key quality control issue for a study and its findings. Bazeley (2004) believes that validity stems from the appropriateness and effectiveness in applying the methods. Studies depending on a case-study approach face the challenge of how to ensure that the conclusions made represent causalities and that the explanations derived from different information sources are not attributable to other factors or are accidental (Shaheen, 2009, p.64). Based on the current research approach, different sorts of data and methods were used to describe and analyse the main research themes and context of the study area. To ensure the validity of data used in the research, two strategies were employed to minimize threats to internal validity.

In the first strategy the data on the same issue were collected from more than one source, and afterwards triangulation was carried out as an internal validity tool to test the convergence or divergence between them. Bazeley (2004) believes that triangulation overcomes personal biases from single methodologies. Yin (2012, p.79) mentioned that the triangulation means collecting converging evidence from different qualitative and quantitative sources which can then be used to qualify the research findings.

Therefore triangulation is double checking of different results by comparing them together, seeing any compliance or divergence in the resulting outcomes and conclusions.

The second strategy was to get feedback from the key informants to assess whether interpretations made by the researcher, or conclusions drawn, accurately reflect the perspectives of the informants. This strategy is essential, especially when discussing issues which are not clear or documented. For example the attempt to draw out the factors influencing the urban regeneration process in the Iraqi cities. The familiarity of the

researcher with the study areas and the different of reliable information sources helped to exclude unreliable data.

Reliability/External validity: according to Yin (2003, p.37) reliability aims to check whether it is possible to carry out the same research process, using the same case study by another researcher and come up with the same findings. In similar meaning the external validity tests if the research findings could be generalized beyond the chosen case. Shaheen (2009, p.64) mentioned that reliability aims to go beyond the specifics of the particular case at hand and confirm that the processes identified and conclusions drawn can be generalized beyond that case, which is particularly so in most applied research. Yin (1994) opposes the argument that case-study observations cannot be generalized and he articulates the view that “case study research is essentially focusing on the inference of general or transferable findings and is thus also a matter of optimal experimentations”. Moreover, the logic in the case-study approach is theoretical rather than statistical.

This study deals with the regeneration of heritage cities in Iraqi, to enhance the prospects towards a visionary sustainable state. Identifying similar types of projects and cases helps to generalize results on the theoretical level. To a large extent, Iraqi cities have an analogous context and share similar characteristics and challenges, which influence their development processes. Despite that the research strategy was based on illustrative regeneration proposals at specific Iraqi cities, the research theme targets Iraqi historic cities in general. Based on the exploratory and evaluative approach of this study, the general outcome is a conceptual assessment strategy that can be applicable to cases with a similar context. Therefore, the analytical approach and the conclusions drawn from the selected case studies can be generalized and transferred to other Iraqi cities or to other cities with comparable contexts in the region.

6.8 Conclusion

The chapter provides an overview of the research process and how the different research stages were conducted. It describes how the theoretical and conceptual frameworks were applied to the employed exploratory and evaluative qualitative case study methodology. This chapter presents the research methodology, its nature, strategy, process and different data collection methods used, closing with presenting validity, reliability and generalization possibilities of the attained findings to provide a clear scheme for the empirical part to come.

To achieve the research objectives, the chapter identified four main tasks which include; development of a conceptual basis of the research and its methodological approach, identifying the research strategy by developing the research design, selecting the research methods, and illustrating the data analysis techniques. The study approach used data from a comprehensive literature review, field observations, and structured questionnaires survey, to describe and assess urban regeneration approaches at historic built environment in Iraq.

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Chapter 7: Structure of Urban Regeneration Projects Assessment Strategy

7.1 Introduction

Well-designed urban places can only be achieved by adopting an integrated design approach at all stages of a project, from design to implementation, operation and maintenance through leadership, teamwork and integrated processes (GBCA and ISCA, 2011, p.12). This chapter outlines the process for delivering the final form of the urban design assessment strategy as a tool to achieve sustainability of the regeneration projects as a result of implementation of the conceptual framework which was developed earlier. It provides a description of the purposes of this strategy and the development of appropriate indicators to represent the design criteria and their corresponding point scoring system in the final form. After that the chapter discusses the final structure of the assessment mechanism of the sustainable urban regeneration project. Lastly, the implementation details of the assessment strategy are presented.

7.2 Purpose of the strategy

The model of the strategy is useable as a tool to test the degree to which a particular regeneration proposal/project is adhering to the principles of sustainability. The majority of the professionals cannot clearly pinpoint to what extent their projects are sustainable and successful. Therefore, a systematic, practical, accountable and modifiable model that can verify the quality of the project is required. The assessment strategy here proposes to serve as a design and planning tool for the urban design professionals and the official stakeholders. It is applicable to different scales and mixed-use development.

The assessment approach derived by this study can be used to measure the sustainability level of different urban regeneration schemes, to select the appropriate alternative for an area undergoing urban regeneration and to evaluate the design quality of individual urban projects against a set of standards covering both intangible and tangible issues. One of the expected results of the developed assessment strategy is that it can help the professionals to identify the capability of the regeneration projects to meet various sustainable development objectives and recognize its deficiencies for subsequent adjustments and to take immediate action to rectify and refine the design accordingly by the relevant parties. Based on the results that are generated by the assessment process, the practitioners can make necessary adjustments or clarifications in the design in order to reduce the risk of failure of the project

to be conducted afterwards. In addition, it can help to distinguish successful regeneration projects from the unsuccessful ones in terms of sustainability levels.

7.3 Components of assessment strategy- Design criteria and assessment indicators

Different sets of indicators have been developed worldwide for assessing the sustainability of different development policies. Häkkinen (2007) highlighted in the European research project entitled “Trends and Indicators for Monitoring the European Union Thematic Strategy on Sustainable Development of Urban Environment (TISSUE) that these sets of indicators are emphasized in different aspects such as; sustainable urban design, sustainable urban construction, sustainable urban transport or sustainable urban management. As all above are related to the quality of the urban environment, each set contains indicators covering environmental issues, ecology, or natural landscape, etc. no matter whether they are developed at the international, national or regional level.

Based on the study approach and development of the research procedures, the design criteria and their associated assessment indicators for the purpose of the current study have been identified earlier in the theoretical and conceptual frameworks of the research for assessment of urban regeneration projects. Different sets of indicators in similar fields were investigated in order to ensure that appropriate indicators could be generated to assess the design criteria and to be included in the developed strategy. The current framework was derived on the basis of various studies which might not be totally relevant to the local context. Therefore, the indicators in this study were developed by two means. They were either selected from the lists of assessment tools or standards without modifications if they are relevant to the study purpose or indicators developed elsewhere were taken and further adjustments were made to suit the local conditions, if relevant indicators were not available.

According to Hemphill et al.(2004a) it is possible to set the quantitative indicators for certain outputs such as (numbers of parks created), but it is difficult to use the same approaches for measuring more subjective sustainability criteria like quality of life and sense of community. Due to the current research approach, the study concentrated mainly at this stage on the qualitative and some quantitative indicators that were derived and included in the developed urban regeneration assessment strategy. In addition, when developed, both types of indicators can give a clearer picture of how the regeneration projects being assessed have achieved sustainable development objectives. According to Lee (2008, p.214) there is no absolute standard for determining the total number of indicators for a given purpose. A small set of indicators can be managed more easily while a large set can cover a wider range of important issues. To achieve a balance between 2 benefits, this study intends to develop 71 indicators for 15 design criteria, i.e. 4-5 indicators per each criterion. With reference to the predetermined sustainable urban design principles and comments of the experts, as results of the part II of questionnaire survey, the final list of design indicators were revised and the structure of the assessment model was also amended for the main questionnaire survey in part III.

A number of amendments had to be made in response to the comments collected from experts to refine the final form of Indicators; the indicators mentioned in study chapters represent this final form. To ensure the validity and reliability of the assessment tool that was scanned by the respondents, the final version of indicators were further verified and confirmed by the third part of questionnaire survey by implementing the developed assessment strategy on selected case studies. The final list of revised indicators established for the assessment strategy is presented in Tables (7.1-7.11). What is expected from these procedures is to ensure that the indicators built from the literature, validated by the experts and finalized by the researcher are valuable, reliable and able to evaluate the sustainability performance of the urban regeneration projects in respect to urban design. Tables 7.1 – 7.11 show the final list of assessment indicators that represent individual urban design performance criteria.

Table 7. 1 Indicators for urban design principle A (Character).	
Urban design Principle A	Character Sense of place and history: it refers to a place with its own identity and development that responds to and reinforces locally distinctive context and landscape.
Performance criterion 1	Context Refers to the new development that complements and blends in with the physical characters of the surrounding properties.
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme seems to: Indicator1: Positively contribute to the character and identity of the surrounding neighbourhood properties. Indicator2: Incorporate the heritage, culture and historical context of surrounding communities and places. Indicator3: Integrate with the physical environment, including its topography, biodiversity (micro-climate), landscape and views, existing streets and buildings, and infrastructure. Indicator4: Be compatible with the surrounding social and economic activities. Indicator5: Respect the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users when increasing in density.
Performance criterion 2	Detailed Design Concerns physical character and configuration of buildings and landscape design, including; appearance , density ,height ,mass, etc.
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: The materials and external design make a positive contribution to the locality. Indicator2: Satisfactory visual appearance of the properties in terms of appropriate height and bulk of individual buildings. Indicator3: Design of the buildings and public space will facilitate easy and regular maintenance. Indicator4: The landscape design facilitates the use of the public spaces from the outset. Indicator5: Acceptable density of development within the regeneration site in terms of plot ratio (PR= total gross building floor area / total site area to be regenerated).

Table7. 2 Indicators for urban design principle B (Continuity and Enclosure).	
Urban design Principle B	Continuity and enclosure Clarity of form: it refers to a place where public and private spaces are clearly distinguished
Performance criterion 1	Layout How does the proposal create people friendly streets and spaces?
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme shows: Indicator1: Layout ensures that there is continuity in the frontages of streets and spaces through buildings relating to a common building line, street blocks or alongside public spaces; to create a permeable routes and define the street. Indicator2: The layout focuses activities on the streets by creating active frontages with front doors directly serving the street. Indicator3: The streets are designed as places, helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers Indicator4: Block layout places some public spaces in front of building lines as squares or greens, and some semi private space to the back as communal courts. Indicator5: Traffic speeds are controlled by design and layout rather than by speed humps
Performance criterion 2	Privacy and Amenity How does the scheme provide a decent standard of amenity?
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: the design maximises the different use of front and backs of buildings, and ensures that entrances to properties are located in a way to distinguish between private and public spaces. Indicator2: Clearly defining and enclosing useable private outdoor space that provides for better privacy and security. Indicator3: Development helps to define the relationship between the public spaces, fronts of buildings and the streets regarding their respective uses. Indicator4: The design prevents sound transmission by appropriate layout and the windows are sited to avoid views from other properties or the streets

Table7. 3 Indicators for urban design principle C (Quality of the public realm).	
Urban design Principle C	Quality of the public realm Sense of wellbeing and amenity: it refers to the place with attractive and successful outdoor public spaces that are lively and pleasant to use.
Performance criterion 1	Public Realm Refers to what extent the open public/private spaces are safe, secure ,enjoyable and designed to conserve the natural environment for amenity and visual purposes
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: The public realm is considered as a usable integrated element in the design of the development. Indicator2: There is a clear definition between public, semi-private, and private spaces Indicator3: The public open spaces are overlooked by surrounding buildings so that this amenity is owned by the residents and allow natural surveillance, feel safer and safe to use. Indicator4: Roads and open car parking areas are considered as an integral landscaped element within the public realm design and are treated accordingly. Indicator5: Ground floors are designed to make a positive contribution to the street scene and create an active building frontage, with interesting uses that relate directly to passing pedestrians.

Performance criterion 2	Open spaces and Parking How will the open spaces and parking be secure and attractive?
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme shows: Indicator1: The design of public open and green spaces respects the natural features, takes account of the micro-climate and are accessible. Indicator2: Adequate percentage and proper location of provided open spaces within the regeneration area. Indicator3: Works of art and street furniture are integrated into the design of public spaces, to give identity and enhance the sense of place. Indicator4: Integrate materials and soft landscape elements, with the other elements of parking, street and paving in a coordinated way. Indicator5: Parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces. Indicator6: The car parking is on a street or within easy reach from different users and the parked cars are overlooked by residents, pedestrians and traffic, or stored in secure underground arrangements.

Table7. 4 Indicators for urban design principle D (Ease of movement).	
Urban design Principle D	Ease of movement Connectivity and permeability: it refers to the place with convenient, efficient and safe environment that is easy to get to and move through by pedestrians and public transport users.
Performance criterion 1	Inclusivity How easily can people use and access the development?
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: There is a range of public, communal and/or private amenity spaces and facilities for children of different ages, parents and the elderly. Indicator2: Areas defined as public open space that has been either taken in charge or privately managed will be clearly defined, accessible and open to all. Indicator3: New buildings present a positive aspect to passers-by avoiding unnecessary physical and visual barriers. Indicator4: Appropriate physical design of the pedestrian walkways and pedestrian passages to public transport in terms of location, width and material used.
Performance criterion 2	Connections It measures how the new development is well connected to the surrounding, as well as the quality of the walkways (streets, pavements, etc.) and mass transport system for the pedestrians and users.
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme shows: Indicator1: the urban structure has an attractive network of connected spaces and routes, for pedestrians, cyclists and vehicles. Indicator2: The layout links to existing routes and places, In addition to the way the development is laid out can encourage low traffic speeds. Indicator3: The layout and density of the development helps to support efficient public transport and increase accessibility to the site rather than creating big blocks Indicator4: Transport interchanges in the development's layout promote the use of public transport and provide for seamless movement between all modes of travel.

Urban design Principle E	Legibility Ease of understanding: It refers to the place after development that has a clear image and is easy to understand
Performance criterion	Distinctiveness Indicates to what extent the new proposals create a sense of place.
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme seems to: Indicator1: The design, location and function of buildings reinforce the identity of the locality. Indicator2: The corners design, detailing and quality of materials in the new development improve legibility by creating visual interest and contributing to a distinctive identity. Indicator3: The place has recognisable features so that people can describe where they live and form an emotional attachment to the place. Indicator4: The layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout. Indicator5: There is a discernible focal point to the proposals to reinforce the role of an existing center.

Urban design Principle F	Adaptability Ease of change: It refers to rehabilitation of repairable properties and a place that can change easily.
Performance criterion	Adaptability It measures the flexibility to respond to future changes in use, lifestyle and demography without substantial alterations of building structures and how the buildings will cope with change.
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: Development has flexible layouts and place design is capable of being used for a range of activities. Indicator2: The building forms are simple, robust and not tightly designed to a very particular use, allowing for the greatest variety of possible future uses to be accommodated. Indicator3: The non- residential portion of the redevelopment is readily allowed for future expansion, improvement and modification involving structural and non-structural alterations Indicator4: The home design allows for adaptation and subdivision without ruining the character of the types, layout and outdoor space. Indicator5: The existing properties that have significant values are properly retained and rehabilitated [The percentage of retained existing properties = total retain area/ total construction area in the site * 100%]

Urban design Principle G	Diversity Ease of choice: it refers to the place with variety of choice and mixed uses.
Performance criterion	Variety It measures the success of the new development to promote a good mix of activities.
Assessment indicators represent the positive performance of regeneration scheme	The regeneration scheme seems to: Indicator1: Create a mix of activities in the most accessible places to attract people to live, work and play in the same area, and contribute to meet different needs. Indicator2: Have a diversity of layout, building form and tenure that contribute to successful living and working environments. Indicator3: Have a range of facilities, services and activities establishments per population. Indicator4: Have a rich range of experiences—how you move around and interact with others, what buildings and spaces look and feel like, and what things you can do. Indicator5: Have an overall harmonious blend, despite the diversity, and each locality has its own characters and activities that are compatible with those already available in the neighbourhood.

Urban design Principle H	Efficiency it refers to the new development that make appropriate use of resources, including land
Performance criterion	Green construction: It measures the construction that minimizes the consumption of energy, water and other natural resources and uses them in an effective and efficient way
Assessment indicators represent the positive performance of regeneration scheme	In the regeneration scheme: Indicator1: The proposal looks at the potential of higher density, taking into account appropriate accessibility by public transport and the objectives of good design. Indicator2: Landscaped areas are designed to provide amenity and biodiversity, protect buildings and spaces, and incorporate sustainable urban drainage systems. Indicator3: Buildings, gardens and public spaces are laid out to exploit the best solar orientation. Indicator4: The scheme brings a redundant building or derelict site back into productive use. Indicator5: The adopted construction practices in the project can effectively minimize the consumption of natural resources and use them in an efficient way

Urban design Principle I	Safety and Security it refers to the place where the users feel and are as safe as possible
Performance criterion	Sense of safety It measures the places safety, security, and welcomness.
Assessment indicators represent the positive performance of regeneration scheme	Regeneration proposals designed to: Indicator1: Ensure design of roads and paths are safe and convenient for all citizens to walk or walk to the nearest public transport facilities or ride their bikes. Indicator2: Ensure all routes and open spaces are well overlooked by buildings to avoid creating hiding places and segregating pedestrians, cyclists and vehicles. Indicator3: Concentrate the activity along a network of pedestrian-friendly key routes and public spaces so that these can be “self-policing”. Indicator4: Ensure public car parks and secure cycle parking areas are accessible with secure and visible entrances and exits. Indicator5: Provide a clear distinction between the publicly accessible streets and spaces and private spaces associated with individual buildings and groups of buildings.

Urban design Principle J	Services provision It refers to the appropriate and high quality service infrastructure that is provided by the new development proposal.
Performance criterion	Compactness It measures the possibility of approaching the places where the public facilities are located.
Assessment indicators represent the positive performance of regeneration scheme	Regeneration proposals designed to: Indicator1: Consider the factors of distance, comfort and safety, when locating the public facilities. Indicator2: Provide access to local / neighbourhood public facilities in the residential development ‘that are essential to the daily necessity of community’, these can be found within 500m in the regeneration project. Indicator3: Provide accessible design and adequate facilities for the people regardless of age and physical abilities. Indicator4: Provide local services and deal with the volume of generated solid waste.

Urban design Principle K	Green Design Minimising the impact on our environment
Performance criterion	Green Design / Environmental improvement Refers to the passive design approach to optimize the use of sunlight and air movement in lighting, heating and cooling, ensuring that developments are sustainable in terms of their design , layout and density
Assessment indicators represent the positive performance of regeneration scheme	Development proposals designed to: Ind.1: ensure that the layout and orientation of buildings benefits from passive solar gain for natural heating and use natural ventilation to reduce the mechanical requirements. Ind.2: locate buildings where they are least exposed to the chilling effect of prevailing winds, using topography, other buildings and tree belts to provide shelter. Ind.3: reduce the potential for overheating on south facing facades and the need for mechanical cooling (through appropriate window sizes or blinds, screens or planting to provide shading).

	Ind.4: provide for natural daylight and sunlight to illuminate the interior of buildings reducing the need for artificial lighting.
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7.4 Scoring framework for assessment indicators

According to [Hemphill et al. \(2004a, p.736\)](#) the performance of urban regeneration projects has to be evaluated by scoring individual assessment indicators. Based on that, a series of points have to be allocated for these indicators, to facilitate the process of performance assessment of the projects in terms of urban design. In addition it is necessary for each individual indicator to establish a framework of points which in principle could be uniformly applied across case studies. A set of indicators for 15 design criteria has been developed in the previous chapters. The available references such as government reports, scheme appraisals and consultancy reports can help to determine the 'sustainable level' for any particular indicator in the process of allocating points in accordance with an area. However, this approach may not be enough to determine the sustainable levels for all indicators. In this respect, the dependence upon the views of experts (planners, architects and academics) were consulted to help set the necessary criteria to award sustainability points for indicators.

[Horn \(1993, p.36\)](#) indicates that various scaling methods can be used to help award points, ranging from direct methods based upon a single characteristic (frequency, weight, value, etc.) or composed of a multidimensional concept (health, welfare, etc.) relying on an *ad hoc* scale of adequacy or satisfaction. These 2 forms of measurement can be described in practical terms as cardinal and ordinal scales, where the cardinal is based on the numbers, types, percentages or special categories and codes, and the ordinal is based on a subjective ordering of the items ranging from good to bad, adequate to inadequate, important to unimportant, and so on. In another form the cardinal scales are mainly used for the quantitative indicators, while ordinal scales are mainly used for the qualitative indicators. In this respect different scales were developed from the principles of both cardinal and ordinal scales. [Lee \(2008, p.232\)](#) referred to some of these scales, which are described briefly in the following section:

Counting-based scale: in this scale, the points are allocated by counting the total number of a particular subject available in the regeneration project being assessed. The subject that has been stated in the captioned indicators mainly refers for example to specific aspects, statements, designs, activities and facilities. The higher number of a particular subject is the higher point allocated. This scale is relatively simple because only physical counting of a particular subject is required during the assessment.

Measurement-based scale: This scale is mainly developed for the quantitative indicators in which calculation and direct measurement are involved. For example in the assessment of good practices in rehabilitation of repairable buildings in the urban regeneration project, more points would be awarded under this design criterion when a higher percentage is calculated. The point allocation framework for these indicators ranges from >0% to 100%.

Likert-type scale: This scale is widely adopted for the qualitative indicators. This scale uses a point Likert-type scale for example between 1 and 5, All of them are described by a single sentence regarding the most appropriate way to achieve sustainable development, and the assessors have to rate their degree of agreement to the sentence in accordance with the Likert-type scale. For instance, when assessing a particular project against the indicator of *appreciation of local characters*, the assessors have to rate the extent to which they agree that the regeneration area has its own characteristics and positive identity.

Likert-type scale PLUS: this is similar to the Likert-type scale. However, the major difference between the 2 scales is that every indicator using this scale is represented by at least 3 statements instead of a single sentence. In the assessment process, the assessors have to evaluate each sentence under the same indicator, and then their views will be added together to form a sum. For example, when assessing the density of development within a regeneration site, the project obtains 1 point when the sum is less than 5 and 5 points when the sum is more than 16 if the Likert-type scales are between 1-5 and the indicator is represented by 4 statements.

Scenario-based scale: in this scale the assessors have to pick a sentence that best describes their situation during the assessment, or only have to select the most appropriate item based on their experiences and expectations. A number of options are provided under each of these indicators and the option which makes a major contribution to the achievement of sustainable development objectives can score a higher point than the others.

Based on the qualitative nature of indicators in the current stage of research, the ordinal scales were mainly employed when devising the scoring system, with taking into account the possibility of extending the list of indicators to more quantitative indicators and scales. The combination of direct and indirect scaling methods take into account the fact that both qualitative and quantitative indicators were devised to aid the evaluation of regeneration initiatives. The strength and flexibility of the scoring framework lies in allowing the views of users, stakeholders and experts within a regeneration site to be consulted through the use of questionnaire surveys or structured interviews with results contributing directly to the scoring of indicators. Owing to the current research limits and the wide range of the assessment criteria for the regeneration projects, the current study at the time being focused only on the ordinal approach (qualitative scales) and the study adopted Likert-type scale as an appropriate method for this stage to get the opinion of experts and to achieve the objectives of the current research. The second part which is represented by the quantitative values of assessment indicators will be addressed in the complementary researches in the future.

7.4.1 Allocation of points within the scoring framework

In the current research, the issue of setting a suitable benchmark is based upon the scoring system in order to formulate the final form of developed assessment strategy. Each individual indicator is capable of scoring points and the summation of these points for each indicator divided by the number of indicators of each individual design criteria gives the

appropriate weighting for the particular individual design criteria. In turn, the totals for each indicator grouping of specific criteria are combined to create a grand total, representative of the contribution of an evaluated case study to sustainable urban regeneration. This overall sum is the point's total that can be used for comparable purposes in terms of the performance of one case study with another, as well as the performance against a pre-determined benchmark.

After the review of available scoring system scales, the study adopted Likert-type scale when extracting the experts' judgement about the developed assessment strategy. Although some data collection in this form represents a subjective approach, the validity of these results would be strengthened through application of sensitivity analysis in the future subsequent studies. The point allocation framework for (71) indicators was established and a scale of 1 - 5 was used in this study, where (1) represented "not at all successful or least successful" contribution of indicator to sustainable urban regeneration, while (5) represented the "very successful or extremely successful" level of contribution to sustainable urban regeneration in respect to a particular design aspect. The design of the individual point's allocation scheme represented a major challenge given that not all of the proposed indicators had national/local guidelines or regulations governing their relationship to sustainability.

7.4.2 Likert-type Scale

According to [Lee \(2008, p.234\)](#) the Likert-type scale is widely adopted for qualitative indicators. The indicators that represent the urban design criteria in the current research are described by a single sentence indicating the appropriate way to achieve sustainable development or sustainable urban regeneration. The assessors have to rate their degree of agreement on each sentence representing a particular indicator, in accordance with the Likert-type scale during the project assessment process. For instance, when assessing a particular project against the indicators of performance criteria (*context*), the assessors have to rate the extent to which they agree that the regenerating area project has its own characteristics and positive identity, in addition to the properly retained and rehabilitated properties. In case of conducting a more sensitive analysis assessment approach, the identification of point scores may be different from indicator to another depending on the theme or phenomenon that is described by a particular indicator.

As such, in the final form of the developed assessment strategy, it can be observed that each indicator is capable of scoring of 5 points ranging as follows:

1=Not at all successful or Least successful, 2=Less successful, 3=Average, 4=More successful, 5= Very successful.

A design criterion containing 4-5 indicators can score between 20-25 points depending on the number of indicators in a group. During the assessment process, the assessors have to rate each indicator, and then their views will be added together to form a sum. The range of scale for individual criteria varies depending on the numbers of indicators being included.

For example, individual design criteria may be allocated 1 point when the sum is less than 4 and get 5 points when the sum is greater than 20 under criteria which are described by 4 sentences only while the project can only obtain 1 point when the sum is less than 4 and get 4 points when the sum is more than 16 under criteria which are represented by 4 statements. A grand total representing the sustainability level of a particular urban regeneration proposal/project can be generated when the points obtained under individual design criteria and their totals are added together and compared with their corresponding final weight. The grand total can be used to compare the performance of a design proposal/regeneration project with a pre-determined benchmark or another proposal/project. The details of the point scoring system for the final form of strategy are presented in Table (7.12).

7.5 Final Structure and assessment mechanism of developed strategy

Based on the urban design principles that had been identified in the theoretical part of the current study to improve the local urban regeneration practices in Iraq, 15 urban design criteria were identified. Afterwards a total of 71 indicators extracted as a complement to these criteria, which represent the physical dimensions of sustainable development, were also included in order to form the hierarchy of the assessment strategy. With the help of experts, the assessment of design criteria and associated indicators was successfully conducted. The developed assessment strategy can help to select the appropriate regeneration proposal for an urban area. Therefore in the case of one or more design proposals suggested for an area undergoing urban regeneration, these proposals can be assessed separately by the model against the same set of criteria in order to find out their ability to achieve the sustainable development objectives. The sustainability level of a regeneration project is represented by an average overall score of all individual design criteria assessment score, and it is calculated by adding together the final weight of each design criterion and the score indicates the performance of the project with respect to individual criterion. The overall score of a project can be calculated according to the following formula:

Overall score of an urban regeneration proposal = Σ score weight of each criterion

$$Pr = \Sigma Wcr.$$

$$Wcr. = \frac{\Sigma (in_1 + in_1 + in_1 + in_1 \dots \dots \dots)}{x}$$

When:

Pr = Overall score of an urban regeneration proposal/project

$\Sigma Wcr.$ = Score weight of all criteria

$Wcr.$ = Score weight of each criterion

$in.$ = Score weight of individual indicators

x = Number of indicators for each criteria

By calculating the scores of proposals, for the area undergoing urban regeneration, the strength and the weakness of each proposal can clearly be observed when looking into the composition of their scores; also the design criteria that have been overlooked in the proposals can be pointed out. In addition, this assessment mechanism is also applicable to evaluate the sustainability level of the urban regeneration projects. The developed assessment mechanism can be used to evaluate more than one proposal or project to select the most appropriate proposal or to compare between the projects. In order to obtain the final output of the model i.e. the overall score of a project, it is necessary to identify the value of each component in the formula. The scores of individual criteria vary from project to project depending on the quality of the project design. The evaluation of provided case-study examples in the current research provides a practical implementation of the developed assessment strategy, to evaluate the extent to which the developed strategy can be achieved. In view of this, table (7.12) shows the final structure of the sustainable urban regeneration assessment strategy which is developed by the current research and relies on urban design principles. The assessment tool consists of a set of performance indicators and their point scoring system.

Table 7. 12 the final structure of the sustainable urban regeneration assessment strategy which relies on urban design principles and Indicators with their Corresponding Point Scoring System. Source: Author

Project details				
Urban design principles	Performance criteria	Assessment indicators (Positive impacts) represent the positive performance of regeneration scheme	Guideline: Evaluation Points allocated on a scale of 1 – 5, of individual criteria. 1= not at all successful 5= very successfully	
Character Sense of place and history	Context	The regeneration scheme seems to:		
		Ind.1: Positively contribute to the character and identity of the surrounding neighbourhood properties	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: Incorporates the heritage, culture and historical context of surrounding communities and places	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Integrate with the physical environment, including its topography, biodiversity, landscape and views, existing streets and buildings, and infrastructure	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Be compatible with the surrounding social and economic activities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.5: Respect the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users when increasing in density.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
	Result			
	Comments			

	Detailed Design	In the regeneration scheme:		
		Ind.1: The materials and external design make a positive contribution to the locality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: Satisfactory visual appearance of the properties in terms of appropriate height and bulk of individual buildings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Design of the buildings and public space will facilitate easy and regular maintenance	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: The landscape design facilitates the use of the public spaces from the outset	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Acceptable density of development within regeneration site in terms of plot ratio (PR= total gross building floor area / total site area to be renewed)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
Result				
	Comments			
Continuity and enclosure Clarity of form	Layout	The regeneration scheme shows:		
		Ind.1: Layout ensures that there is continuity in the frontages of streets and spaces through buildings relating to a common building line, street blocks or alongside public spaces; to create a permeable routes and define the street.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: The layout focuses activities on the streets by creating active frontages with front doors directly serving the street	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: The streets are designed as places , helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Block layout places some public spaces in front of building lines as squares or greens, and some semi private space to the back as communal courts	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Traffic speeds are controlled by design and layout rather than by speed humps	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
Result				
	Comments			
	Privacy and Amenity	In the regeneration scheme:		
		Ind.1: the design maximises the different use of front and backs of buildings, and ensures that entrances to properties are located in a way to distinguish between private and public spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: Clearly defining and enclosing useable private outdoor space, that provides for better privacy and security	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Development helps to define the relationship between the public spaces fronts of buildings and the streets regarding their respective uses	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: The design prevents sound transmission by appropriate layout and the windows are sited to avoid views into the home from other properties or the streets	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
Result				

	Comments			
Quality of the public realm Sense of wellbeing and amenity	Public Realm	In the regeneration scheme:		
		Ind.1:The public realm is considered as a usable integrated element in the design of the development	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2:There is a clear definition between public, semi-private, and private spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:The public open spaces are overlooked by surrounding buildings so that this amenity is owned by the residents and allow natural surveillance, feel safer and safe to use	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:Roads and open car parking areas are considered as an integral landscaped element within the public realm design and are treated accordingly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Ground floors designed to make a positive contribution to the street scene and create an active building frontage, with interesting uses that relate directly to passing pedestrians	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
Comments				
Ease of movement Connectivity and permeability	Open spaces and Parking	The regeneration scheme shows:		
		Ind.1:The design of public open and green spaces respect the natural features, takes account of the micro-climate and are accessible	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2:Adequate percentage and proper location of provided open spaces within the regeneration area	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:Works of art and street furniture are integrated into the design of public spaces, to give identity and enhance the sense of place	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:Integrate materials and soft landscape elements, with the other elements of parking, street and paving in a coordinated way	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.6: The car parking is on street or within easy reach from different users and the parked cars are overlooked by residents, pedestrians and traffic, or stored in secure underground arrangements	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
Result				
Comments				
Ease of movement Connectivity and permeability	Inclusivity	In the regeneration scheme:		
		Ind.1:There is a range of public, communal and/or private amenity spaces and facilities for children of different ages, parents and the elderly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator
		Ind.2:Areas defined as public open space that has been either taken in charge or privately managed will be clearly defined, accessible and open to all	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
Ind.3:New buildings present a positive aspect to passers-by avoiding unnecessary physical and visual barriers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5			

		<p>Ind.4:Appropriate physical design of the pedestrian walkways and pedestrian passages to public transport in terms of location, width and material used</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	<input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Result		
	Comments			
	Connections	The regeneration scheme shows:		
		<p>Ind.1:the urban structure has an attractive network of connected spaces and routes, for pedestrians, cyclists and vehicles</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		<p>Ind.2:The layout links to existing routes and places, In addition to the way development is laid out can encourage low traffic speeds</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		<p>Ind.3:The layout and density of development help to support efficient public transport and increase accessibility to the site rather than creating big blocks</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		<p>Ind.4:Transport interchanges in the development's layout promote the use of public transport and provide for seamless movement between all modes of travel</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
	Comments			
Legibility Ease of understanding	Distinctiveness:	The regeneration scheme seems to:		
		<p>Ind.1:The design, location and function of buildings reinforce the identity of the locality</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		<p>Ind.2:The corners design, detailing and quality of materials in new development improve legibility by creating visual interest and contributing to a distinctive identity</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		<p>Ind.3:The place has recognisable features so that people can describe where they live and form an emotional attachment to the place</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		<p>Ind.4:The layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	<p>Ind.5: There is a discernible focal point to the proposals reinforce the role of an existing centre</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
	Result			
	Comments			
Adaptability Ease of change	Adaptability	In the regeneration scheme:		
		<p>Ind.1:Development has flexible layouts and places design is capable of being used for a range of activities</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points
		<p>Ind.2:The buildings forms are simple, robust and not tightly designed to a very particular use, allowing for the greatest variety of possible future uses to be accommodated</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		<p>Ind.3:The non- residential portion of the redevelopment is readily allowed for future</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			

		expansion, improvement and modification involving structural and non-structural alterations		Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.4:The home design allows for adaptation and subdivision without ruining the character of the types, layout and outdoor space	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: the existing properties that have significant values are properly retained and rehabilitated [The percentage of retained existing properties = total retain area/ total construction area in the site * 100%]	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Result		
	Comments			
Diversity	Variety	The regeneration scheme seems to:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1:Create a mix of activities in the most accessible places to attract people to live, work and play in the same area, and contribute to meets different needs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2:Have a diversity of layout, building form and tenure that contribute to successful living and working environments	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:Have a range of facilities, services and activities establishments per population	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:Have a rich range of experiences—how you move around and interact with others, what buildings and spaces look and feel like, and what things you can do	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Have an overall harmonious blend, despite the diversity, and each locality has its own characters and activities that are compatible with those already available in the neighbourhood	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
	Comments			
Efficiency	Green construction	In the regeneration scheme:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1:The proposal looks at the potential of higher density, taking into account appropriate accessibility by public transport and the objectives of good design	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2:Landsaped areas are designed to provide amenity and biodiversity, protect buildings and spaces , and incorporate sustainable urban drainage systems	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:Buildings, gardens and public spaces are laid out to exploit the best solar orientation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:The scheme brings a redundant building or derelict site back into productive use	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: The adopted construction practices in the project, can effectively minimize the consumption of natural resources and use them in an efficient way	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
	Comments			
		Regeneration proposals designed to:		

Safety and Security place where the users feel and are as safe as possible	Sense of safety	Ind.1: Ensure design of roads and paths are safe and convenient for all citizens to walk or walk to the nearest public transport facilities or ride their bikes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: Ensure all routes and open spaces are well overlooked by building to avoid creating hiding places and segregating pedestrians, cyclists and vehicles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Concentrate the activity along a network of pedestrian-friendly key routes and public spaces so that these can be “self-policing”	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Ensure public car parks and secure cycle parking areas are accessible with secure and visible entrances and exits	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: provide a clear distinction between the publicly accessible streets and spaces and private spaces associated with individual buildings and groups of buildings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
Comments				
Services provision appropriate and high quality service infrastructure	Compactness	Regeneration proposals designed to:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: Consider the factors of distance ,comfort and safety , when locating the public facilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: Provide access to local / neighbourhood public facilities in the residential development ‘that are essential to the daily necessity of community ’ these can be found within 500m in the regeneration project	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Provide accessible design and adequate facilities for the people regardless of age and physical abilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.4: Provide local services and deal with the volume of generated solid waste	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
Result				
Comments				
Green design Minimising the impact on our environment	Environmental improvement	Regeneration proposals designed to:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: Ensure that the layout and orientation of buildings benefits from passive solar gain for natural heating and use natural ventilation to reduce the mechanical requirements	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: locate buildings where they are least exposed to the chilling effect of prevailing winds, using topography, other buildings and tree belts to provide shelter	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: reduce the potential for overheating on south facing facades and the need for mechanical cooling (through appropriate window sizes or blinds, screens or planting to provide shading)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.4: provide for natural daylight and sunlight to illuminate the interior of buildings reducing the need for artificial lighting	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
Result				
Comments				

7.6 Evaluation of the assessment strategy

In order to justify the acceptability, reliability and usefulness of the assessment tool to be used in the practical field to evaluate the sustainability level of the urban regeneration projects, it is important to carry out an evaluation process before implementation of the assessment tool. As mentioned before the experts' views on the quality of the assessment strategy were collected by the current study. The same group of the experienced urban design practitioners and scholars with similar professional trainings and working backgrounds who were willing to be engaged in this process were invited to take part in the third stage of the evaluation process (questionnaire survey part 3) to increase the opinions being collected from the groups of practitioners and ascertain the quality of the whole evaluation process by implementing this strategy on selected case studies. The invited practitioners could also provide impartial advice/ comments during the evaluation process.

The local scholars, who have research interests in the areas of urban regeneration and sustainable development, were also invited because they too have a good understanding of the topic and they are more familiar with the local context, standard and requirement. A questionnaire survey was designed to facilitate the evaluation process in the current study. A sample of the third stage of questionnaire is given in Appendices D. The questionnaires were sent to the target respondents through email and they were asked to evaluate the two case studies according to the developed assessment strategy, to determine whether the proposed model is valid to assess these regeneration proposals or projects. The respondents were also encouraged to give suggestions or comments under the open ended questions on the content of the proposed indicators and the point scoring system. The comments can help to highlight the deficiencies of the assessment tool, thereby facilitating the creation of a model that could measure the extent to which the urban regeneration proposal or project met the sustainable development objectives.

7.7 Implementation process of the assessment strategy

The aim of this study is to develop an assessment strategy for urban design quality and sustainability level of an urban regeneration project/proposal in specific historic areas. This assessment strategy is also useful to decide on the selection of an appropriate regeneration proposal for an area. According to the current research approach, the assessment process has to be facilitated by the main parties; such as planners, urban designer, architects and stakeholders. In order to ascertain the quality of the assessment results, adequate relevant information about the regeneration proposal/project should be provided to the respondents in order to assess the project, which would be influenced by the amount and quality of the information available to them. Multiple sources of evidence including both qualitative and quantitative forms of data have to be gathered and analysed. For example; relevant documents, archival records, master layout plans and building plans, also direct observations through site visits and arranged interviews or questionnaire surveys if needed. These

multiple sources of information will help to ensure that the outcome can be more reliable, convincing and accurate when conducting the assessment.

After gathering all relevant information on the development or regeneration schemes, the assessor's team can conduct the desktop evaluation. The assessors would be engaged in the evaluation of the regeneration projects or proposal against individual (71) indicators, as shown in Table (7.1 - 7.11). Since not all details of the projects are accessible to the assessors, some of the indicators have to be roughly assessed or the designer/ person in charge of the projects could be contacted in order to identify the missing link and verify the preliminary assessment results. Some of the indicators require citizens' inputs; therefore the interviews or questionnaire surveys should be arranged accordingly with the local citizens and the residents' representatives.

As a result of the assessment process, a set of points will be awarded to an urban regeneration project under each indicator of individual design criteria. As mentioned before, each indicator is capable of scoring a maximum of 5 points. When all of these points are put together, an overall score of a regeneration project can be calculated. The grand total represents the sustainability level of a particular urban regeneration project and its performance in meeting the sustainable development objectives during urban regeneration. Therefore the strategy also helps to evaluate the strength and the weakness of a particular project. Furthermore, it is capable not only of assessing the design quality of an urban regeneration project but also of reflecting the level of satisfaction of the affected persons and the parties concerned with the regeneration projects being assessed. After the assessment processes, some sort of adjustments and amendments can be then made to improve the quality of the regeneration projects or proposal.

Part III: Implementation and Case Studies analysis

Chapter 8: Historic City Centres in Iraq

Context and challenges

8.1 Introduction

This chapter represents an introduction to the third part of the research which is composed of the case studies analysis to give a background about the statues of Iraqi historic cities and adopted redevelopment policies in the local context, in order to provide a wide base to the implementation of the developed assessment strategy by the current research. The chapter aims to present an overview of the potential of cultural heritage and its role in the physical redevelopment at the local level. In addition, the challenges and urban problems linked to the physical and economic decline and urban social polarisation that face the historic cities in Iraq are also highlighted and data related to this field is provided.

According to [URBACT \(2011, p.10\)](#) there are many cities worldwide with historic urban areas and outstanding cultural heritage values, these areas are often highly contested arenas of diverse conflicting interests and development ideas, which challenge the identity and uniqueness of their cultural heritage. Therefore, the main challenge facing historic urban areas is to match their inherited urban structure with the forked demands of residents, visitors and businesses. The goal of safeguarding the cultural heritage is to protect the identity of the place and conserve the cultural heritage for present and future generations, keeping up the quality of life by attractive and liveable cities ([ibid](#)). Consequently there is a strong need for an integrated redevelopment approach which links the safeguarding of the cultural heritage with the sustainable urban regeneration of historic urban areas.

8.2 Historic city centres; definitions and characteristics

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) defines the heritage as: 'heritage is our legacy from the past, what we live with today, and what we pass on to future generations' and according to [Rodwell \(2007, p.7\)](#) heritage here is related to patrimony and signifies traditions that are inherited and passed on. In some of the cities with long histories, the historical city centre served as the centre of trade, living and entertainment for centuries. It was described as a "vibrant, closely interlinked component of its new, enlarged form, performing an essential and distinctive socioeconomic role in daily life of its citizens" ([Giovannoni, 1998 cited in Lu, 2012, p.7](#)). [URBACT \(2011, p.2\)](#) pointed to the potential of urban cultural heritage in European cities that give Europe its international

identity, economic vitality and social cohesion. These characteristics in historic or heritage cities derive substantially from the quality of their historic urban landscapes. They represent the context within which much of Europe's most important physical cultural heritage is experienced and enjoyed by citizens and visitors. This unique character emphasizes the importance of cultural heritage as a key resource capable of developing participative, integrative and sustainable urban strategies; a resource whose untapped potential can act as catalyst for sustainable urban development (*ibid*).

As mentioned by [Rodwell \(2007\)](#) the historical city centre carries two essential qualities: “the socio-cultural values that signify their role in defining sense of place, community belonging and social cohesion and the environmental capital that is represented by their buildings and urban infrastructure”, it represents the past of the city and has the cultural significance concealed in the buildings and places by shape, size and locality form. Most of the historical city centres show their social-cultural values through heritage buildings, which represent the past, present and future. In addition, heritage buildings and places in historical city centres relate to a collective memory between generations. Therefore the memory of a friendly living environment and life style cannot be separated from the body of buildings and places. [Lu \(2012, p.7\)](#) identified five features of the importance of the historical centre to be preserved as shown in figure (8.1).



Figure 8. 1 The importance of historical centre. Source: [Lu \(2012, p7\)](#).

On the other hand, the historical city centres also have the irreplaceable value in economic aspects, as [Porter \(1995\)](#) described four important elements of the historical city centre that can be regarded as advantages as shown in figure (8.2), these elements are:

The strategic location: the historical city centre used to be the most valuable areas in a city, which were related to flourishing commerce, busy traffic nodes, administrative centre and compact living.

The Local market demand: it shows the most integrated area and streets in a natural way by itself, even though the other markets are saturated.

Integration with regional clusters: the more compact the historical city centre and the more integrated the networks are, the stronger economic competitiveness the area would have.

Human resources: The life quality of the local residents in a historical city centre are more likely to be less than other parts in city, but they are more eager to have work opportunities with better income to support an improvement of living quality.

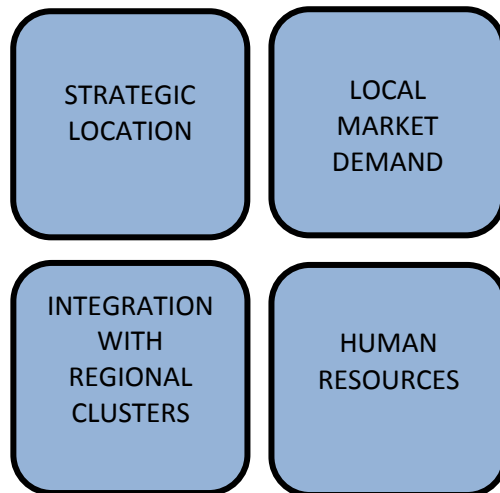


Figure8. 2 Four main advantages of historical city centre. Source: Porter (1995)

According to Wansborough and Mageean (2000, p.188) a cultural quarter can be defined as a spatially limited and distinct area which contains a high concentration of cultural facilities compared with other areas of a town or city, and a number of key characteristics can be identified to define the heritage or historical part as a distinct quarter and as an area of cultural activity, these characteristics are:

1	<i>Central location:</i> within the city, frequently adjacent to major retail or commercial areas. The central location makes such areas more accessible and also invites less formal usage, which is in character with many of the activities that occur here.
2	<i>Cultural facilities:</i> concerned with both consumption and production i.e. market stalls and craft workshops. However, most cultural quarters tend to become centers of consumption (i.e. tourist attractions) rather than providing a balance of the two. Less formal facilities are also required, such as the street and the square, in order to accommodate programmed events and festivals, etc.
3	<i>Mixed use:</i> allows for economic diversity, provides a more human-scale environment and helps to increase the sense of containment and self-sufficiency of the area. A mixture of small-to medium-scale businesses (shops, studios, as well as residential development) allows for diversity and activity at all times.
4	<i>'Cross-over' between production and consumption:</i> Due to the relatively high value-added nature of the production process for many cultural industries, it is important that there are close links between the point of production and the point of consumption. Due to the smaller scale and local mix, business is more able and willing to share or use each other's resources, skills and facilities, etc.
5	<i>Public art and its integration with the built environment:</i> This point calls for a balance between production and consumption, as local artists to create attraction for their local environment. It also suggests that cultural quarters should be characterized by good urban design and a vibrant public realm, in order to contribute to a greater understanding of the area.

Some researchers believe in treating the historic urban quarter as museums of the monuments of the past, attempting to execute complete preservation or restoration approaches, stopping the possible urban development opportunities. This would draw negative results especially in terms of the social and economic development.

8.2.1 Urban identity and urban morphology of historic cities

According to MFE (2009, p.28) urban identity is related to urban morphology which is an analysis technique used to study the present and past historical patterns of urban structure, form, land use and patterns. It provides an understanding of the existing physical form and structure of the urban environment at different scales. Kutsal (2012) mentioned that urban identity is one of the important factors which affects the formation of the city and plays an important role in shaping and changing the form of the city. The concept of identity is felt much more in historic cities and each city has its own identity that is shaped by its characteristics.

Urban morphology is the study of the form and shape of settlements, as seen in terms of several elements such as land uses, building structures, plot pattern and street pattern. Appreciation of morphology helps urban designers to be aware of local patterns of development and processes of change. Initial work in this field focused on analysing evolution and change in traditional urban space (Carmona et al., 2003, p.61). It must be noted that urban morphology is different from urban design. MFE (2009, p.28) highlighted that urban morphology focuses on the past and present spatial patterns of a given urban area, and is useful for defining urban patterns and characteristics that create a unique sense of place. It helps in the appraisal of successful vs. unsuccessful urban form, and can examine the processes that shaped past change, or features that persist in the present. Furthermore, it can form the basis for design guidelines for character and heritage areas. Urban identity of cities is acquired with their original characters depending on the history formed in a city by inhabitants. Some cities lose their original architectural and urban characters, thus the settlement falls into a confusion of identity. Furthermore, the physical and social changing process affects the urban identity. As mentioned by Kutsal (2012) in well-preserved cities urban identity is protected.

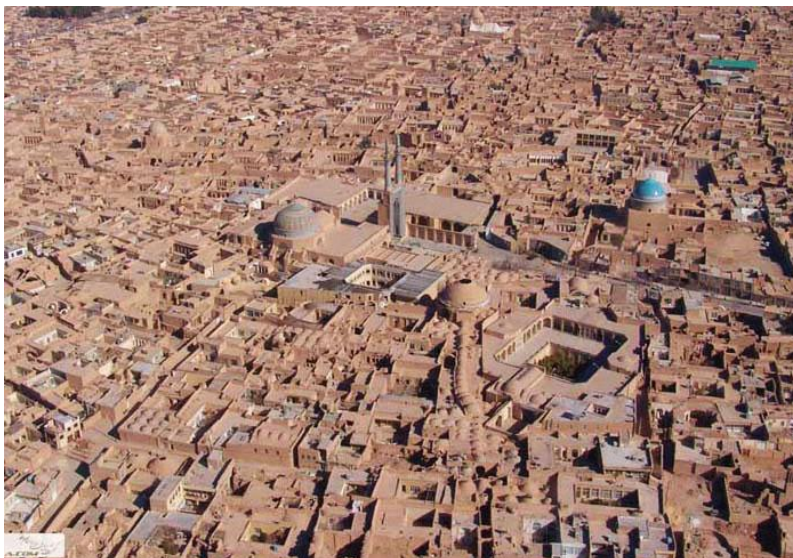
The cultural heritage and its historical background is the most important part of the urban identity of cities. It reflects the memory of the city that evokes the state of belonging to the city. Historic quarters often stay in the developing part of the city and may lose their original character. The city can protect the urban identity, when historic centres are well-preserved and articulated to the city's development process (Sander, 2006, p.1). The physical continuity of places (i.e. street patterns and buildings) is a stable element against the forces of change, and significantly contributes to place identity. By embodying the social and public memory, the physical and material attributes of place provide a sense of place identity and a tangible record of time (Williamson, 2013, p.29). The most important tasks in inner-city development are the creation of an urban identity by conservation of historic buildings, neighbourhood revitalization, and by dealing appropriately with vacant stock. To this end it is important to strengthen inner-city retailing, to develop new educational, recreational, and cultural functions, to conserve and redevelop infrastructure, and to ensure city friendly transport and traffic development.

The elements and changing factors of urban identity: According to Kutsal (2012) the main elements of urban identity are the physical environment, socio-economic conditions, cultural values and historical characteristics, these main factors affect and change the urban identity as follows:

a. Physical structure of the city: physical structure is one of the most important factors for the city established or being established in gaining identity, and very effective in creating the layout plan of the city. Urban culture is also linked to the physical structure. Moreover, the physical structure of the city is influenced by the topography, climate and geographical features of the site. For example the houses in old hot climate cities and built on flat plain land, had direct effect on the urban housing design; the streets are very narrow and house-courtyard walls remains in shade behind high walls (Figure 8.3). Cities are, in morphological terms, extremely complex objects. In other words, cities are objects composed of different parts and it is possible to identify a hierarchy in the relations between these parts. To deal with the complexity of cities, urban morphology uses this hierarchical view of the city, structured according to a set of fundamental physical elements (Oliveira, 2016, p.8).



Al Kadhumya historic city in 1930



Yazd historic city in Iran.

Source:

<http://www.skyscrapercity.com/showthread.php?t=1571425>

Figure8. 3 Traditional urban fabric of Al kadhumya historic city in Iraq and Yazd historic city in Iran.

Figure(8.4) shows different urban forms of 9 cities (relatively close in their scale) in order to compare the scales of the fabric of the street network, these figures were part of studies conducted in Mississauga to create a more vibrant and pedestrian-friendly city centre. The key problems identified were the large scale of the block patterns in Mississauga which reflects the influence of physical structure of urban form on establishing the city identity and controlling the layout plan of the city in the future.

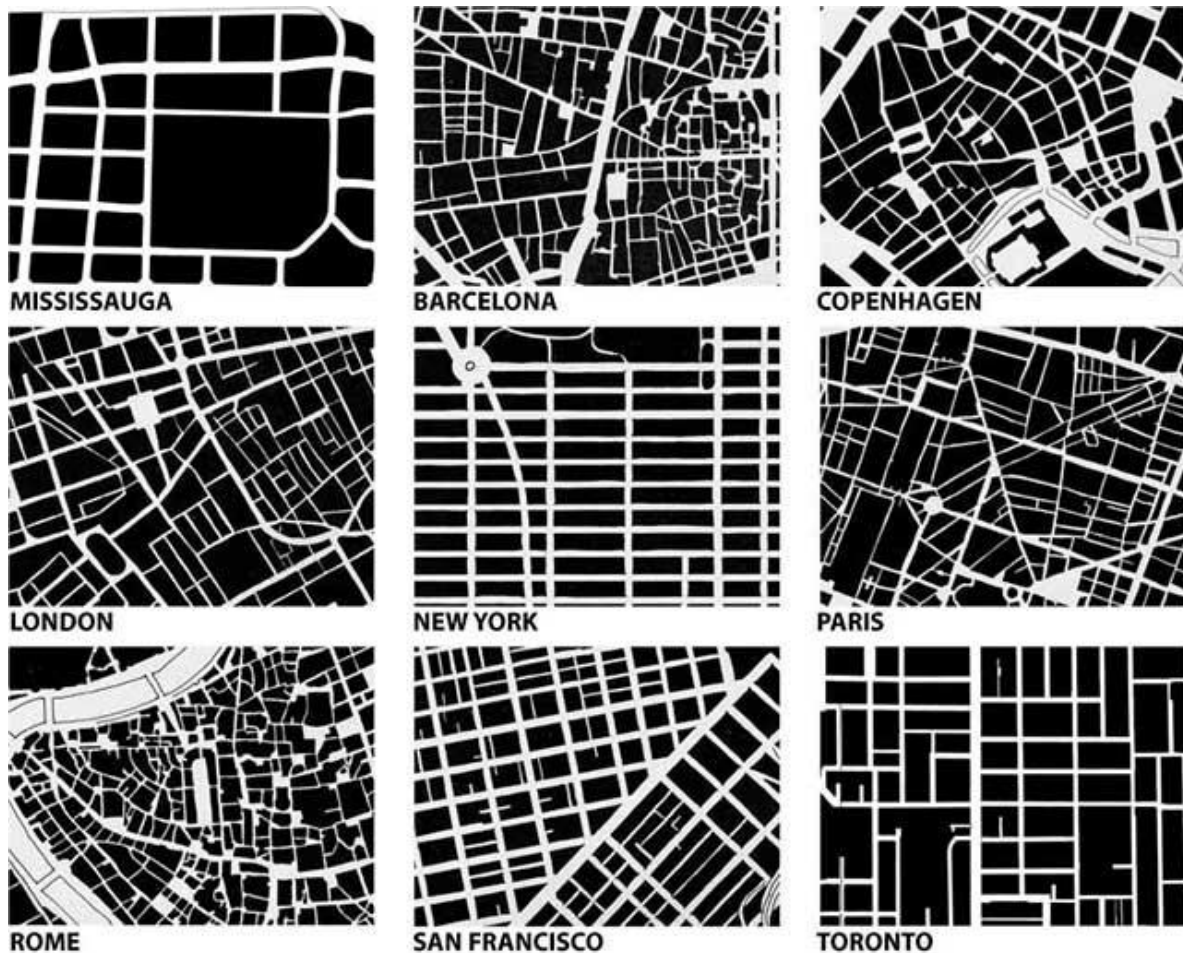


Figure8. 4 Urban fabric/form of 9 cities in order to compare the scales of the fabric of the street network, the key problems identified were the large scale of the block patterns in Mississauga, Source: [Chubb \(2008\)](#).

b. Socio-cultural structure of the city: The city is shaped according to the lifestyle of its urban dwellers, thus this lifestyle also contributes to the formation of urban identity. Likewise, cultural features play a major role in the formation of urban identity. Socio-cultural structure is the infrastructure of urban identity whereas the historical structure, population structures and cultural characteristics are the factors which form the socio-cultural structure of the city. Urban culture is the most effective factor in urban design and culture heritage transforms from generation to generation. Therefore creation of new cultures and places leads to change in the urban identity as well ([Kutsal, 2012](#)).

c. Socio-economic structure of the city: Economic structure is another factor in sustaining the formation of urban identity. The image of the city is affected by the type of economic activities and income resources of the city. The income of the city generates new meanings to the city; such as industrial city, commercial city or agricultural city and causes changes in

the physical entity of spaces. Thus, changes in economic structure influences social structure and changes physical spaces, thereby changing the urban identity. One of the most effective elements for a city's development is the economic structure and it is important to preserve and develop the existing values with the development of the city's economic level (Kutsal, 2012, p.258).

8.2.2 Cycle of decline in historic city centres

Historic and heritage cities face unique challenges in the 21st century, [Inherit \(2007, p.15\)](#) highlighted these challenges as: globalisation pressures that favour common branding and standardisation, technological advances that change patterns of work and living, religious and ethnic intolerance leading to war and destruction. All of which can lead, individually and collectively, to a significant loss of historic fabric and identity crucial to the wellbeing and social cohesion of cities. According to [Lu \(2012, p.8\)](#) the rapid development in historical city centres due to industrialization, modernization and globalization has demanded new spaces around the old centre as a result of urbanization. Most of the networks in historical centres are compact and designed to fit in with the pedestrian and limited use of vehicles; therefore the lively narrow streets cannot accommodate the need of new sufficient infrastructure. The new districts form the new identity of modern cities, which change the structure and living style of residents. Connecting different districts and spaces in the expanded urban area leads to a shift in transport methods. The auto-oriented development changes the inhabitants' movement behaviour from walking to driving and this leads to traffic problems ([ibid](#)).

The dispersal of population and employment, greater personal mobility by car-use and transport networks, self-service economy and lifestyle change, retail revolution and investment shift from private local to national and international institutions are the important factors influencing the decline of city centres, and according to [DoE/URBED \(1994\)](#); [Smith et al. \(1996\)](#); [Sparks \(1998\)](#) these factors offered more opportunity for peripheral centres to meet modern demands, but damaged the capability of town centres to maintain their distinctive roles and mixed economic, social and cultural functions. [Thaitakoo \(2006, p.16\)](#) summarised basic characteristics as a first sign of decline and loss of vital centres, these characteristics are:

- Loss of image: abandoned buildings, unclean, unsafe and deteriorated environment are the most discouraging qualities for investment because they cause a low quality of life; discourage long term economic development in the centres, furthermore, the negative image of insecure environment and social stress usually tends to lead to political conflict.
- Loss of investment and jobs: this shows increasing non-viability and loss of economic confidence; in turn local jobs decline and the environment decays.
- Loss of trade mix: this reduces the variety of attraction, activity and consumer choice and, as a result, the number of visitors drops greatly.

Therefore it is important to note that the pace of rapid development in historic centers should be accompanied by the provision of suitable infrastructure: social, institutional and system building to cope with and organize the speedy construction and building revolution.

Inherit (2007, p.15) highlighted the potential of heritage as a means of securing sustainable urban regeneration, considering that the concept of heritage both in terms of intrinsic historic assets and realising instrumental benefits is understood and valued.

8.3 Historic city centres in Iraq: Definitions and characteristics

City: can refer to an administrative unit or a certain population density and sometimes a distinction is made between towns and cities. It can also refer more generally to perceptions of an urban way of life and specific cultural or social features, as well as functional places of economic activity and exchange. EC (2011, p.2) classified the city into two different realities: *The administrative city*: corresponds to a large extent to the historic city with its clear borders for trade and defence and a well-defined city centre.

Larger socio-economic agglomeration: corresponds to physical or socio-economic realities which have been approached through either a morphological or a functional definition. A Morphological Urban Area describes the continuity of the built-up space with a defined level of density, while a Functional Urban Area can be described by its labour market basin and by the mobility patterns of commuters, and includes the wider urban system of nearby towns and villages that are highly economically and socially dependent on a major urban centre. It may be monocentric or polycentric (ibid). As mentioned by Khan (2008, p.1035) in the twenty-first century the city can be conceptually redefined as a series of overlays, or as a mosaic of overlapping agendas, that help reveal and distinguish its character and functions: the city as a network of pluralistic interactions that are becoming more complex.

Based on different classifications of cities, and according to the complex urban context of Iraqi cities, it is possible to classify the Iraqi cities as: *Administrative cities*: for example Baghdad and Mosul, *cities of religious significance*: for example Najaf and Karbala, *larger socio-economic cities*: for example Al Basra city. Furthermore the functions of most city centres are administrative and economic as centres for government institutions and large socio-economic activities. Regarding the location and as Kiet (2011) mentioned, like most cities in the world, the original locations of historic Iraqi cities depended on availability of natural resources such as water supply, locations of existing trade routes, and sometimes on the religious significance of certain places. Many times, it was a combination of these factors and others that contributed to the settlement's site and growth. Iraqi cities possess distinctive cultural heritage, which is historically and spiritually concentrated mostly in the heart of city centres. The urban fabric of the traditional areas characterised by the old fabric is generally organic and compact with narrow footpaths and lower skylines (Al-Akkam, 2013, p.44). The land use of the traditional areas is residential, commercial, industrial and for public services. The traditional neighbourhoods are surrounded by modern urban growth, and physically well-defined by their characteristic urban fabric and by roads which have replaced their old walls (ibid).

Different themes have been identified that introduce major stages of transformation in the historic areas of Iraqi cities. According to Khan (2008, p.1039) the development of Iraqi

cities is epitomized clearly in Baghdad city as the capital and the largest city in Iraq. The German Turkish railway brought with it new materials and construction techniques, and the British occupation of the country brought with it new architecture, such as the railway stations and airports. Furthermore, oil was discovered in Iraq in 1927. All these factors together facilitated a dynamic and rapid process of modernization. [Al-Akkam \(2013, p.42\)](#) identified four periods that introduced major stages of transformation in the historic parts of Baghdad. The first period is large-scale destruction at the beginning of the twentieth century. During and after World War I, Baghdad's largest historic cores lost nearly twenty-five per cent of their historic fabric by official demolition for new roads and clearance programmes alone, which were represented mainly by al Rashid Street (forty metres wide and almost 3.8 kilometres in length), which was begun by the Turks in 1915 and completed by the British in 1918 which cut through the entire length of Rusafa and caused serious damage to a great historic area.

The second period is related to the urban planning of Baghdad. Within less than ten years (1956-65), three firms from three different European countries were called to prepare a master plan for Baghdad: Minoprio, Spencely and Macfarlane (U.K.) in 1956, Doxiadis Associates (Greece) in 1958, and Polservice (Poland) in 1965. Yet, in every case, the important conservation questions regarding the city's heritage were either totally ignored or, at best, superficially considered ([Fethi, 1977](#)). Both master plans, one prepared by Minoprio and Partners and the other by Doxiadis Associates, not only ignored the concerns of conservation but positively advocated the total demolition of Baghdad's historic areas ([Al-Akkam, 2013, p.43](#)).

The third period, of the wars and sanctions against Iraq (1980-2003), prompted additional serious decline and deterioration of the historic areas. The years of war were marked by major social and economic change. The wars diverted much of the resources to war-related projects, whereas immigration from rural areas, and immense population growth, contributed to the rapid and physical expansion of the cities, creating a dramatic and chaotic situation. These factors negatively influenced the process of urban development in general and led to further decline in historic areas in particular. However, international consultants were consulted in 1980 to prepare studies on the conservation and rehabilitation of two areas in Baghdad. Both of these studies were concerned with the shrine areas of Kaylani in Rusafa- east of Tigris river and Kadhumya in Karkh- west of Tigris river that were disconnected from their surrounding urban fabric in the early 1970s. The shrine of Kadhumya still stands alone in an area of vacant land surrounded by half-amputated traditional houses-figure (8.5). In fact, conservation in Baghdad only involved a number of individual traditional buildings. The fourth period is of the post-sanction period (2003-present), which is characterised by changes in the formal distribution of political power, economic reform, and the unclear vision of economic and social policies. Accordingly, the historic areas in Baghdad did not witness any tangible development, including that for the development of infrastructure ([Al-Akkam, 2013, p.43](#)).

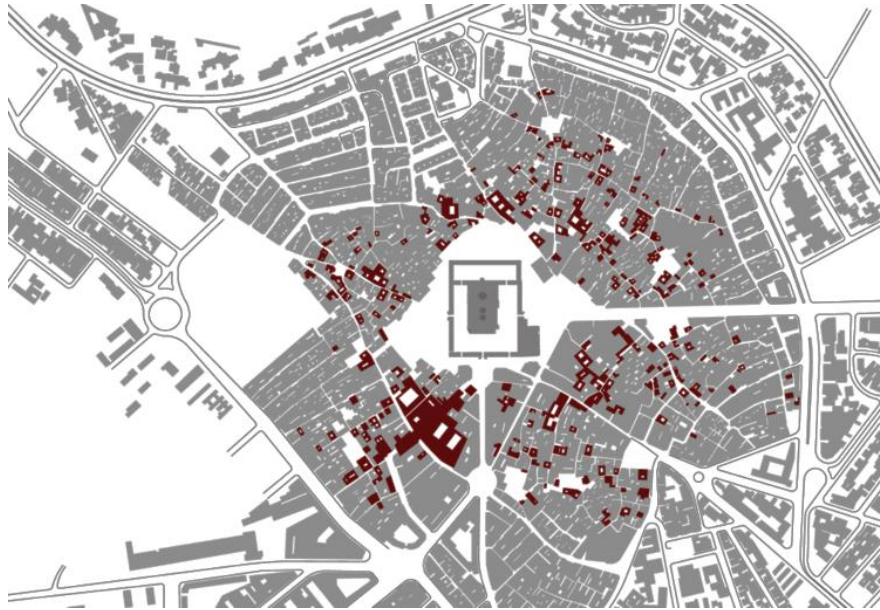


Figure8. 5 Existing urban grain of Kadhumya with the historic buildings highlighted in 2009. Source: [ASSEMBLAGE \(2009\)](#)

8.4 Urban morphology of historic city centres in Iraq

The term morphology in urban design refers to the underlying factors of urban form that draw upon society's attitudes towards and in relation to physical elements and spaces ([Franck, 1994](#)). According to [Lapidus \(1984\)](#) traditional Arab settlements developed in two distinct ways: either "planned" or "spontaneous" urban patterns. The former growth pattern is generally defined by the formal layout of palace cities in response to military conquests and displays of power and royalty. The main land-use pattern in the city centre, as described by Bianca focuses on the "multifunctional core structure enveloping or at least partially surrounding the central mosque by different layers of interconnected Suqs (the typical form of Arab shops and markets)" ([Bianca, 2000, p.143](#)). Traditional Iraqi cities were characterized by their complex urban fabric, which resulted from an accumulative process of activities over time in shaping their homes and environment. While a variety of origins and growth patterns in these cities existed, they were nonetheless established by a common set of social, geographic, and religious factors leading to similar morphological principles of urban fabric ([Kiet, 2011](#)). The characteristics of the traditional urban form of Iraqi cities can be analysed accordingly to the aspects below:

Traditional urban form: The interconnected combination of the commercial facilities, civic and educational buildings and other religious and social structures together create a massive mosque complex with only the minaret and large dome of the mosque creating a break in the roof's cape. The central courtyard is the primary public open space of the complex and sometimes for the city as a whole. As mentioned by [Kiet \(2011\)](#) this urban form was created by a repetition of cellular residential blocks and clusters at multiple scales, as each cell interconnects and is overlaid onto another residential cluster. Figure (8.6) shows a section from the traditional fabric of Baghdad and Mosul old cities. The urban fabric becomes a system of hierarchical elements of various sized cells creating a complex pattern of

homogeneity, and the main components of urban fabric can be discerned as; the residential unit, the mosque and related welfare buildings, and trade and production structures. Most of the traditional Iraqi cities shared the same structural principles, which made them completely compatible as it is clear in figure (8.7) which shows samples of traditional urban form of Iraqi historic cities. According to Kiet (2011, p.39) due to the nature of the courtyards, open spaces and circulation patterns, connection, expansion and integration were possible at any stage of development, allowing for maximum flexibility. In addition the form was almost completely homogenous, even if differentiation occurred in usage.

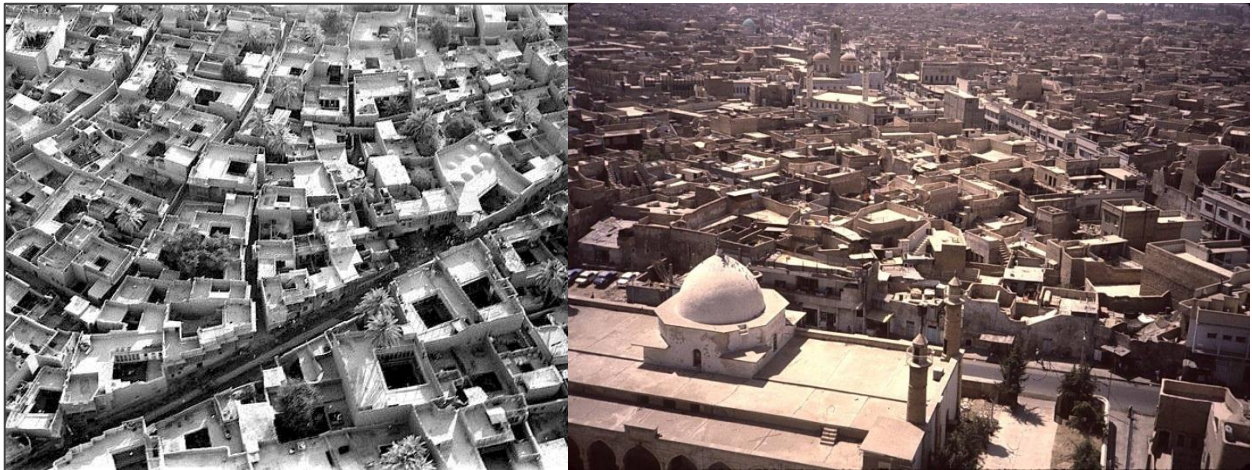


Figure8. 6 Section from tradition residential neighbourhood in old city of Bagdad (left) and old city of Mosul (right) in Iraq.

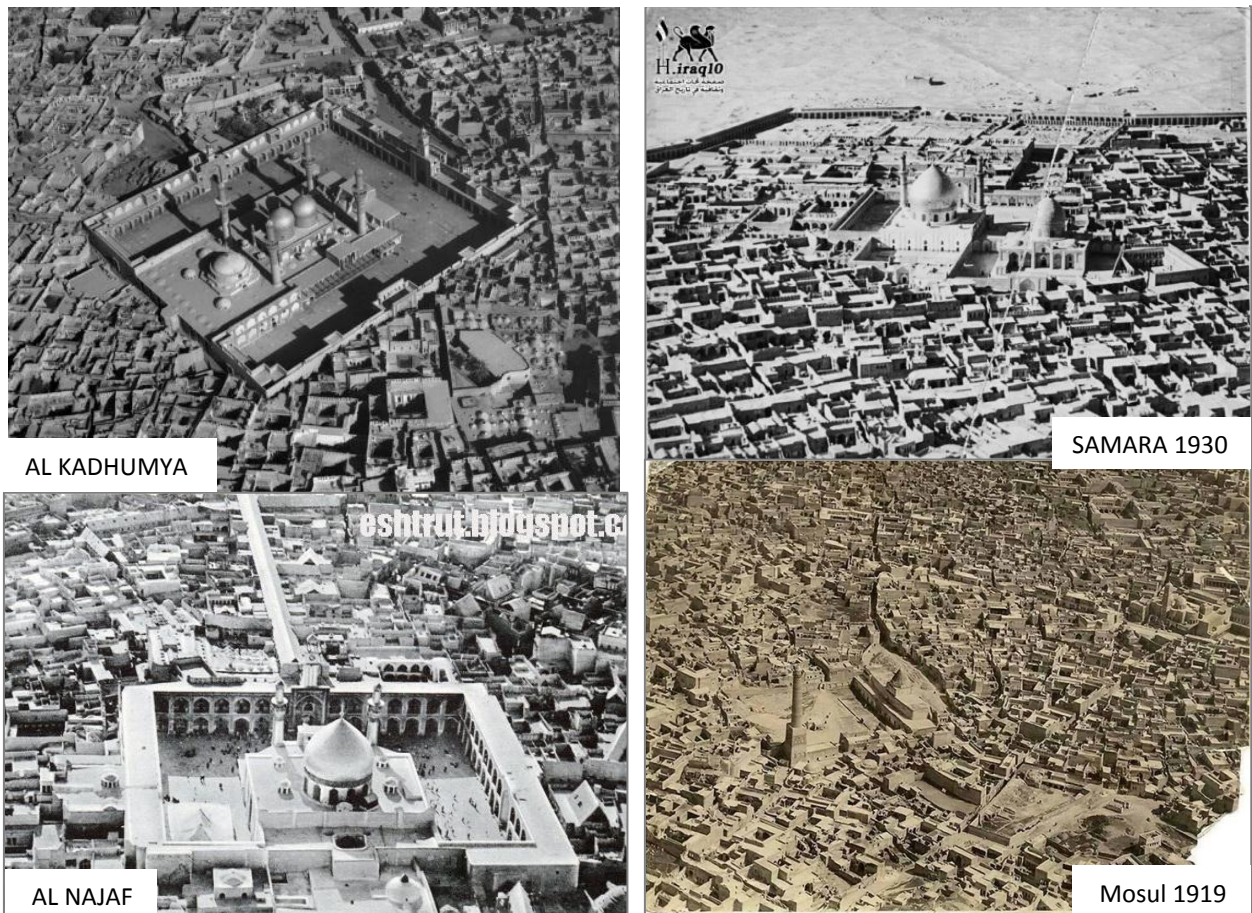


Figure8. 7 Portions of urban fabric in different Iraqi historic cities showing the mass-void ratio and the different plot forms a distinct resemblance is seen due to the similarity of the rules.

Visual aspects: the central mosque and accompanying facilities that appear as a singular structure, was one of the important characteristics of traditional urban form before the huge changes that occurred in the last decades. According to Kiet (2011, p.38) the centre of the complex is divided by social behaviour and architectural details such as gateways, passages and thresholds. Throughout this centre, the visitor experiences a set of interconnected and separate spaces yet a homogenous urban whole.

Circulation: The grand mosque complex was the central structure of the city surrounded by the markets. Kiet (2011, p.37) mentioned that the circulation system of the Suqs was the main access to the central complex, often with multiple entry gates on each side (see figure 8.8). Specialized public areas with distinct social functions were created in the open spaces located off the main pathways. Due to the growth and expansion of cities, the outer walls were shifted outwards at each stage of growth to provide more space for more people.



Figure8. 8 Old image of Kadhumya historic centre with clear relationship between the mosque complex, surrounding markets and main circulation axes.

Privacy: privacy was a major factor contributing to the urban shape of historic city centres in Iraq and most of Islamic cities. Kiet (2011, p.38) explained that due to the importance of this aspect, when the openings of two properties face a certain alleyway or pathway, the two openings would not be directly opposite each other. Consequently, the building process required complex site designs resulting in the organic organization of interlocking residential units developing the complex form of the urban fabric. Lapidus (1984) pointed out that this complex traditional morphology becomes a breathing, organic structure, which is fundamentally different from the sterile uniformity of replication and capable of multiplying without ever losing its essential qualities. The complex urban fabric of Islamic cities was considered to be a reflection of disorder at the cultural, social and political levels. Recently the irregularity in geometry is considered as a sign of complexity and richness rather than as simply a lack of order (Ben-Hamouche, 2009). Urban fabric is also an outcome of many successive activities that were undertaken by individuals or the community over a long

period of time with difference in morphologic complexity from one city to another with regard to their age.

The urban fabric of the Iraqi historic cities is complex. It is an outcome of interaction between the conditions of sites, the customs of the community and the legal mechanisms that are derived from the traditions. The conditions of the sites could be identified in the topography, the climatic and the local materials. Evidence of these conditions can be seen in the diversity of forms and typology, which gives distinctness from city to city (*ibid*). One of the striking morphological changes in the historic cities is the recent modernist mega projects. According to [Salat \(2010\)](#) these changes result not only in a loss of identity and connectivity, but also in a loss of complexity and social order. The features of traditional cities have a huge impact on sun and wind penetration in the urban texture and on the energy efficiency and an ability to manipulate the climate at different scales. As a result, the architecture in a historic fabric is more sustainable in climate and more adapted to cultural behaviour; therefore some traditional characteristics can be used to build modern sustainable neighbourhoods (*ibid*). In the local context, periods of national consolidation accompanied the beginning of an identity search in the 1960s, working with a long history of being influenced by external movements, foreign architects, and training abroad. Countries now began to look inward for “legitimate” expressions in building that would resonate both with modernity and with specific cultural aspirations ([Khan, 2008, p.1043](#)).

8.5 Current problems and challenges facing the Iraqi heritage cities

In the Iraqi context there are many factors contributing to the decline of historic cities. After many wars, political uncertainties, petrol revolution (the presence of petrol) and decentralization, the Iraqi cities encountered considerable challenges. According to [Al-Akkam \(2012\)](#) Iraqi cities suffer from many problems such as environmental pollution, a low standard of infrastructure, functional disorder, traffic congestion, uncontrolled land use, and deteriorating physical conditions. These problems are concentrated in the historic areas which are faced by massive backlogs in infrastructure and services. In fact, the focus of governments switched to new districts and new infrastructure together with a diverse living environment to attract inhabitants.

As cited by [Lu \(2012, p.8\)](#) the arising of two main conflicts between the historical city centre and the new districts can be highlighted as: *First*, the conflict between impairment of the role of historical city centre, the imperfect infrastructure and the rapid development in the whole city and area expansion. *Second*, the will of pursuing a better living quality, employment chances and spaces drive migration to new districts, while urban conservation preserves the cultural significance. Trying to preserve the socio-cultural characteristics as an identity is not as easy as building a modern identity in new districts.

After presenting a general overview of the state of the Iraqi cities and before proceeding to the detailed analysis and investigation it is important to display the main problems and challenges facing the historical city centres in Iraq during a high-speed expanding period. The

objective is to focus on major threats and weaknesses that have a significant impact on the cities' development potential.

8.5.1 Physical and functional problems

The historic city centre is still identified by its traditional character and architectural values. In the Iraqi context and due to the fragmentation of urban fabric after the modernisation periods which imposed modern streets and spaces, changes in type and scale of trade and production, the expansion of commercial activities and modern functions such as administrative buildings, all these have gradually changed the pattern of land use in most of these areas. The traditional elements have tended to become more and more isolated and many parts have become physically and structurally obsolete. The majority of monuments are surrounded by deteriorated and impoverished urban fabrics and are not able to function in the traditional way. On one hand, low quality residential buildings which have been established along the new streets are often sold to retailers for storage space or rented for different uses. This trend caused dramatic changes in the pattern of land use in these areas. Where the modern elements and functions needed for modern urban life have not been appropriately developed. On the other hand, the lack of adequate facilities for contemporary needs and the absence of modern standards diminished the utility of historic buildings and resulted in loss of their functions. Residential units and other facilities which had no further utilisation tended to decay rapidly; while monuments and buildings, which were in use, had a better chance of maintenance.

According to [Alsalloum \(2011, p.5\)](#) the vacant pockets of land and collapsed buildings provide the potential for contemporary architectural interventions incompatible with the surrounding. [Al-Akkam \(2013, p.46\)](#) emphasized the continued deterioration in the historic structure of Iraqi cities that suffer from physical decay, inadequate maintenance, infrastructure and services, problems of land ownership, the difficult conditions of construction, lack of documentation of heritage, critical shortage of qualified staff in conservation and absence of available funds for conservation work. From the above it is obvious the series of problems that face the historic built environment in Iraq and raise the question about the feasibility of maintaining the traditional or historic urban fabric

8.5.2 Legal and managerial problems

Due to the political instability in the country there is absence of effective Iraqi planning institutions. This affected the urban development and expansion in the Iraqi historic cities which led to a number of conflicts in the structure of these cities and adversely affected land use, provision of services and the quality of the living environment. Furthermore, Iraq has neither an effective proper authority to deal with urban heritage matters nationally nor proper conservation/development policies and guidelines to control urban development. The General Directorate of Archaeology and its subordinate agencies are the main responsible authority for developing conservation plans, setting conservation standards and nominating new sites for the National List. This agency works with other governmental

agencies to facilitate their work (Ismael, 2015, p.91). In response to the political and socio-economic situation that threatens the rich heritage of Iraq, the Council of Ministers in 2000 founded the Iraqi SBAH (Iraqi State Board of Antiquities and Heritage Law no.45, 2000) allocated within the Ministry of Culture and Information. The board manages heritage in Iraq and develops long-term strategies. Thereafter, many laws were issued by the Iraqi government such as Antiquities and Traditions Law (2001) and (2002), until 2009 when Iraq joined the UNESCO convention of conservation of intangible cultural heritage. Iraq is committed to the articles of this convention and recognises its duty of ensuring *identification, protection, conservation, presentation* and the *transmission* of the heritage to future generations (UNESCO Iraq Office, 2011).

The Iraqi Heritage Act no. 55 of 2002 is the most recent law concerning cultural heritage in Iraq. This law is based on the national inventory known as Atlas of Archaeological Sites in Iraq which was published in 1970 by the Directorate of Antiquities at Ministry of Culture and Information in Iraq. This law considers every building or deposit of more than 200 years old as an archaeological site, whereas any other site less than 200 years old is considered as a traditional one. Also, the historical sites are considered within this law as heritage sites. These items of the law provide guidelines for the integration of heritage within the land use and physical plans; it demands the conduction of surveys, documentation and registration of the archaeological sites and historical urban areas along with identifying their buffer zones (at least 1 km). In addition, these law items emphasise the integrity of the physical and functional aspects of the sites. In terms of ownership, the law calls for government acquisition when it comes to archaeological sites, whereas for the traditional buildings, the owners are entitled to use these buildings under the condition to preserve the proposed functions of the building by the conservation plan with continuous monitoring of these sites. This law furthermore demands that the conservation plan should be based on the preservation of the significance and values of the site and also requires the cooperation and coordination of all the related governmental agencies in all stages of the conservation process (based on LAW No.55 for the Antiquities and Heritage of Iraq - UNESCO, 2002).

8.5.3 Social, economic and cultural problems

Spatial changes in the old city were accompanied by a breakdown in social organisation, acting as a multiplier effect on the impoverishment of the old core. The old core which was traditionally inhabited by a homogenous mixture of population has become an accumulation of individuals and households with different cultures and social backgrounds. Heterogeneity of new residents and deprivation brought about social fragmentation in this area and changed social norms (Izadi, 2008, p.151). Due to the increased housing demand, new dwelling units were added to existing buildings counter to building regulations; units originally designed for housing are now used as offices to generate income causing the intermix of business and residential areas; new office buildings, high hotels and huge shopping centres are emerging and destroying the traditional character of Iraq cities; the inability of the central business district to meet the increasing demand of businesses

resulted in the emergence of new business centres; industrial complexes, workshops, stores and crafts have extended into residential areas; independent luxurious residential units with imported designs are emerging; most neighbourhoods are today a mixture of different housing types (Madbouly, 2009, p.59).

8.6 Overall assessment of urban heritage values in historic city centres

Approach and implementation: characters assessment of an area is considered as a tool for distinguishing physical features and emphasising historical and cultural associations (DETR, 2000). In response to the need to carry out a comprehensive and systematic assessment of urban heritage values in historic cities in Iraq, the researcher launched a field survey in 2015 to outline the heritage centres and examine the related protection measures for these areas. The preliminary assessment was built on the previous knowledge about the Iraqi heritage cities and direct observations of the most important historic cities while the main assessment was conducted according to the research methodology, through the first part of questionnaires survey that was distributed to experts as a part of the main study objectives. The details of this part are mentioned in chapter 6 and the questionnaire details are available in appendix B.

One of the important aims of the current assessment is to revise the local perimeters of the heritage property which are defined by the historic maps, studies and documentations carried out earlier and to verify the urban heritage values of selected historic cities. Various studies have discussed the assessment methods and techniques that can be used to evaluate the heritage environment, one of the key study in this field is the assessment method adopted by the report of Urban Regeneration project for Historic Cairo (URHC) by UNESCO (2012), this study proposed five parameters-as assessment criteria-to evaluate the physical integrity and intangible values of the historical urban fabric, these criteria are:

- 1- Architectural heritage
- 2- Street alignment
- 3- Land subdivision patterns
- 4- Continuity and compactness of the built-up fabric
- 5- Activities and uses of the urban space

The current study adopted these criteria to evaluate the state and values of the heritage context in the Iraqi historic cities after defining the assessment indicators that are associated with these criteria. Due to the involvement of most Iraqi cities in the same factors of decline, the data will be selected from various experts' responses that reflect their perception about the current conditions of heritage environment in several Iraqi cities. The concluded result will be used in two ways; the first one is to give general ideas about the state of heritage cities in particular and the state of Iraqi heritage context in general. And the second is to identify the physical integrity and intangible aspects that contribute to urban heritage physical identity, to be considered when planning national regeneration projects in the future. The method can be used also to evaluate the heritage context in a specific area.

More details about identifying the assessment criteria and indicators and how to use them in assessment procedures are elaborated below.

8.6.1 Identification of the assessment criteria and its associated indicators

To evaluate the urban heritage values of the heritage property in Iraqi historic cities, the following criteria were considered according to URHC by [UNESCO \(2012\)](#):

- A) Architectural value of heritage context
- B) Alignments of the historic streets
- C) Persistence of traditional land subdivision patterns
- D) Continuity and compactness of the urban fabric
- E) Activities and uses of the urban space

Criterion A: Architectural value of heritage context

This parameter provides an evaluation of the architectural value of the sites within the heritage areas, taking into account their historical and cultural layers or in other words their outstanding universal value ([UNESCO, 2012, p.36](#)). It includes the presence or absence of buildings with interesting features or high architectural values because of their authenticity, with no reference to specific architectural styles or typologies. The presence of monuments contributes to the overall architectural score, since their role as landmarks is an indicator of an existing relationship between focal points and the urban context as a heritage value that deserved protection. Three important assessment indicators are identified by [UNESCO, \(2012\)](#) which contribute to grading the value of existing heritage, these indicators are:

Assessment indicator 1 : Absence or rare presence of heritage buildings in the historic fabric.
Assessment indicator 2: Presence of some scattered buildings or parts of architecturally interesting buildings In the historic fabric.
Assessment indicator 3: Presence of continuous and consistent street fronts, larger groups or ensembles of building of high architectural value.

Criterion B: Alignments of the historic streets

This criterion refers to the persistence or alteration of the front elevations of streets in historic cities, highlighting interventions related to the streets' widening or re-alignments, as well as building lines within which building activities are not permitted ([UNESCO, 2012, p.40](#)). This feature is important because it refers to the spatial character that represents the historical features of the streetscape, beyond the architectural quality of individual buildings. The persistence of historical street alignments is considered crucial to preserving the street pattern and visual approach to landmarks in an urban context. Based on the [UNESCO \(2012\)](#), the evaluation of street alignment could be measured according to the following assessment indicators:

Assessment indicator 1 : Historical street fronts systematically modified with set-back of reconstructed buildings preventing the perception of the historic street front alignments.
Assessment indicator 2 : Frequent recent setback of reconstructed building with recesses not completely preventing the perception of the historic street fronts.
Assessment indicator 3 : Few or no recent setbacks and recesses and persistence of historic street alignment.

Criterion C: Persistence of traditional land subdivision patterns

This criterion refers to the persistence of land subdivision patterns with regard to historical plot patterns and their width on street fronts. Plot subdivisions are essential to verify the texture of the urban fabric since they characterize the spatial sequence and consistency of street fronts (UNESCO, 2012, p.44). Due to the complicated form of historical patterns, it is difficult to systematically assess the transformations that had occurred within every plot in historic fabric, or make a comprehensive evaluation on the persistence of patterns. However the literary and cartographic sources documenting changes in land subdivisions and functions that occurred in some areas of the historic cities can be taken into account to give a general idea about the transformations that occurred in their historic fabrics (ibid). According to UNESCO (2012) the important assessment indicators that were used to evaluate this feature were simplified as follows:

Assessment indicator 1 : Historical and traditional land subdivision pattern completely altered by inconsistent building redevelopments.
Assessment indicator 2 : Historical or traditional land subdivision pattern preserved or partially modified but keeping the same texture.

Criterion D: Continuity and compactness of the urban fabric

This criterion refers to a vital morphological feature of the historical urban fabric, highlighting the distinctiveness of anchors and landmarks (i.e. monuments), as well as important urban spaces (UNESCO, 2012, p.47). Further, the assessment of this feature is significant to identify the presence or absence of vacant plots, which represent a rupture in the urban fabric, particularly along the main spines. Two indicators were identified by UNESCO (2012) to assess morphological feature of historic urban fabric as follow:

Assessment indicator 1 : Presence of large vacant areas or ruins.
Assessment indicator 2 : No relevant presence of vacant areas and ruins.

Criterion E: Activities and uses of the urban space


This criterion refers to the presence or absence of activities and uses in urban spaces, therefore it is considered a fundamental relevant value that indicates the socioeconomic vitality and identity of the urban spaces in historic cities. According to UNESCO (2012, p.50) the general activities and uses of urban spaces include the presence of retail shops, traditional markets, crafts' workshops and community services, as well as permanent or

temporary uses of public spaces for cultural and religious events, festivals or other expressions of local intangible heritage. Based on UNESCO (2012) this criterion can be assessed according to the following indicators:

Assessment indicator 1 : No presence of community-oriented activities.
Assessment indicator 2 : Few scattered community-oriented activities.
Assessment indicator 3 : Community-oriented activities forming well consolidated "spines" or "cores".

8.6.2 Assessment mechanism



The criteria and their associated assessment indicators were organized into one table for each criterion as demonstrated below in Table (8.1). Each indicator is graded according to the assessment scoring points system from (0.1) to (3.0). This range of grading values represents the different conditions of historic urban fabric and these grades differ from criterion to criterion depending on the degree of complexity of a criterion and numbers of indicators. Some criteria need to be represented by multiple indicators and grading points according to their importance. In the first stage of the empirical part of the current research - assessment of the existing condition of heritage centers in Iraq- the assessors were asked to evaluate the heritage urban fabric in their native city according to the above mentioned five criteria, the grading system of criteria reflects the positive or negative values of the urban heritage status depending on the grade that is given to each indicator by the experts. The scores assigned to each parameter are graded based on a range of the scale for rating, for example: presence/absence or importance of a feature in the historic fabric as illustrated:

	Least present (absent) / least important	Average	Extremely present/ extremely important
Scale	0.1-1	1.1  2	2.1-3

For example in criterion (A) when the indicator obtains a grading between 0.1-1 this reflects the absence or rare presence of heritage buildings in the historic fabric, while when the indicator obtains a grading between 2.1-3 , this reflects adequate presence of consistent street fronts or large groups of buildings of high architectural value. Also these values vary within the same category of grading values. The sum of the grades assigned to the criteria defines the heritage values of surveyed historic area. The average of these grades defines the overall grading of the city or heritage quarter. However, due to the study methodological limitations and the empirical nature of the grading system, the final obtained results will not be interpreted as absolute values. Instead, they are useful indicators of relative values to be appreciated in planning procedures. Table (8.1) shows an example of assessment mechanism and grading system for architectural heritage value in Iraqi historic cities; this mechanism

will be adopted in the first part of experts' questionnaire survey, to get their opinions about the status of Iraqi heritage context.

Table8. 1 Sample of grading scale of criterion -A- for historic city center of Al-Basra based on experts' assessment.

Criterion A: Architectural value of heritage context		
It refers to the presence or absence of buildings with interesting features or high architectural values, with no reference to specific architectural styles or typologies.		
Assessment indicators	Grade	Pictures
Assessment indicator : 1 Absence or rare presence of heritage buildings in the historic fabric	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	
Assessment indicator : 2 Presence of some scattered buildings or parts of architecturally interesting buildings In the historic fabric	<input type="checkbox"/> 1.1 <input type="checkbox"/> 1.2 <input type="checkbox"/> 1.3 <input type="checkbox"/> 1.4 <input type="checkbox"/> 1.5 <input type="checkbox"/> 1.6 <input type="checkbox"/> 1.7 <input type="checkbox"/> 1.8 <input type="checkbox"/> 1.9 <input type="checkbox"/> 2	
Assessment indicator : 3 Presence of continuous and consistent street fronts, larger groups or ensembles of building of high architectural value	<input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.3 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 <input type="checkbox"/> 2.6 <input type="checkbox"/> 2.7 <input type="checkbox"/> 2.8 <input type="checkbox"/> 2.9 <input type="checkbox"/> 3	Lack of consistent street fronts or larger groups of building of high architectural value
Total		
Other suggestions:		
Comments:		

8.7 Challenges facing conservation of the Iraqi historic city centres

According to Lu (2012, p.8) historical city centres face serious threats during the urbanization process of regenerating their historical city centres. The key point in historical centre regeneration is to keep the value of tradition in culture, history and art, depending on the regulation of urban structure movement. A fast cycle of demolition and rebuilding is negative which will bring irreparable consequences, while a slow natural cycle as shown

below would be more positive and sustainable to the city (see figure 8.9, 8.10). The theory of relationship among the spatial configuration, attraction activities, and human movements that is stated by Hillier (1993) argues that, attractors and movement would influence each other, but they may not influence the spatial configuration. For historical city centres, regeneration should take this relationship in consideration and regard human activity as an important element. The encouragement of natural movement could be the appropriate solution in the conservation strategy towards sustainable development (Lu, 2012, p.9).

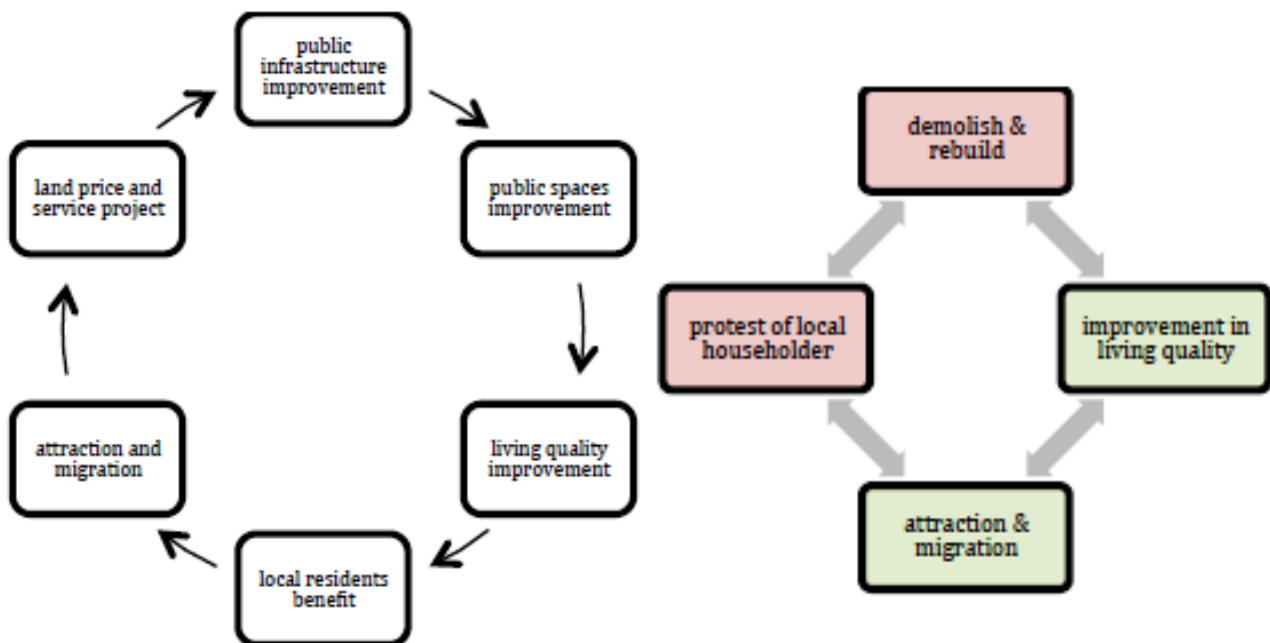


Figure8. 10 The sustainable cycle in regenerating historical city centre. Source: Lu (2012).

Figure8. 9 The unsustainable cycle in regenerating historical city centre. Source: Lu (2012).

As mentioned by Rodwell (2007, p.39) most cities share a number of key problems in their central core areas such as; poor maintenance and decay of the historic buildings; widespread disuse and dilapidation of the residential properties; pervasive traffic with congestion; low architectural design standards in the construction of new buildings; and low levels of investment in the urban environments as a whole. Lu (2012, p.1) emphasized the problems of the historical city centre, which is limited by its form and scale, for example, the conflict between high land price and low living quality, the lack of public spaces and living spaces, and the huge area of protected heritage buildings. Further, during the transformation period some of the main functions will move out of the historical centre, such as the local government and transport stations. Many historical cities choose to build new districts instead of demolishing or rebuilding the old centre.

Almost all the Iraqi historic city centres are facing huge problems with regeneration over the past decades, with the rising of conflicts related to the worth of the historical city centre and the demand of rapid urbanization. Those cities are growing in a rapid speed of urbanization causing high density in the old city centre. What are the conservation and regeneration capacities of historic cities In the Iraqi context? The Iraqi cites keep expanding

in a high-speed manner determined by the top-down politic system; while the urban fabric of the historical centre is not constructed in an efficient way. The problem of the protection of cultural heritage in Iraq is affected by the instability of the political system, the weakness of the technical apparatus, the ineffectiveness of the legal framework and official body responsible for the protection of cultural heritage, the uncontrolled development and lack of efficient monitoring; a lack of motivation to develop educational and training programs in heritage conservation and to conduct regular maintenance; the weakness of public awareness towards the significance of cultural heritage in general and traditional cores in particular; the shortage of civil and associative structures and the submission to the market .

All the various problems that are mentioned above will bring several influences to the historic cities and their residents; representing big challenges that face the conservation of Iraqi historic centres. This can be a challenge to the very existence of these centres; on the other hand it can also be a chance to solve the problems in old centres by successful conservation and regeneration. Therefore it is necessary to find a way to regenerate the historical cities and solve their problems. Furthermore these challenges need to be managed sensitively to ensure preservation of cultural heritage in a way which does not compromise its integrity, but guarantees its viability.

8.8 Conclusion

The first part of this chapter identified in general the historic city centres and their categories, characteristics and identity. The second part described briefly the state of the historic Iraqi cities, their social, economic and environmental settings, structure and development trends, as well as the challenges that face the conservation and regeneration of these centres. It is evident that the current form and structure of the Iraqi historic cities are the results of different accumulations and conditions – political, social, cultural and economic – which have sometimes encouraged the regeneration process and at other times controlled it.

Strategic and urban planning did not play an optimal role in directing the regeneration of the cities; therefore the outcome has been a complex of random developments with complex problems. The demographic and political potentials in the Iraqi context indicate that future challenges might lead to remarkable changes at the physical level, as well as at the socioeconomic level. Therefore the need is for thorough preparation and policies to steer the future regenerations towards more sustainability, as will be discussed in the following parts of this study.

Chapter 9: Urban Regeneration Projects in Iraq

Case 1: Former urban redevelopment initiatives

9.1 Introduction

This chapter provides background and contextual information about former urban regeneration initiatives in Iraq. First of all, a brief overview is presented about the existing national urban planning policies and land management programmes in Iraq. In addition to that, the heritage built environment development approaches at the local level are identified so that the processes and mechanisms that shaped these approaches and their outcomes could be evaluated. This will be followed by discussing the recent political, social and economic transformations of the country which contributed to the evolution of conservation and regeneration policies of the historic environment.

The second section provides more details about the former large-scale interventions in the historic pattern in Iraq by reviewing the major transformation phases of the selected case study (redevelopment of main historic part of Baghdad) and the interrelated factors that affected the process of decision and policy-making in planning and implementation of city centre regeneration during the last decades. This background is based on consultations with the key stakeholders, besides reviewing available data, to uncover the local knowledge and access the expertise of stakeholders.

9.2 Review of the urban planning system in Iraq

Planning is defined by [DPCD \(2008, p.4\)](#) as decisions that change the environment and affect everyday life. These decisions might be about new public transport, the size of a new shopping centre, the location of parks, a bike path or a new road. Under planning system the governments and local councils develop planning schemes to control land use and development and to ensure the protection and conservation of land in the present and for long-term interests of all inhabitants, visitors and Investors. The planning schemes are developed in line with planning policy and strategy and contain planning policies, zones, and other provisions that affect how land can be used and developed ([ibid](#)).

In the Iraqi context the highly centralised nature of the planning process led to limited involvement of local governments in the planning process, their role was limited to the implementation of central government plans. Furthermore, most of the master plans were prepared by the Ministry of Planning and the Iraqi Ministry of Interior and they had a leading role in the fine details of urban planning and design. According to [Ismael \(2015, p.26\)](#) In the

1980s, when Iraq was engaged in the Iraq-Iran war, the central government adopted a limited planning strategy to meet the necessary demands, on the other hand, the master plans had not been subject to a rigorous revision based on the changing socio-economic trends. In that era the economy was characterized by dependence on oil revenues. This type of command economies destroys the relative autonomy of the social and economic spheres from political power. The oil economy provides a vast resource that makes the state independent from social power relations and equipped with such powerful financial and economic tools. Until the 1990s when the second gulf war started, the urban planning system in Iraq suffered from massive deficiencies in various aspects which made the municipalities in charge of a weak spatial planning system and weak programs.

After the 2003 war and due to the political, social and economic changes, the planning system in Iraq changed dramatically by adopting plans covering the entire country and by investing in infrastructure, especially after the establishment of the Ministry of Planning in Baghdad. According to [UN-HABITAT \(2006\)](#) and [Ismael \(2015, p.26\)](#) the objectives of Ministry of Planning are: promoting and developing plans for regional economic, social, and cultural aspects, cooperation between the planning institutions and the public or private sectors and developing investment schemes. Even with these developments, the planning system remains a top-down approach with no clear participatory processes for civil society groups and local governments. Further, minor interventions to urban planning and management, through public and residents' comments and objections have only been allowed during the advertisement period, which is after the plans have been prepared ([ibid](#)). In 2005, the Ministry of Planning and Development Cooperation presented Iraq's National Development Strategy 2005-2007 for reconstruction and development, the strategy was the first to be produced in Iraq after 2003. It was organised around four key points: (1) Strengthening the foundations of economic growth, (2) Revitalizing the private sector, (3) Improving the quality of life, (4) Strengthening good governance and security.

[Ismael \(2015, p.26\)](#) pointed out that as a part of this strategy several new departments have been established including: Regional Development Authorities to urge reconstruction and development at regional level and State Board of Antiquities and Heritage at the Ministry of Culture which has been re-established to ensure that the priceless heritage is being taken care of. In 2010, and in response to the ineffective intervention of the National Development Strategy 2005-2007, the Ministry of Planning launched a new five-year initiative for the years 2010–2014 to upgrade the state of urban heritage in Iraq. This new National Development Plan addressed many concepts that have been partially addressed by previous plans, such as:

1. Adopting a participatory approach, in order to ensure participation of all relevant parties.
2. Direct coordination between institutions at national and regional levels.
3. Strengthening the decentralised administration in order to improve the effectiveness of provinces' roles in developing and managing their resources and the development process.
4. Addressing the issue of institutional reform and good governance and the focus on spatial (regional) dimensions to development.

The evaluation of the planning system addressed the serious interrelated urban challenges that face Iraqi cities. It is argued that the Iraqi heritage would be satisfactorily upgraded through the adoption of designated plans to protect, redevelop, or renew the urban heritage sites (Ismael, 2015, p.27). As a result, it becomes evident that short-term planning processes provides only solutions to emergency situations and does not address the actual and complex problems concerning the long period of neglect of the cultural heritage sites.

9.2.1 National urban development policy and master planning process

This section identifies the existing land management laws, urban development policies and programmes at the national level. The governance system in Iraq was always characterized by a rigid hierarchical and a highly centralised planning structure, where decisions were centrally made without public participation and the planning for all sectors in Iraq was highly centralised and the Ministry of Planning played a key role both in the co-ordination of the planning process and in consultation with the Ministry of Finance. Development plans are prepared by the corresponding Ministries and Departments, based on information provided by the corresponding departments at the governorate. Five-year sector plans are normally prepared for the entire country and funding for plan implementation is provided through the annual budget process, which is managed by the Ministry of Finance in Baghdad. In general the urban planning responsibilities in Iraq are divided between the three levels of government as such:

- The National government enunciates development strategies, and undertakes planning.
- The governorates undertake the preparation of detailed plans and studies and oversee development control.
- The municipalities implement the plans and regulate development.

As mentioned by Madbouly (2009, p.98) The local community was separated from international development by years of war and as a society governed by a centralized government system, lacks systematic knowledge about international best practice and the application of decentralized systems and market based instruments. The UN-HABITAT, (2006, p.26) report reveals the lack of a comprehensive urban development policy framework encompassing a vision for Iraqi cities, with objectives, goals, priorities and strategies. In addition, the planning authorities in Iraq lack the skilled multi-disciplinary expertise required for planning.

According to the development policies in Iraq the traditional master plans were the main instrument for zoning and physical planning for the development of cities or towns. Iraq's urban planning procedure consists mainly of master planning for urban areas, undertaken by the Directorate General of Physical Planning (DGPP) in Baghdad, often with the assistance of international consultants. According to the UN-HABITAT (2006, p26) master planning can be successful in countries with high economic growth and strong central control backed by substantial government investment or in case of stable political and institutional environments with efficient structures, well-coordinated mechanisms, sound development strategies and functional markets with effective contingency strategies.

As mentioned also by [UN-HABITAT \(2006, p26\)](#) in developing and post-war countries like Iraq that are faced with a multitude of complex problems, coupled with an urgency to respond fast enough to needs, changes, and growing demands of the population, the master planning approach can be inappropriate in many aspects. It is regarded as too complex, excessively bureaucratic, static, and is not associated with resource mobilisation. It has also been criticised as being a top-down and non-participative process, with civil society groups largely being excluded from it. This consequently fails to address the needs and priorities of the targeted local communities.

9.2.2 Assessment of the planning system in Iraq

The planning system and development policy in Iraq can be assessed according to the following aspects:

Existing urban policies and programmes: According to [UN-HABITAT \(2006\)](#) the land management in Iraq is highly centralized managed by the national government. The State Properties Directorate of Ministry of Finance is responsible for the overall management, allocation, sale and /or lease of all state owned land. The Directorate allocates land to Ministry of Municipalities and Public Works (MMPW), which in turn is transferred to municipalities to be sold to private interests for residential development. Various other ministries such as Housing and Construction and Agriculture, have major land management and land allocation responsibilities. Plans have been traditionally prepared by the Physical Planning Directorate of the Ministry of MMPW in collaboration with local officials ([ibid](#)).

As a result, the ability of municipalities to control new development is weak and the processes to manage these functions are highly bureaucratic and time consuming. Recently, more authorisations have been given to local governments for land management as a result of reforms on the investment legislations. However, these physical land use plans still need to be updated for all urban areas and the laws governing their application need to be further revised. Up to date mapping and information technologies should be utilised for plans preparation, with the involvement of the public.

The Institutional Framework for Planning: Urban planning in Iraq is the responsibility of the Ministry of Municipalities and Public Works (MMPW). The various ministries interact with and inform the MMPW of their development plans and proposals in their own sectors. The strategic planning is undertaken by the Ministry of Planning and Development Cooperation (MPDC) at the national level. Planning and implementation of housing policies, strategies, and major housing projects are the responsibility of the Ministry of Construction and Housing (MCH). The Ministry of Finance (MF) directs and oversees the preparation of the current investment budgets in conjunction with the MPDC, setting broad spending priorities and monitoring expenditure.

Under this hierarchy, the central government controls the local authorities through administrative, financial and statutory measures. Without applying the Municipal Management Law which enables the municipality to perform its duties, the municipal

councils lack full planning powers and are not able to prepare and update the master plan. This central system leads to ineffective urban development and implementation of the projects, and it lacks the mechanisms for effective public involvement and participation in policy formation and planning. Therefore the preparation of the plans and the final approval rests with the Ministry without involving the civil society groups, furthermore the public entities, comments and objections have only been allowed during the advertisement time, which is after the plans have been prepared.

As mentioned by (Madbouly, 2009, p.98) the multiplicity of Iraq's planning institutions and confused state of local government poses a serious problem for the country's urban planning and development control. Currently, development projects, often assisted by external third parties from governments and/or international non-governmental organizations deliver the needed knowledge. While such interventions are helpful, they need coordination to avoid confusion and duplication.

The information systems: The Information systems in most of the governmental organizations are under-developed. Lack of sufficient staff, equipment and new documenting technology results in lack of detailed and efficient data, especially database and information on Land which are usually inadequate and often out of date. According to Madbouly (2009, p.98) existing sources of local knowledge are often overlooked in favour of central policy and political intervention, which means that any data need to be investigated before use in any report or research in land management in Iraq. The planning organizations still have data gaps or inaccurate information and need to use modern systems in recording, documenting, mapping, and disseminating information. In practice the archival information and data need to be identified, organized and updated. This lack also includes the Municipalities management systems which enable them to adequately monitor and understand the impact of various programmes.

Most of the related ministries and governmental organizations such as Ministry of Municipalities and Public Works, Ministry of Planning and Development Cooperation, have GIS departments within their organizational structures, some of these departments are newly created and are in the process of building their capacities. In summary, problems associated with technology introductions are; availability of training institutions, data collection and data sharing mechanisms.

9.3 The past large-scale redevelopment intervention in the Iraqi historic cities

Based on the nature of previous redevelopment initiatives in Iraq and according to Al-Akkam (2012, p.62) it is obvious that most of the experience of urban development in the 1980s and before depended on foreign consultant firms. As mentioned before, after 1980s when Iraq was engaged in the Iraq-Iran war, the central government adopted a limited planning strategy to meet the necessary demands, furthermore master plans were not subject to a rigorous revision based on the changing socio-economic trends. Almost all the previous experience of urban redevelopment depended on foreign consultant firms and their

methodologies relied on building alternatives. The sanctions against Iraq (1990-2003) increased the problem of urban development, with almost all the budget being directed to basic needs. It is evident that there were no clear urban development policies in that period and the concept of urban regeneration in Iraq was likely to be absent; Moreover, no significant urban development in Iraqi cities centres has occurred since the 1980s.

Al-Akkam (2013, p.39) mentioned a number of factors contributing to the destruction of Iraq's heritage, namely large-scale engineering works, neglect and decay, the demolition and clearance of buildings and wide areas, ill-advised restoration work, looting and vandalism, and spatial intrusion and the removal of context. Due to repeated wars and isolation, the heritage cities in Iraq have experienced many transformations which led them to have different shapes and structures throughout their evolution. As mentioned by Izadi (2008, p.64) modernisation of the existing built environment is one of the common underlying motives behind the large-scale interventions in the spatial arrangement of the urban environment which is a historic pattern passed on from previous centuries. Madanipour (2003) highlighted that the size, scale, and geometric form of these interventions indicate a higher form of authority and the presence of political power, which intended to shape or re-shape the society and space in their idealised images. In the Iraqi heritage context, an example of such large-scale intervention is the redevelopment scheme for Al-Rusafa historical zones in Baghdad in 1980. In the following sections the work will be briefly described and analysed.

9.4 Urban redevelopment scheme for Al-Rusafa historical zones in Baghdad

In 1980 the Iraqi government decided to launch an ambitious large-scale urban renewal programme which was intended to totally reshape the appearance of Baghdad within three years by implementing a number of monumental projects on both sides of the Tigris River, to modernise the image of the capital and opted for the easiest solution – massive redevelopment. As mentioned by Bianca (2000, p.253) the desire to coordinate between conservation and redevelopment tasks was the starting point for the Rusafa project. By the end of 1982, a consortium of consultants was appointed by the municipality of Baghdad (the Mayor's counsellor Rifat Chadirji), including Ihsan Fethi, Sohiko Yamada, Giorgio Lombardi and Stefano Bianca, who also acted as the group's coordinator.

The work of this group will be briefly discussed based on the description by Stefano Bianca (Bianca, 2000). The team's mission was completed in December 1983. The final report, a 'structure plan' for the whole study area, as well as more detailed conservation and urban design schemes for the most significant elements of the urban system were presented to the authorities in spring 1984. The well-known political events, which resulted in practically all major projects coming to a standstill after 1984, did not allow for the project to be followed up by subsequent phases of detailing and implementation, thus only a few parts of the project were constructed.

9.4.1 Historic background and existing situation

This background introduces the changes and transformations that occurred in the historic study area of Baghdad in the previous century, figures (9.1, 9.2) show the locations of the selected study area. Rusafa is the oldest district on the eastern side of Tigris River in Baghdad, which contains the important parts of the surviving historic city of Baghdad. It includes buildings classified mostly as a national heritage due to protection under the Iraqi Antiquities Law No. 36 for the year 1924 (UNESCO, 2014).

According to Fethi (1977) and Al-Akkam (2013, p.42) since World War I, Rusafa, as the largest historic core of Baghdad, had lost nearly twenty-five percent of its historic fabric by large-scale destruction for new roads and clearance programmes alone. The first is Rashid Street, which was begun by the Ottoman Turks in 1915 and completed by the British in 1918; it is 3.8 kilometres in length and forty metres wide, including ten metres of commercial development on either side. The second is Kifah Street, which was driven through Rusafa in 1936, its width is fifty metres, which includes fifteen metres for commercial development on either side, while its length is about 3.2 kilometres; this caused serious damage to a great area of Rusafa. The third is Jumhuriya Street, which was cut through the entire length of Rusafa in 1954. The Development Board envisaged developing an American-style commercial street flanked by high-rise office blocks, it was implemented at a width of eighty metres, which includes twenty-five metres for development on both sides, and a 3.7 kilometre length cut across almost every neighbourhood in Rusafa. It destroyed an area of about one third of a million square metres, including some 1,500 traditional houses and more than fifteen mosques. Figure (9.3) shows the road network of the modern urban system carved into the historic fabric of Al Rusafa.



Figure9. 1 The boundary of Rusafa-oldest district in Baghdad.



Figure9. 2 The location of Baghdad city. Source: <https://www.britannica.com/place/Baghdad>

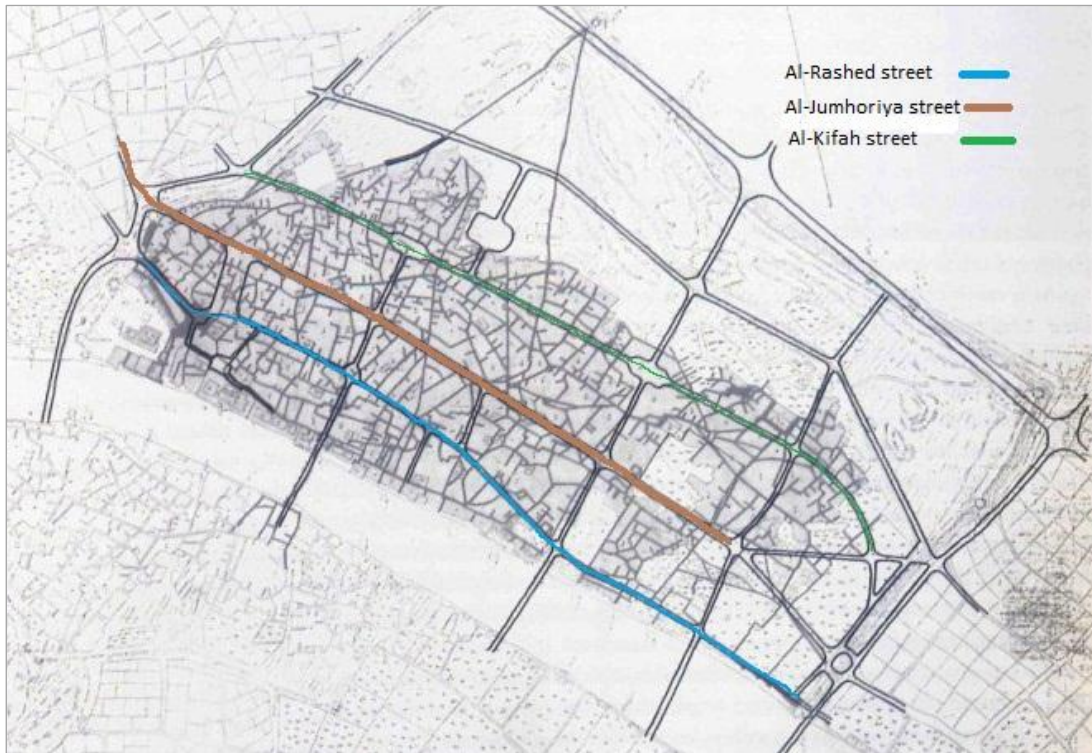


Figure9. 3 Al Rusafa in 1854 by Felix Jones, with the road network of the modern urban system carved into the historic fabric. Source: [Bianca \(2000, p.250\)](#)

Existing context on project commencement

The bulk of the historic urban fabric was formed by the residential districts (mahallas) of the walled city, which covered an area of approximately 3 by 2 kilometres. At that time, most of the surviving residential structures were no older than 60-100 years, since the houses were built from brick and timber and had to be reconstructed periodically, due to frequent flood damage, fire and termite infestation. It can be assumed that the basic layout of the urban fabric did not change much between the Seljuk period and the end of the 19th century ([Bianca, 2000, p.250](#)).

The establishment of Rusafa's modern urban system started in 1914, when al-Rashid Street, an avenue for horse carriages and vehicular traffic with attached pedestrian colonnades, was cut through the historic fabric. In 1936, this operation was followed by Kifah Street, a second parallel axis at a greater distance from the river, built by German engineers from Berlin in 1936 ([Al-Akkam, 2012, p.61](#)). Owing to the moderate height of their street fronts (two upper floors) and the careful reweaving of the open meshes, these colonial-style street arcades, while clearly introducing new development parameters, caused limited harm to the then existing urban fabric. It was complemented by a system of perpendicular roads and two new bridges across the Tigris (see figures 9.4, 9.5).



Figure9. 4 the existing conditions of the historic fabric at the beginning of the Rusafa study in 1980.
Source: ([Bianca, 2000, p.256](#))



Figure9. 5 Current conditions of Rusafa study area in 2015. Source: [Nudhum Albenaa Consultancy \(2015\)](#)

Existing urban problems situation

As a result of the orthogonal grid of modern vehicular roads, Rusafa's once continuous urban fabric was dissected into isolated fragments. While the need for new vehicular corridors was inevitable, no attempt was made to reconcile the two conflicting urban systems and to adapt the urban interventions to the existing context. According to [Bianca \(2000, p.251\)](#) the problem of mending the disrupted urban form was not really solved: large areas on both sides of the new road were given over to wholesale redevelopment, many old residential districts were destroyed and the fringes of the traditional urban fabric were left to neglect

and decay. Eventually, three separate and partly conflicting urban systems emerged in Rusafa:

Firstly: a neglected historic district suffering from insufficient infrastructure, amenities and social facilities and inhabited by a crowded population. It included busy local markets and emerging modern manufacturing facilities occupying decaying old Suq structures and expanding into the former residential districts.

Secondly: a modern service centre reflecting the size of the metropolis and catering to the needs of the upper middle class and the new leadership. It featured western-type shops, banks, government administration, offices, hotels and restaurants. It constituted an erratic block in the old city, in both functional and architectural terms.

Thirdly: an industrial zone in the former open belt of the old city, engaged in heavy modern production processes yet still following certain pre-industrial habits which, at this scale, caused enormous congestion, pollution and unacceptable encroachment on public space.

Bianca (2000, p.251) highlighted that balancing these contradicting elements and resolving internal conflicts and establishing compatibility between different types of development would have exceeded the capabilities of city administration. It would have required innovative planning tools, creative urban design capabilities, efficient institutional support and a high degree of civic commitment and community participation.

9.4.2 The objectives of the new master plan and planning policies

In accordance with the project goals and the given constraints, the project team defined the following principles and objectives of the proposed new master plan and the planning policies that were to be adopted to facilitate achieving these objectives (Bianca, 2000, p.256-258):

a) Compatibility between the activities of the central business district (CBD) and the physical environment of the historic urban fabric:

The CBD entailed implicitly two different structured zones: the first, a more traditional and mainly pedestrian centre in the core of the surviving historic city, attuned to cultural functions, and small scale retail activities; the second, a more “modern” city centre in the new redevelopment sectors containing offices, administration, large-scale shops and modern facilities and amenities. Both should be seen as being complementary to each other. This involved a general reorganization of land uses in order to make them consistent with the character and the restricted capacity of distinct types, especially in the old city morphology. Since a large scale modern CBD had already been planned and partly realized by previous development, special attention was then to be given to enhancing the remains of the historic city, to rehabilitating certain traditional housing districts and to reviving the Suqs as an attractive pedestrian centre. This also meant reorienting the future growth of the modern CBD, setting limits to its expansion in sensitive areas and introducing appropriate linkages between old and new urban structures.

b) Reduce pressures of vehicular traffic to levels which could be accommodated without wholesale redevelopment of the historic fabric, while optimizing accessibility through appropriate modes of transport:

This called for a renewal and management of the existing road network, giving high priority to efficient public transport systems and limiting private car access, in conjunction with the creation of car parks at the fringe of the modern CBD. In this context it became necessary to review the function of bridges across the Tigris which pumps vehicular traffic into the Rusafa district.

c) To rehabilitate the old residential quarters, to improve their physical structures and enhance their amenities and environmental qualities:

This involved a number of basic measures such as careful improvement of accessibility, protection from through-traffic, relocation of harmful industrial activities, as well as the improvement of necessary social facilities, playground and community services. These traditional residential areas within an increasingly commercialized downtown area were to be protected by special legal measures, land use prescriptions and appropriate criteria for restoration and substitution of existing building.

d) Reorganize industrial activities on the edge of Rusafa with regard to needs of the old city and the whole urban system:

This implied a two-step intervention: first, the progressive transfer of emerging heavy industries from Sheikh Omar to the outskirts of Baghdad and second, a relocation of certain manufacturing and wholesale activities from the old city to the vacated Sheikh Omar area, in order to free the historic fabric from expanding semi-industrial activities, while minimizing disruption to the old city's socio-economic system that relies on close links between the working and the resident populations.

e) Develop and enhance a number of major pedestrian spines throughout the Rusafa area , in order to improve the coherence between the historic and the modern sectors:

This involved the rehabilitation of the historic Suqs, the reinforcement of pedestrian linkages between the river and the gates, the environmental improvement of the riverfront and the conversion of certain roads in the heart of the historic CBD to low-traffic or pedestrian areas. The existing conflict points between the traditional pedestrian network and the vehicular system were to be treated with great care, to re-establish the continuity of the pedestrian system as much as possible and to create optimum environmental conditions at significant intersections and focal areas.

9.4.3 Interventions and design decisions

Since the government at that time, by aspiring to promote the image of the capital, opted for the easiest solution – massive redevelopment, therefore the combination of such favourable factors did not exist in Baghdad. As mentioned before, the stakeholders started to launch a large-scale urban renewal programme. According to [Bianca \(2000, p.253\)](#) in this context two major interventions were planned in the Rusafa area: the first project involved completion the transformation of Khulafa Street into a prestigious main axis of modern

Baghdad, and the second project tackled the redevelopment of the Bab al-Sheikh area along a new perpendicular road connecting the railway station with the Tigris riverbanks.

The first project on Khulafa Street: developed by The Architects' Collaborative (TAC) in Cambridge (USA), (figure 9.6, 9.7). The designers' strategy did not limit itself to the infill of new buildings along the existing urban corridor, but extended laterally into the old city, with large 12-floor mega-structures enclosing the major traffic nodes and opening large squares around important intersections. In addition, a large-scale river bank scheme was proposed, following the model of a typical American waterfront redevelopment rather than interpreting the much finer grain of the historic Baghdad riverfront with its sequence of private terraces overlooking the Tigris. The abstract monumental character of Khulafa street project completely ignored the existence of historic urban structures. Rather, it exacerbated the existing rupture between 'old' and 'modern', by highlighting the main vehicular corridors and traffic nodes as dominant urban spaces (Bianca, 2000, p.253).

Lip service was paid to the cause of conservation by identifying single monuments to be restored, but the layout and scale of the proposed new building ruled out any real dialogue with the historic urban fabric. In order to establish a modicum of coherence between individual interventions, the municipality decided first to trim down Khulafa street project to the central street spine and those components already under execution (government centre) and, second, to initiate a comprehensive planning approach covering the whole of the central area within the old city (Bianca, 2000, p.255).



Figure 9.6 Detailed part from the redevelopment scheme for Khulafa Street. Source: personal contact with Dr. Ihsan Fethi.

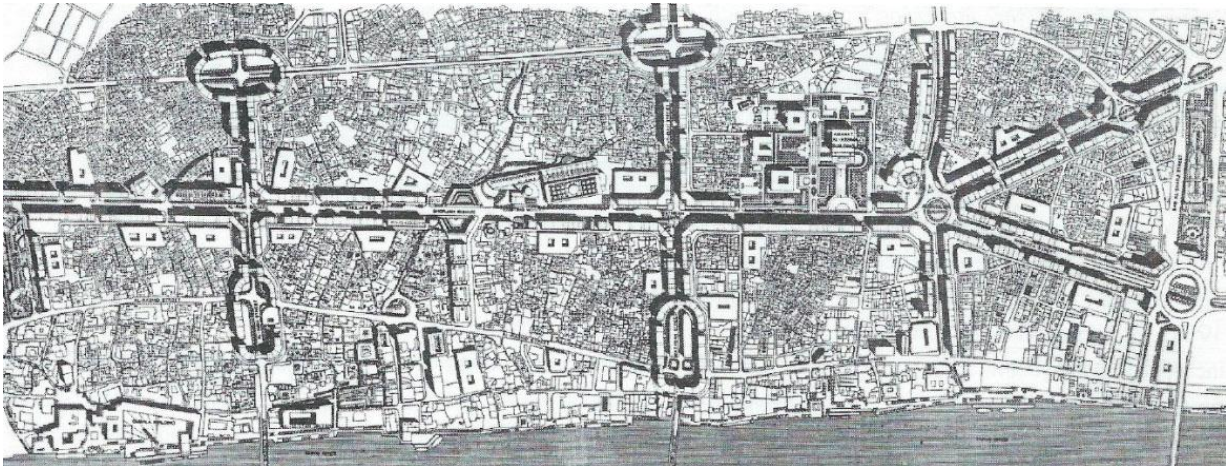


Figure 9.7 Urban redevelopment scheme for Khulafa Street, by TAC in 1980, but only partly executed. Source: Bianca (2000, p.254).

The second major redevelopment project in Rusafa: concerned the Bab al-Sheikh spine, perpendicular to the Tigris River and to Khulafa Street. This project was subdivided into different sub-sectors handed over to Ove Arup and Partners (London), Richard England (Malta), Ricardo Bofill (Barcelona) and John Warren/APP, as shown in figure (9.8). Architecturally, it represented a much more interesting approach to redevelopment, since most of the individual projects, while obviously accepting the imposed demolitions, attempted to establish a transition of urban scale between the old city and the new street fronts. All of them endeavoured to create new housing typologies relating to traditional models and adapted to local habits and climatic factors by introducing protected private open spaces in the form of enclosed terraces or private courtyards (Bianca, 2000, p.255).



Figure 9.8 Aerial view of Bab Al-Sheikh historical area, showing redevelopment areas of different architects and firms. Source: <https://dome.mit.edu/handle/1721.3/73579>



Figure9. 9 site plan of Bab Al-Sheikh redevelopment – part 4. Source: <https://dome.mit.edu/handle/1721.3/130682>

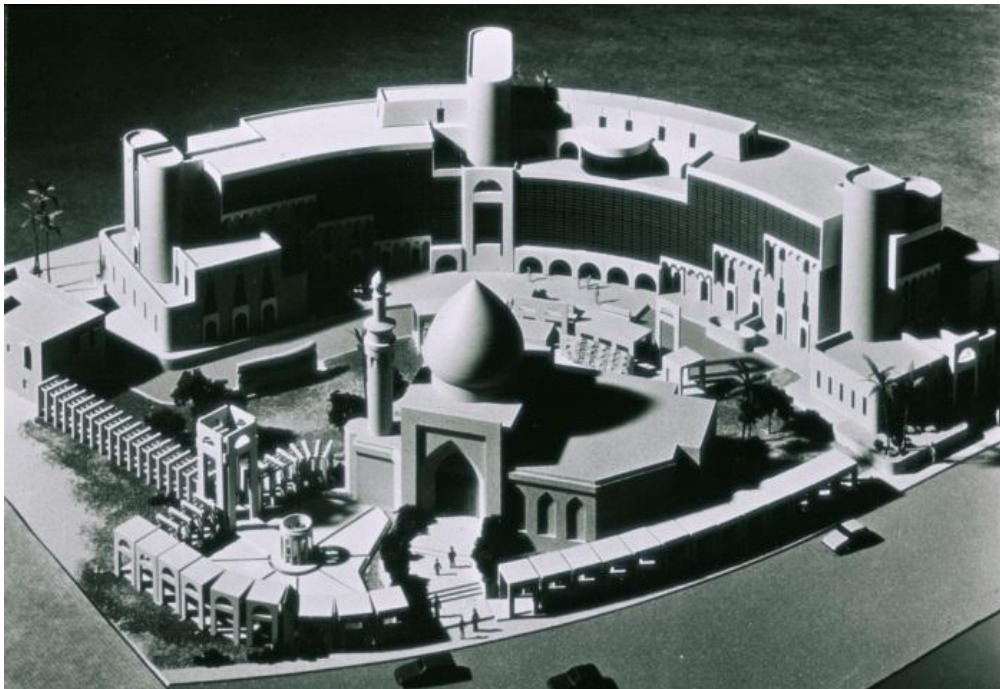


Figure9. 10 Redevelopment scheme for Bab al-sheikh -zone 4- proposed by Richard England and Partners. Source: <https://dome.mit.edu/handle/1721.3/130682>.

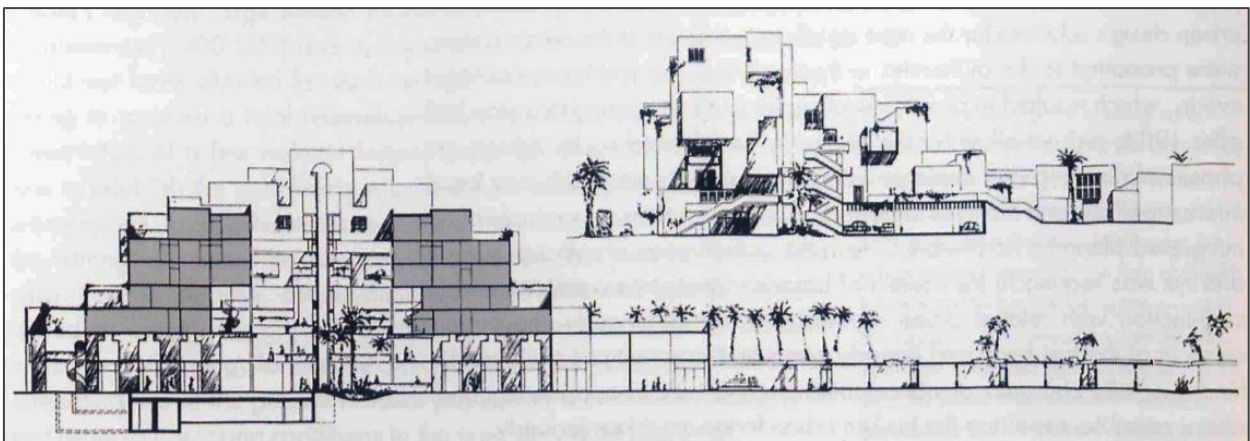


Figure9. 11 Typical sections of the redevelopment scheme for Bab al-sheikh proposed by Arup and Partners, and partly executed. Source: Bianca (2000).

Planning analysis and design policies of Al-Rusafa project

Rusafa's relatively large historic fabric, the size of its resident population (approximately 200000) and its importance as a central business district made it difficult to implement such development projects. Based on the objectives of the comprehensive planning scheme for Rusafa, it is clear that freezing the historic centre in its present condition was not a viable solution. As mentioned by (Bianca, 2000, p.255) during the preparation for the Khulafa Street project and the Bab al Sheikh project, the Municipality of Baghdad, benefiting from the advice of the distinguished Iraqi architect Rifat Chadirji, became aware of the fact that major slices of the old city were being given away for redevelopment without any overarching concept which could establish a relation between the proposed new structures and the surrounding urban fabric whether old or new. It appeared wrong to propose a total redevelopment, even if this was to include the preservation of a few isolated historic buildings.

According to Chadirji & Mutschler (1984) the main task therefore was to establish the right linkages between the existing components of the urban system, to consolidate the remains of historic fabric and to prevent the 'strong' elements from overpowering weaker, but precious urban features. To achieve this goal, the conservation and redevelopment had to be conceived as complementary and interactive approaches within a well-balanced overall strategy for the city centre of Baghdad- keeping in mind that dramatic shifts of the present resident population should be avoided, and that living and working conditions in the area should be improved.

9.4.4 Implementation of design policies

The implementation of the project objectives entailed critical choices with regard to the conservation or appropriate redevelopment of specific areas of Rusafa. These choices according to Bianca (2000) were based on:

- A thorough review of socio-economic conditions in the various sub-districts and on the assessment of existing land uses and perceived needs in terms of amenities and facilities.
- Present traffic conditions and desirable future transportation policies were also examined in order to anchor future transportation plans in a comprehensive development strategy.
- A plot-by-plot survey, in potential conservation areas by analysing building use, historical value, architectural typology, physical conditions and ownership was carried out as a basis for both general decision-making about sustainable conservation and rehabilitation.
- Establishing a morphological compatibility schedule, to determine what type of activities were compatible (or incompatible) with which type of urban fabric, in order to relate future land-use decisions to the constraints of urban form and enabling the complementarity between historic structures and modern development.

The information above was the basis of the "structure plan"- a framework for action backed up by more detailed planning and urban design proposals for specific areas such as the riverfront, Rashid Street, the historic Suq, traditional residential districts to be upgraded and

the adapted redevelopment of peripheral areas around the historic core. In the following, a brief summary is provided of the main strategies and actions implied in the structure plan.

Structure plan - strategies and actions

According to Bianca (2000, p.261) the key to the viability of Rusafa as a historic area combining a central business district with integrated “pockets” of traditional residential quarters did not lie in the grand new scheme of Khulafa Street as proposed by TAC, but rather in a judicious redevelopment of the Sheikh Omar District, which already had a belt along the former city walls, clogged with developing industrial activities. The proposal for the redevelopment of the Sheikh Omar District envisaged the following points:

- Transfer of all heavy industrial activities to a new industrial zone on the outskirts of Baghdad, allowing for the widening of the street and redevelopment of the adjacent strip.
- Continued at each end by Port Said Street and Bab Al-Muadham Street, the wider Sheikh Omar road would form a high-capacity highway around the historic area so as to divert and absorb traffic pressures.
- Along this belt, a number of interchange nodes with multi-storey car parks, bus stations, taxi ranks and commercial facilities would be located, to encourage public transportation and the pedestrian movement by providing organic connections with the pedestrian spines of the old city and linking Sheikh Omar Street with the riverfront.
- The northern part of the new Sheikh Omar area would be redeveloped as a mixed-use zone with public housing, but also offering opportunities for relocating small-scale commercial and industrial activities no longer compatible with the historic fabric.
- The nodes and street front development of Sheikh Omar would provide additional space for the expansion of modern businesses, while towards the old city a graded soft edge would be established to improve the transition between different types of urban form.
- The implementation of this new bypass of the old city constituted the key for redistributing the traffic loads on the existing Jumhuriya and Bab Al-Muadham Bridges, that function as the major Tigris river crossings, while the intermediate two bridges (Ahrar and Shuhada) would provide exclusive traffic access to the old Suqs, thus strengthening the potential for undisturbed pedestrian connections along the riverfront.
- The conservation and rehabilitation of the historic fabric was based on detailed assessment of each “island”. It indicated plot-by-plot proposed intervention measures, such as conservation of traditional houses, substitution by typological related new units, re-use of open spaces, ruined or vacant plots for residential car parks, communal facilities, etc.

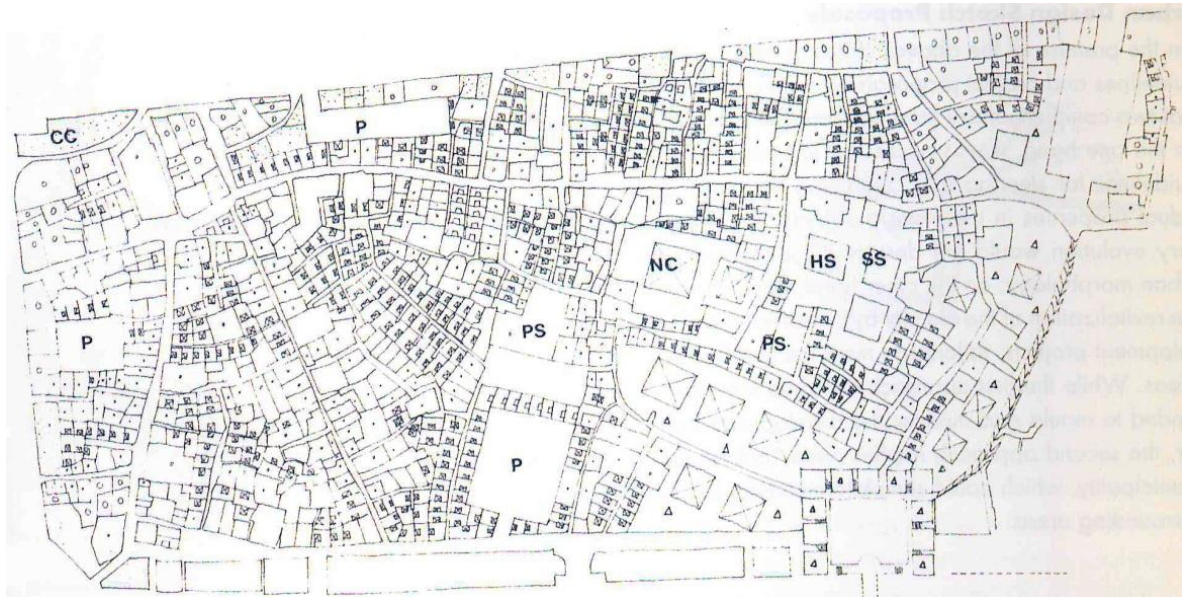


Figure 9.12 Example of the rehabilitation plan for one of the “islands” of the historic city of Rusafa. Source: Bianca (2000, p.262)

9.4.5 Urban design proposals

Based on the above “structure plan”, more detailed urban design guidelines and project proposals were developed. As mentioned by Bianca (2000, p.263) the project team recognized that two complementary lines of intervention had to be pursued in parallel

- It was necessary to provide flexible, but comprehensive guidelines for steering and controlling the ongoing transformation of individual properties in the historic districts, thereby ensuring that their necessary evolution would not destroy the essential qualities of the traditional urban morphology.
- There was a need to stimulate the revitalization of the old city by selective rehabilitation and adapted redevelopment projects, tailored to meet the needs of critical focal areas.

While the first approach could be labelled as “passive control”, intended to mould and monitor the development initiated by the private sector, the second approach implies more “active” direct interventions by the municipality, which could stimulate follow-up development in the surrounding areas. To control the transformation of the historic tissue in the designated conservation area, a manual proposing specific design criteria for dealing with the various types of building occurring within the historic fabric was developed. It covered a broad range of interventions from restoration to rehabilitation, including substitution of ruins with new adapted structures (as example in figure 9.13). Being based on the original plot-by-plot typological survey of the old city, the manual provided a matrix defining the appropriate type of intervention for each building, taking its architectural character, historic value and physical condition into consideration. It was intended to guide the staff of the municipality both in their response to private building applications and in their own urban interventions, thus facilitating a consistent step-by-step rehabilitation of the historic districts. The manual was complemented by a more active rehabilitation scheme for each residential district of the historic fabric, indicating recommended land uses, improved

service accesses, small neighbourhood car parks and new community facilities to be introduced in order to improve the viability and the living standards of the surviving traditional housing clusters (Bianca, 2000, p.265).

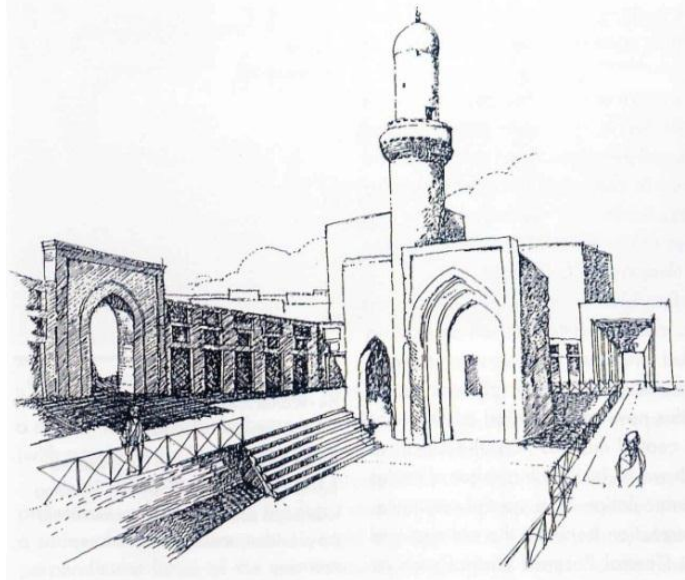


Figure9. 13 Schematic urban design sketch for the depressed square around the Mirjan mosque, articulating the intersection of the traditional Suq with the axis of Rashid Street. Source: Bianca (2000).

Design proposals for redevelopment of Bab al-Sheikh historic area

Example: design scheme for zone no. (6) by Ricardo Bofill (RBTA) , Spain.

The description below is about the design concept based on RBTA analysis of project schemes: The site of approximately 2.3 hectares lies 100 meters north of Al Kaylani mosque, and includes a group of old houses which are to be preserved. The renewal scheme included the construction of over 150 single-family homes with a maximum height of three floors. According to RBTA (n.d.) the scheme was based on a rationalized rectilinear layout which could easily be inserted into the existing traditional urban fabric. There was a certain geometrical pattern to the area clearly manifested in the serial view of solids and voids. The streets are mostly pedestrians, with those intended for vehicular traffic and services clearly defined. Special attention was devoted to the lines of communication with the walls of the mosque.

The new district consists of a series of parallel pedestrian streets, crossed by a transverse street which forms a roofed courtyard at each intersection. This street acts as the backbone: two storeys higher, with the covered courtyard and the porticoes running its full length, as focus of attraction for the population. The architecture counterpoints the existing traditional buildings through the design of the new buildings remaining faithful to the traditional cultural legacy. The program included modern housing in traditional style; integrated parking scheme and atomic shelter for the inhabitants; a shaded pedestrian route (inspired by the local suqs) containing small shops running parallel to Sheik Omar Street which has larger scale downtown commercial premises and a recreational , meeting area at the centre of the project. Although the scheme is pedestrian orientated, it is proposed that all roads can be used by service vehicles while public traffic flow is reduced to two lateral roads serving the adjacent parking. The service buildings have been adapted and suitably hidden so they are

virtually invisible. Some existing buildings built at the beginning of the 20 century that had to be preserved were fully integrated into the project to be used by the general public as facility buildings such as nursery, youth club, police station, etc.

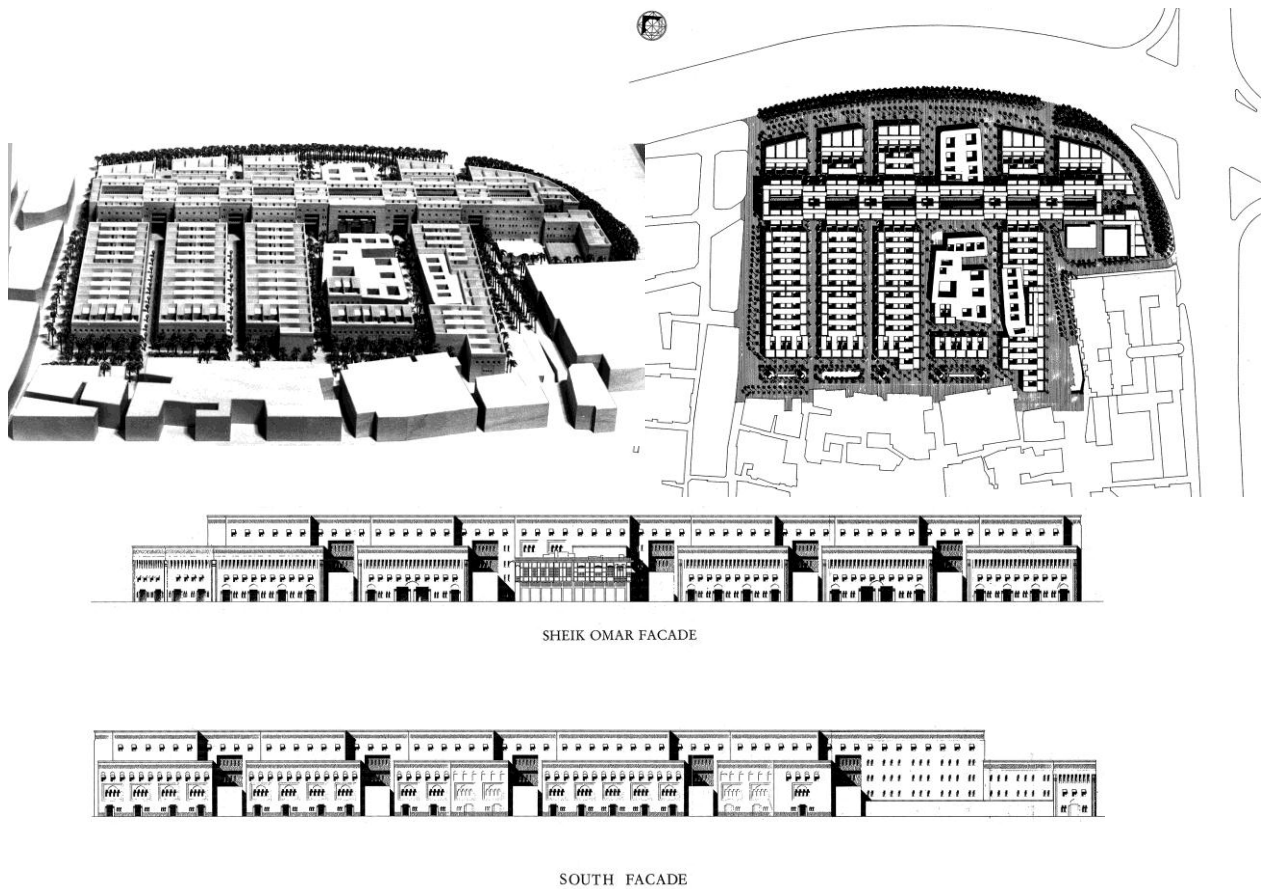


Figure9. 14 Redevelopment proposal of Bab al-Sheikh historic area-zone 6-by Ricardo Bofill. Source: [RBTA \(n.d.\)](#).

9.4.6 Evaluation of the impact of the project on the local community

As mentioned by [Chadirji and Mutschler \(1984, p.63\)](#) the case of Rusafa represents an example of an integrated planning framework, where the conservation of selected historic districts was tackled in the context of broader development policies and in conjunction with related urban renewal schemes. Obviously, the project was already committed to interventions that could not be fundamentally changed, but the task of considering and where possible, repairing the broken urban form was taken seriously. Regarding the physical, social and economic impact of the project on the on the local community, the project can be evaluated according to the following aspects and discussions:

Organizing the large scale urban project: due to the residential nature of the development area, the main question addressed in this case was; is there alternative housing proposed for the people that are going to be displaced by all these projects? According to the projects consultants and stakeholders; there were no clear ideas to deal with this problem, it was the

duty of the ministry of housing in Iraq. The municipality involved itself in the Bab al-Sheikh Project to create prestigious housing projects to dress up Baghdad (Chadirji and Mutschler, 1984, p.64). This point reflects the absence of a comprehensive view about the effect of the project in the future.

Political authorities' influences and decision making: To what extent were the political authorities exigencies allowed to overrule technical considerations? Political pressure can have a positive influence, if it helps break down obstacles. It tends to be a very negative one where decisions are made simply without regard to its suitability.

According to Chadirji in Chadirji and Mutschler (1984, p.64) the time was very short to prepare Baghdad for the Non-Aligned Movement conference 1982. The projects were either based on necessity as determined by a very primitive survey carried out by the municipality, or suggested by some political body. The representative of the municipality (Chadirji) accompanied the consultants throughout the design process, but made no contribution whatsoever to the design. His role was on the conceptual side only to integrate the various projects. There was no procedure for selecting the consultants, they were chosen because of their competence and compatibility with other consultants in the area. There were no competitive bids, this reflects the obvious effect of the political authorities in some project aspects regarding the decision making and project stages.

Public participation and encouragement of local professionals: if the discussion could have been extended to more people—in Baghdad there were reasons why it could not—the potential for any development to act as a catalyst within that society would have been increased. According to Chadirji and Mutschler (1984, p.64) no society can build its own urban fabric or build its own culture if it does not have its own technology. Chadirji mentioned that this does not exist, and there would be very serious political implications or drawbacks by involving local people. Between 1970 and the time of the project preparation, the Iraqi government did not encourage local contractors. To reverse that trend is a very complex political affair. To create a local consultancy, because of the cultural gap and political problems, this will take a very long time. But even then interaction with the rest of the world would be needed and local expertise also cannot exist isolated from academic circles.

Compatibility between the new project and the surrounding tradition: the brief to the consultants stated that they would be building prestigious houses for high income groups. This leads to the introduction of a foreign social structure into that particular city and raises questions about whether this was a decision taken by stakeholders or foreign consultants? According to Chadirji in Chadirji and Mutschler (1984, p.64) this decision was not as a model, but simply as a response to a particular situation. Especially at that time in Iraq, tradition did not function as a criterion for planning. The way of life was changing, for better or for worse. Other social considerations were taken into account insofar as possible through surveys made by either the municipality or the consultants.

Understanding the context: The consultants were in Baghdad for a short period. They were not exposed to other opinions and so, did not formulate better ideas; and accordingly could not convince the political powers to do something else.

According to Chadirji the alternatives were either accepting third-rate architecture or accepting consultants working under a very difficult, intensive work schedule without sufficient time. An ideal situation would have been entirely different from either. Chadirji believed that no outsider can resolve the internal problems of a nation. They can help or can provide perspective, imagination, and expertise, but the real solutions must come from the local people (Chadirji and Mutschler, 1984, p.66).

9.5 Assessment of Al-Rusafa project according to the developed strategy of the current research

The chapter introduced Al-Rusafa project as a case study for previous redevelopment or renewal initiatives in Iraq, by investigating the policies and approaches that were adopted at that time and in order to highlight the positive and negative results that can be concluded about the impact of these projects on local communities and the development strategies at the national level. This will also help to know to what extent these projects can succeed in achieving their goals and to what extent they can reach the objective of sustainability.

The project will be assessed according to the developed model of assessment strategy that was derived based on theoretical and conceptual frameworks of current research. The final form of the assessment strategy is presented in chapter 7 and will be included in the 3rd part of the questionnaire survey. The questionnaire form was sent to the first group of respondents with brief details about the project, containing the details that are mentioned in this chapter in addition to the available projects maps and photos. The assessor was asked to evaluate the project according to the main aspects or design principles that were mentioned in the assessment strategy in order to determine the sustainability of the project and the extent of achieving the set goals. The assessment results will be mentioned in chapter 11 after analysing the responses of the experts along with the results of the researcher's analysis.

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Chapter 10: Urban Regeneration projects in Iraq

Case 2: Contemporary urban Regeneration initiatives

10.1 Introduction

This chapter is a complement to the previous chapter and both represent the empirical part of the current study. The large scale redevelopment and reconstruction of Najaf historic city centre has been selected as a case study in this chapter to examine the success level of the recent urban regeneration programmes in Iraq. It is considered as a well-known example of a recent redevelopment-oriented approach employed by the government agencies, noted also for its socio-economic importance in Iraq. As mentioned before the goal of selecting these cases is not to study the cities themselves, but to evaluate the regeneration initiatives that were proposed for these cities.

The continuity of the destruction and reconstruction of the historic core of the Najaf city, through large scale interventions by the ruling body represents a common approach of such operations to the old fabric of the city. This chapter attempts to explore the main features of these approaches and to interpret its spatial appearance. The main body of data in this chapter was collected through available literature about the analysis area, archival research provided by the project team and discussions with the project design team and key stakeholders involved in this programme.

The chapter will briefly present a historical background about the transformations in the historic core of Najaf by illustrating the major periods of the city's fundamental changes in order to find out the driving force behind these transformations. Firstly, it examines its socio-demographic status. Secondly, it examines the physical environmental, social and economic potentials and problems. Thirdly, it mentions the strategies and policies of the recent rehabilitation and regeneration programme of the old city. Finally, it studies the strategies and policies of the regeneration programme according to the assessment criteria identified by this research and it assesses how far the currently ongoing project successfully helps the physical, environmental, social and economic regeneration of the city centre, in addition to the structural forces enabling or constraining these programmes.

10.2 Contemporary urban regeneration initiatives in Iraq

Since 2004 the Iraqi government, represented by the Iraqi Ministry of Municipalities and Public Works (MMPW) – Directorate General of Physical Planning (DGPP) has been actively

working to develop sustainable master plans for the Iraqi cities, as a part of efforts to reconstruct the country after the war in 2003. These programmes covered most of Iraqi cities as part of urban regeneration projects being undertaken by the Iraqi government, especially in the historic cities. The consultancy services offered by (MMPW) and (DGPP) include examining and redesigning the existing master plan of these cities.

The Iraqi government is continuing with these programmes and one of the main goals of these projects, according to the specifications and terms mentioned by projects bids, is to regenerate the urban fabric of the historic city centres that have been neglected for many decades. These centres faced serious crises because of the overloading of their delicate fabrics with the vast numbers of visitors especially in the cities have religious significance. Therefore one of the development goals is to ensure that the accommodations and commercial facilities in these cities are able to cope with the volume of visitors, in addition to ensure that these areas remain vibrant and attractive for inhabitants and visitors throughout the day and year. As mentioned by [Dewan \(2010\)](#) The scope of work in these projects and programs includes: documenting the existing condition of the areas under regeneration, and carrying out all required studies and surveys; analysing and drawing conclusions based on the results; preparing and presenting urban regeneration alternatives, and preparing a comprehensive urban design report, in addition to running training workshops for the involved staff as part of its "knowledge sharing" programme. In the next sections the study discusses the regeneration project of Najaf historic centre, as one of the major urban regeneration projects being undertaken recently by the Iraqi government.

10.3 Case study definition

The city of Najaf has been selected in the current research owing to its significant historical, religious and cultural nature; it is one of the important cities in the central part of Iraq, located 70 km to the south of Karbala and about 160 km south of Baghdad. Figure (10.1) shows the regional connections of Najaf governorate. Najaf is the place of the shrine of Imam Ali bin Abi Talib (cousin of Prophet Muhammad). The city now is an important centre for visitors from throughout the Islamic world, nearby is the Wadi Al-Salam (Peace Valley)-the largest cemetery in the world.

Over the centuries, Najaf has attracted scholars and religious leaders, from around the world to come to attend its seminaries. Numerous mosques, schools and libraries were built around the shrine to make the city the centre of learning and worshiping. With this large number of libraries and religious centres, Najaf is considered to be one of the prominent Islamic cities ([Dumper, 2007, p.268](#)). In the historical background, the city will be examined as an urban unit, discussing its overall plan, population, primary thoroughfares and markets, main quarters, and its urban form. Also the major urban developments, which have taken place since the second half of the twentieth century will be briefly discussed.



Figure10. 1 The location of Najaf city.
Source: Encyclopaedia Britannica, 2011:
<https://www.britannica.com/place/Al-Najaf/images-videos/Al-Najaf-capital-of-Al-Najaf-governorate-Iraq/160075>

10.3.1 Historical background of the urban form of study area

When studying the urban features of Najaf city, it is important to distinguish the traditional walled city, around the shrine (figure 10.2) from the sprawling new city that has spread outside its walls and is linked with kufa (figure 10.3). There is a clear difference between the two parts of the city in terms of continuity; they differ in plan, urban form, built form, street patterns and social organization. As mentioned by [Tabbaa and Mervin \(2014, p.46\)](#) the rupture between the traditional and the modern in Najaf was effected with very little transition in the second half of the twentieth century. Based on the research approach to studying historic city centres, this chapter will focus on the old walled city of Najaf as a study area and its regeneration initiatives.

According to [Dumper \(2007\)](#) the old city of Najaf was situated on a high plateau on sandy soil overlooking a wide basin and covered by desert sands. The aerial photograph taken by Gertrude Bell in 1918 (figure 10.2), shows a truncated circular city completely surrounded by a solid brick wall. Only the square enclosure and golden dome of the shrine and the east-west spine of the grand Bazaar stand out among the overall low-rise and high-density residential quarters of the city. [Tabbaa and Mervin \(2014, p.46\)](#) mentioned that the only signs of 'modern' transformation are at the south-eastern edge of the wall, where rectangular barrack-like structures, quite likely dating from the late Ottoman period, had sprung up both within and outside the wall. The walled city had an irregular circular shape, with a circumference of around 3 km and a maximum length from east to west and from north to south of no more than 900 m. Najaf's defensive wall was pierced by four main

gates, which were: a northern gate leading to Karbala and Baghdad; an eastern gate to Kufa; a southern gate in the direction of Basra; and a western gate leading to Bahr al-Najaf(Najaf see –wetland depression area) and the Wadi al-Salam cemetery. Little has been documented about the surrounding wall and its gates, but its trace is clearly visible today as a vacant strip that has been taken up by a ring road which has been appropriately called Wall Street.

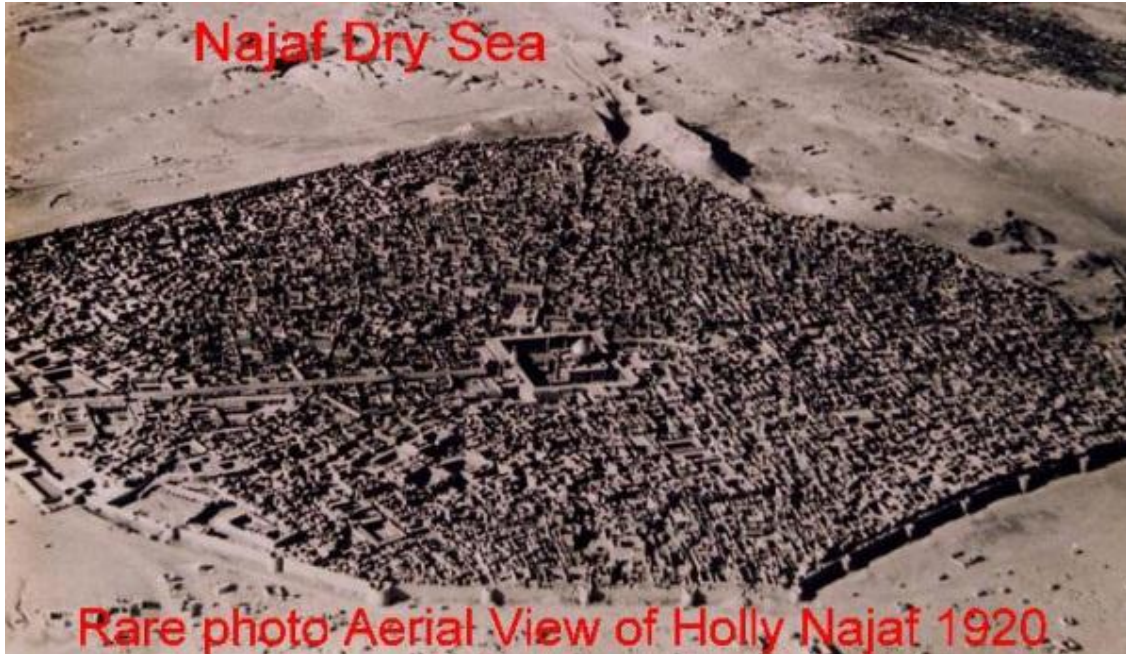


Figure10. 2 Aerial view of Najaf, 1918. Source: [Gertrude Bell Archive, Newcastle University](#)

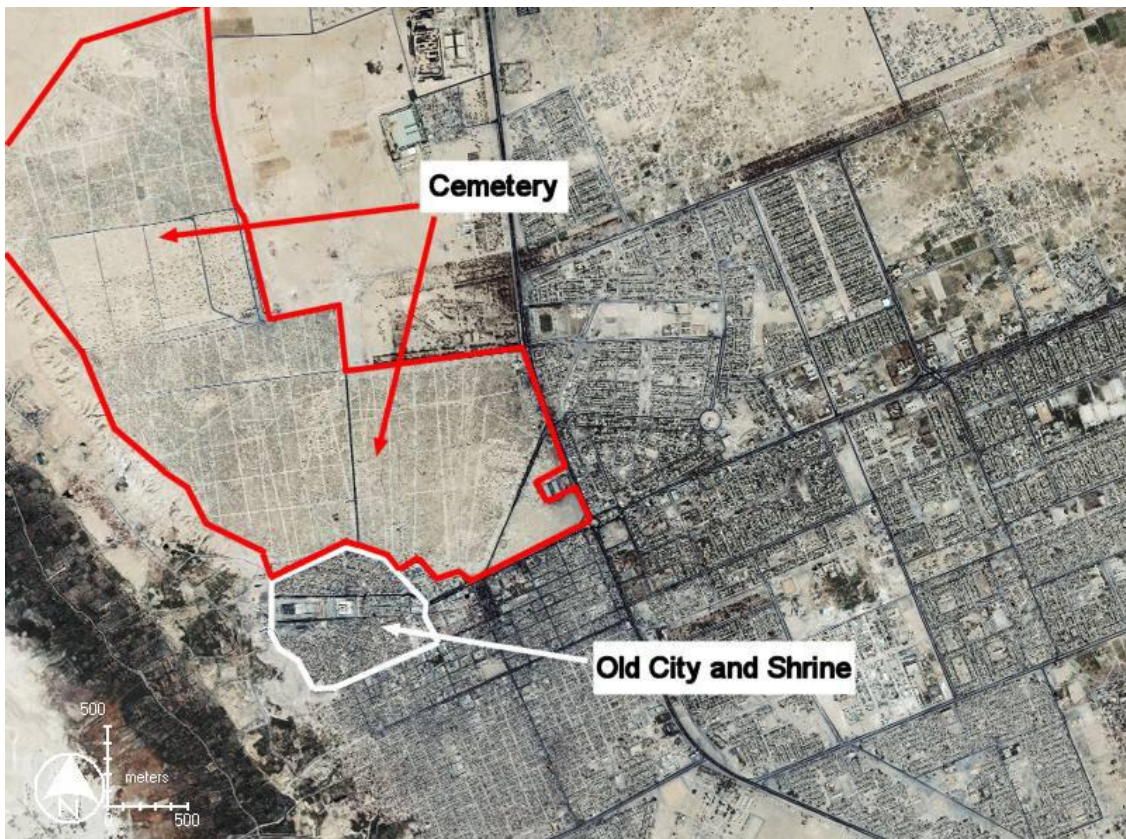


Figure10. 3 Aerial view of Najaf show the boundary of walled city and the sprawling modern city that has spread outside its walls and linked it with kufa. Source: [globalsecurity.org](#)

Like most other Islamic cities, all the main roads led to the prominent centre of the city, namely the shrine. Some of the thoroughfares functioned as Suqs or connected the centre, the gates, and the main travel or trade routes that linked the city with its surroundings. The city is divided into four quadrants by traditional thoroughfares with the shrine in the central position (Akram et al., 2016). These have been considerably expanded into broad streets and markets in recent years, while other roads have been cut right through old neighbourhoods and markets. Leading from the shrine to the original city gates, the traditional main streets are Al-Tusi, Al-Rasul, Zayn al-Abidin and Al-Sadiq. Four residential quarters of intramural Najaf are contained between these streets, which are, Al-Mishraq, Al-Amara, Al-Huwaysh and Al-Buraq. The fifth sector of the city is the Grand Bazaar, which presently comprises a broad longitudinal axis with several branches that extends from the shrine eastwards, ending at a modern square. Figure (9.4) shows the five main Neighbourhoods.



Figure10. 4 Neighbourhoods of the old city of Najaf (study area). Source: Dewan (2015, p.5)

10.3.2 Urban sprawl and the historic core transformations

To study the transitions in the urban fabric of Najaf historic city, it is important to consult descriptions, plans, maps and photographs of the old city undertaken before its recent transformation because many features of the walled city of Najaf have vanished, including its walls, as well as some markets and entire neighbourhoods, and many more have suffered from natural decay and abandonment. Figure (10.5) shows the old coherent urban fabric around the shrine before the modern transformations, while figure (10.6) shows the urban fabric around the shrine after recent transformation and big changes in planning structure. According to Tabbaa and Mervin (2014, p.49) the possibilities for expansion of Najaf city were mainly restricted to the north-east, in the direction of Karbala, and to the east, in the

general direction of Kufa, because the old city is bordered to the north and north-west by the Wadi al-Salam cemetery and to the west and south-west by Bahr al-Najaf.



Figure10. 5 The old coherent urban fabric of Najaf city, around the shrine (first half of 20th century) before the modern transformations. Source: architectural-review.com



Figure10. 6 Urban fabric around the shrine (in 2010) after recent transformation in the city structure. Source: <http://www.imamali-a.com>.

These topographical restrictions and the desirability of being linked with Kufa have given Najaf a decidedly easterly orientation, which is defined internally by a prominent axis that cuts right through the middle of the shrine, passing through the grand Bazaar, the public square east of it, and continuing through the Kufa gate, and on to the major thoroughfare connecting the two cities (*ibid*).

The traditional urban fabric destruction and the rate of encroachment on the old city varies, depending on proximity to the sectors of intensive rebuilding, which are the shrine, the cemetery, the eastern edge of the city in the direction of Kufa, and the western edge, where hotels and resorts overlooking Bahr al-Najaf have recently been built. The enormous zone already occupied by the shrine is currently being tripled in size by a project intended to expand the educational institutions and various functional appendages of the shrine (figure 10.7). Significant parts of all the four quarters and some of their markets have been rebuilt as part of a massive project of urban renewal of the old city (*Dewan, 2015*).

Al-Mishraq quarter has been encroached upon since the 1930s, when a small square was cleared north of the shrine and a monumental gate to the shrine, named Bab al-Tusi, was created. In the 1970s this square was linked with the cemetery by means of a road called al-Tusi, which divided al-Mishraq and al-‘Amara quarters from one another. The Zayn al-Abidin road, which runs west to east parallel to the Grand Bazar, cuts off the southern end of al-Mishraq quarter, contributing to the erection of medium-level buildings fronted by small modern shops (*Tabbaa and Mervin, 2014, p.50-52*). Al-Amara quarter has suffered a great deal from the encroachments of the two modern roads mentioned above – Al-Tusi and Zayn al-Abidin – and even more from the creation of roads, parking lots and hotels intended to accommodate the visitors to the cemetery, which lies to the north of this quarter.

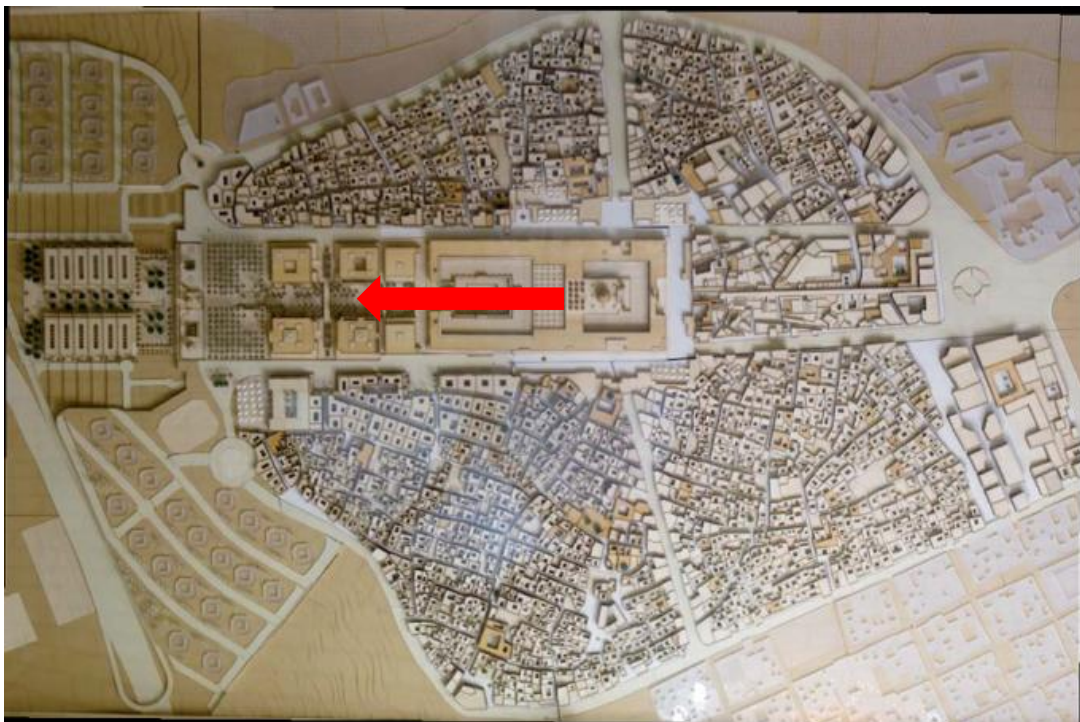


Figure10. 7 The direction and size of new expansion for shrine. Source: *Tabbaa and Mervin (2014)*.

10.3.3 Spatial and Socioeconomic – Demographic features

The population of Najaf city according to the Ottoman census that was conducted in 1865 gives a figure of about 35,000. This relatively large number is most likely associated with the building of the Hindiyya Canal, which at that time ensured a steady supply of water to Najaf and gave a great push to the economic position of Najaf and Karbala, which emerged as Iraq's major desert market-towns. After the British occupation in 1918, Najaf had a population of 45,000 (Nakash, 2003, p.30, p.97). The current population of Najaf– estimated to be more than 1000000 – represented massive recent immigration into the city. In order to accommodate this continuous population increase and the needs of an increasingly modern society, Najaf expanded mainly through the eastern wall in the early twentieth century and into more branched subdivisions and suburbs in the late twentieth century.

As highlighted by (Akram et al., 2016) and mentioned by Tabbaa and Mervin (2014, p.57) the municipality of Najaf demolished the five gates of the old city in 1931, in order to allow for extramural expansion and to plan new neighbourhoods. By about 1965, newly planned quarters had emerged east of the city wall, in the direction of Kufa and to the south, along the extension of Al-Rasul Street. The 1980s witnessed further expansion and the creation of new neighbourhoods. Population expansion was accompanied by the creation of markets, streets lined with businesses, government institutions, and educational and medical facilities to serve the residents of the new areas.

Towards the end of the twentieth century, Kufa and Najaf joined into a single urban area that is commonly known to the outside world as Najaf. The two cities are connected along the ancient west-east axis. The growth of this urban agglomeration has been so vast in the past two decades that the walled city of Najaf is now only about a thirtieth of the size, and contains about a twentieth of the population of the entire contemporary city. Modern government institutions, hospitals, universities and modern businesses have shifted decisively to the modern city. However a substantial sector of the economic activity of the modern city is still geared towards servicing the old cities of Najaf and Kufa, catering to the various needs of visitors and pilgrims (ibid).

10.3.4 The current state of study area - decline and the main urban problems

The analysed area in the current research represents the old historical core of Najaf city which consists of four neighbourhoods surrounding the shrine: Al-Emara, Al-Mishraq, Al-Buraq, and Al-Huwaysh in addition to the commercial centre area to the eastern side (Figure 10.4). The historical part of Najaf is one of the important heritage sites in Iraq and the Islamic world which is facing serious degradation and real crisis due to decades of negligence and lack of proper maintenance of the delicate urban fabric, the high population growth rates, scarcity of land, and rapid urbanization. In addition, absence of new sustainable urban development and lack of infrastructure and facilities to serve the masses of millions of visitors annually contributes to this crisis. The city has been experiencing rapid urbanisation

due to the concentration of religious and economic activities, resulting in high demands for open spaces and infrastructure.

Based on the evaluative report by [UN-HABITAT \(2006\)](#) like most of Iraqi cities, Najaf city is suffering from serious environmental degradation, and is facing a number of challenges including housing shortages, inadequate municipal services and poorly maintained physical infrastructure, compounded by poor land management methods. The previous studies reveal the lack of a comprehensive urban planning and development policy framework for Najaf city, with no clear objectives, priorities and strategies. Urban planning systems and regulations have so far been ineffective in facilitating an orderly commercial, industrial, and residential development of the city and in recognising the existing strong socioeconomic driving forces in its urban development. Therefore, existing urban planning and development practices need to be re-appraised.

The last master plan of whole Najaf city was prepared by ADEC and LDY and completed in 2009. Within this master plan some recommendations for further studies and projects regarding the old city had been given, yet this master plan cannot cope with emerging changes in the socio-economic arena. As mentioned by [UN-HABITAT \(2006\)](#) most of previous master plans in Iraqi cities placed too much emphasis on detailed layouts and zoning of potential land uses, was not guided by comprehensive policies and failed to offer guidance on the phasing or techniques of implementation. Therefore achieving sustainable development will be one of the city's biggest challenges and will require appropriate strategies to deal with economic, social, environmental, spatial, political, institutional, and cultural systems that exist in the region. Inadequate implementation of the new Najaf master plan along with political interference, created many problems, such as the transformation of the residential parts into mixed-use areas. As a result, informal activities are seen occupying commercial buildings and are appearing on streets, vacant plots and green areas. There is also a lack of compliance regarding pollution control and the dumping of industrial waste. Hence the current planning strategies do not correspond to the current situation and needs.

10.4 Urban regeneration project of Najaf historic city centre

Updating the master plan and redesigning the historic city centre of Najaf was part of an urban regeneration project being undertaken by the Iraqi Government. In 2010 Dewan (Architects & Engineers), one of the region's well known architectural and engineering consulting firms had been awarded consultancy services contracts by (MMPW) and (DGPP) to regenerate the old historic core of Najaf city. The overall aim of this project is to revitalise, regenerate and adapt the historic urban fabric of Najaf city to contemporary demands, while emphasising its historical urban identity and religious significance ([Dewan, 2010](#)).

10.4.1 The objectives of the new project

The project objectives that were proposed by the client and as mentioned by [Dewan \(2015\)](#) can be summarised as following:

- Enhancement of the historical and cultural identity of the old city, by rehabilitation and reconstruction the heritage urban fabric.
- Redeveloping the area around the holy shrine- with protection of the heritage fabric as much as possible to cope with the emerging socioeconomic and physical changes and to provide adequate spaces that are necessary to accommodate huge numbers of visitors.
- Enhancing the historical and cultural identity of the city, through identifying the monuments, buildings and sites that are associated with the historical and religious significance of the city, in addition by trying to rehabilitate the historical city wall.
- Determining the conservation policies which are necessary to rehabilitate the buildings with heritage values in the historic area.
- Improving the urban environment by creating suitable open spaces and green areas to the residents and visitors, with development of the social and services infrastructure.
- Enhancing the social and cultural activities and improving the economic situation by creating sustainable investment opportunities in the city.
- Encouraging community participation in the policy making, planning and implementing stages of the regeneration project.
- Determining the technical specifications for the proposed economic and social activities within the heritage urban fabric. This includes urban regulations, architectural style, construction and finishing materials, building heights, etc.
- Guaranteeing the preservation of heritage values by identifying the technical specifications for rehabilitation of the existing buildings. This includes elevations, construction treatments, patterns of paving walkways, squares, etc.

10.4.2 Planning policies of the proposal and site obstacles

Based on the project planning and design reports that were prepared by the consultants, the following points can be highlighted regarding the planning policies and site obstacles which were taken into account throughout the preparation of the regeneration proposal:

- The study area contains a number of projects that have been proposed and approved by the city planning authorities in advance. Some of these projects were implemented. According to the new regeneration proposal report by [Dewan \(2015\)](#) the existing projects were taken in consideration with regard to the planning and design aspects, such as: land uses schedule, heights of the buildings, etc. in order to achieve compatibility and harmony between the regeneration scheme of urban fabric and those projects as much as possible
- The redevelopment area and its surrounding neighbourhoods face many challenges regarding future expansion and provision of adequate land for the increasing demand for housing and public services, etc. According to the site features and limitations, it is obvious that Al-Judaidat district (as shown in figure 10.8) is the only area suitable to accommodate future growth as public facilities and parking for visitors or services ([Dewan, 2015, p.6](#)).

- The redevelopment areas were divided by the consultants according to the administrative divisions as neighbourhoods. Based on that the project contains the following main parts as shown in figure (10.4): 1. Holy Shrine zone (Ataba), 2. Al-Mishraq Neighbourhood, 3. Al-Buraq Neighbourhood, 4. Al- Huwaysh Neighbourhood, 5. Al-Amara Neighbourhood, 6. Grand Suq Area (Grand Bazar)

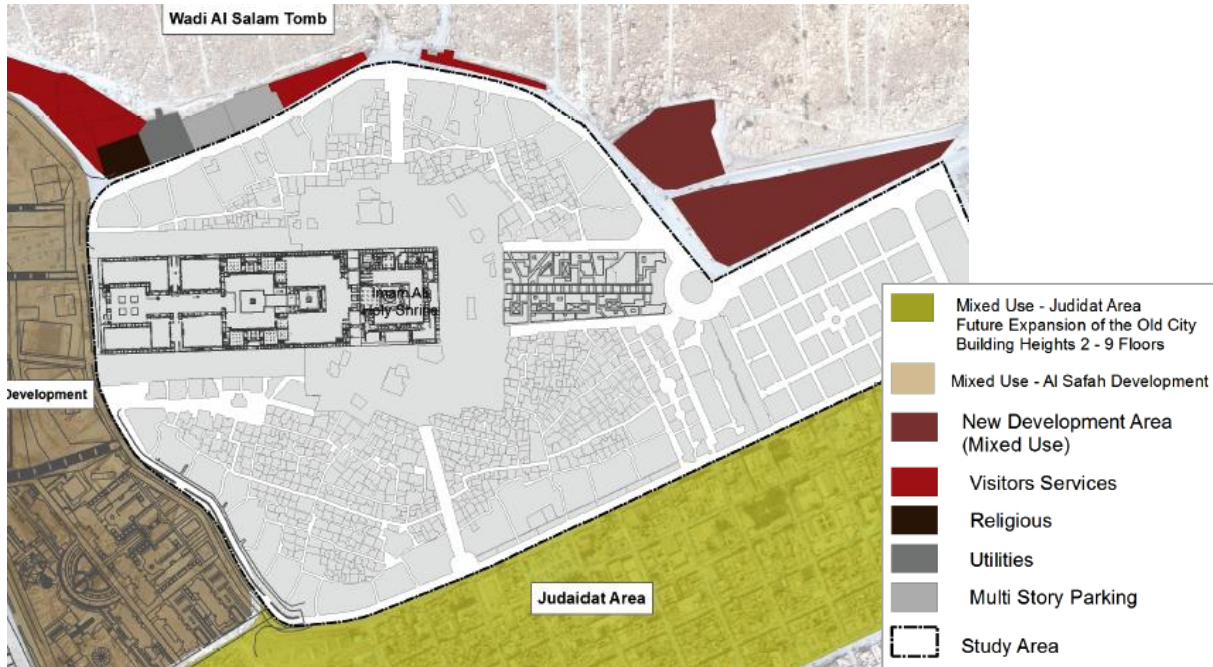


Figure 10.8 Consultant recommendation of the study area. Source: Dewan (2015, p.8)

10.4.3 Planning policies and design strategies

The urban design proposal in the regeneration scheme of the old city of Najaf was prepared by the consultant-Dewan (2015) - according to the project's vision and set of goals, and thus these strategies of urban redevelopment are in several aspects, as follows:

Strategy 1: Heritage conservation and urban regeneration regulations

After surveying and assessing the existing buildings in the regeneration area by the consultant team as shown in figure (10.9), a rehabilitation strategy was determined to deal with these properties according to their importance in the urban fabric. Four intervention levels were summarised as strategies to deal with the existing heritage buildings, based on heritage values of these properties as follows (Dewan, 2015, p.75):

1- Type (A) Buildings or properties with high architectural or heritage values: which are in a good condition, they will be preserved on the same location and style, with an emphasis on their values by designing appropriate open spaces around them and ensuring adequate relations with other urban elements or buildings in the new proposal.

2- Type (B) Buildings with medium values: include buildings that are located within the historic urban fabric, they will be rehabilitated in a similar way to the original heritage style or according to the surrounding buildings to be integrated within the urban fabric. Creating a

large homogeneous heritage complex must take in consideration the ability to reuse these buildings or properties for investment in the heritage context and utilize them with suitable activities, such as markets, Inns, etc.

3- Type (C) Buildings with Low heritage values: these buildings can be rebuilt in the same traditional form and architectural style or can be rebuilt in other forms, either in the same location according to their moral values and importance in the existing urban fabric, or they can be relocated to other locations if necessary.

4- Type (D) Buildings without any historical or heritage values: these buildings are mostly without any relevant spiritual or architectural significance. Therefore they can be relocated in another place or removed, if they are not compatible or conflict with the planning, design or implementation of the new regeneration proposal (master plan).

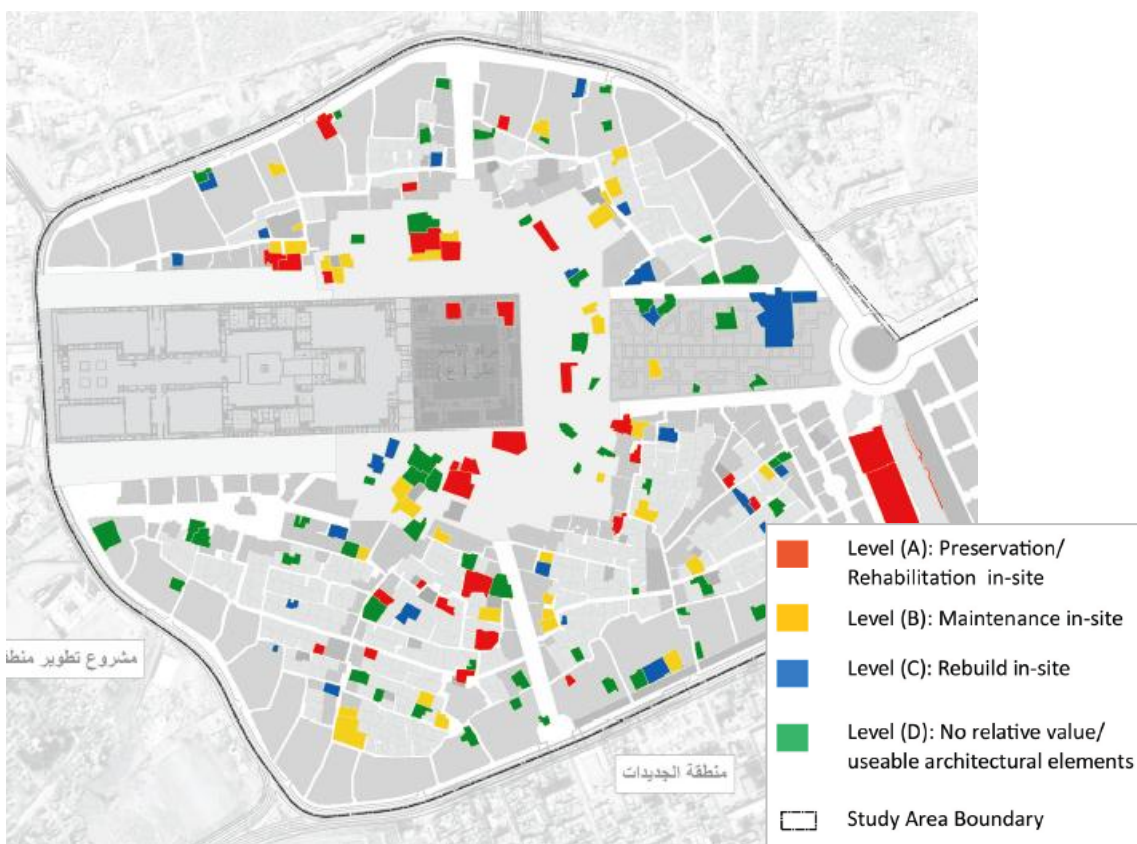


Figure10. 9 Important (historical/ Heritage/ Religious) Buildings location and evaluation. Source: Dewan (2015, p.80).

Strategy 2: Land Use Policy

The provision of sufficient spaces to accommodate the huge numbers or masses of visitors during the day or within a year is the main challenge for land uses policy of the old city of Najaf. As the open spaces and streets of the old city are insufficient and are continuously crowded by visitors, they require a multitude of services and facilities in addition to enough spaces to suit the increasing demands. According to Dewan (2015, p.6) the major challenge of the regeneration proposal was how to provide enough spaces around the shrine to cope with the movement of visitors. Moreover, the exclusiveness of the old city requires special

treatments and consideration to achieve balance between the need for more spaces and services on one hand, and between the preservation of the traditional fabric of the old city as much as possible in order to maintain its urban identity. According to the new regeneration strategies the proposed land use for the historical core can be addressed in different levels depending on the distance from the shrine complex (figures 10.10, 10.11 show the existing land use and proposed land use plan in the regeneration area); these levels as mentioned by the project's final report are as following:

- Expansion of the main area surrounding the shrine was introduced, between 85m-90m starting from the outer wall of the shrine courtyard. The consultant pointed out that the creation of these areas should bear in mind the preservation of buildings with distinctive heritage values within this range. Figure (10.12) shows the urban design concept for the proposed expansion area.
- The above mentioned area is identified by a corridor separating it from the rest of the uses. The areas surrounding the corridor are generally commercial services and extend along the main streets and alleys toward Al-Muheet Street (or the remains of old city wall).
- After this commercial area, there will be residential districts in addition to the lodges that serve tourists in the days of mass visits.
- The area along Al-Muheet street has mixed use (residential /commercial), including apartments and hotels, retail and offices. This will formulate the urban boundary surrounding the study area and represent a transition between the traditional fabric of the old city and the rest of the city.
- Regarding the Grand Bazar (Sug), the retail merchandise has been retained. It was expanded and redeveloped to accommodate larger numbers of visitors and to be a distinctive gateway to enter the old city from the east. The proposal of its rehabilitation will be through complete reconstruction (while maintaining the heritage buildings) in a traditional architectural style and linking it to the main open spaces on both sides. Figure (10.13) shows the urban planning and urban design concept for development the the Grand Suq.
- Many significant religious, educational and cultural buildings have been preserved due to their heritage importance with changing their function if necessary to be compatible with the surroundings uses in order to create an integrated and vibrant fabric, along with maintenance of remaining historic parts city wall and creation of open spaces and green areas to accommodate different social events.
- The areas surrounding the heritage core, especially from the south and south-east (Judaidat district) has been regarded as mixed uses (commercial-residential), in addition to Al Safih area (the area between the old city and Bahr al-Najaf to the west) being regarded as a commercial area with a religious tourism stream. Wadi Al Salam cemetery limits the development of the study area from the north and north-east.

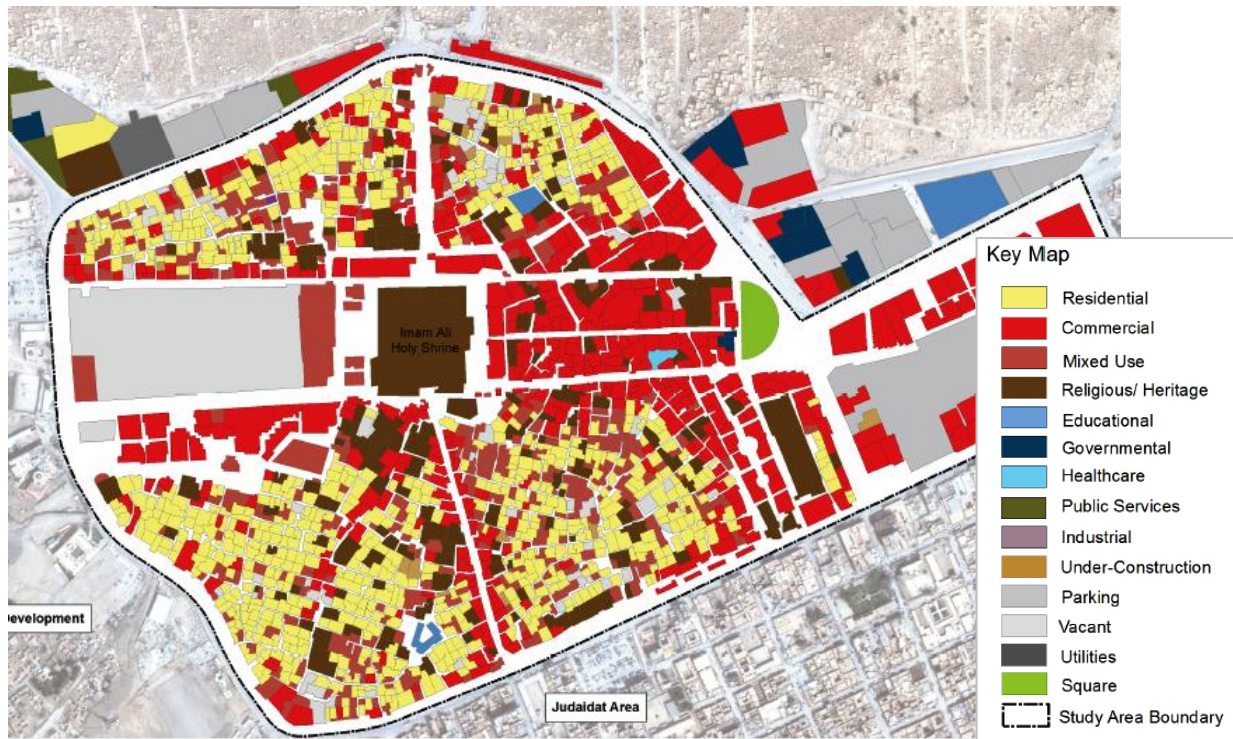


Figure 10.10 Existing Land use within the boundaries of the study area. Source: Dewan (2015, p.10)

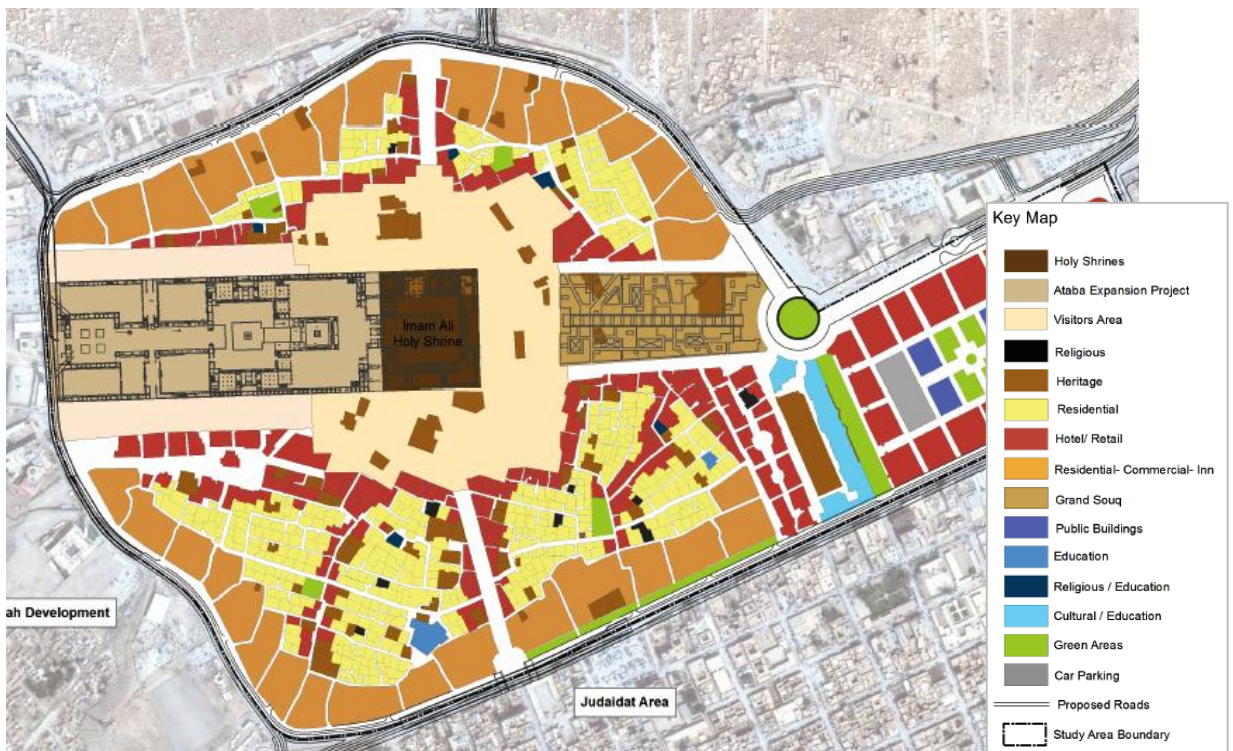


Figure 10.11 Proposed Land use plan inside the study area. Source: Dewan (2015, p.11)



Figure10. 12 Aerial perspective for the central area. Source: Dewan (2015, p.26)



Figure10. 13 Aerial Perspective of the Grand Suq. Source: Dewan (2015, p.40)

Strategy 3: Building Heights

According to the project's final report which was prepared by the project consultant, one of the biggest challenges in determining the appropriate heights of buildings is maintaining the urban fabric of the old city with the dominance of the holy shrine on the overall spaces of the city. Therefore the proposed heights of buildings in the new regeneration scheme will be in the following hierarchy and as shown in figure (10.14):

- Heights of buildings near and around the holy shrine are 2 floors.
- Heights of buildings in the area of mixed use are 4 floors.
- Heights of buildings in the outer edges of historic centre, and surrounding Al-Muheet Street (as a mixed use) shall be up to 6 floors.

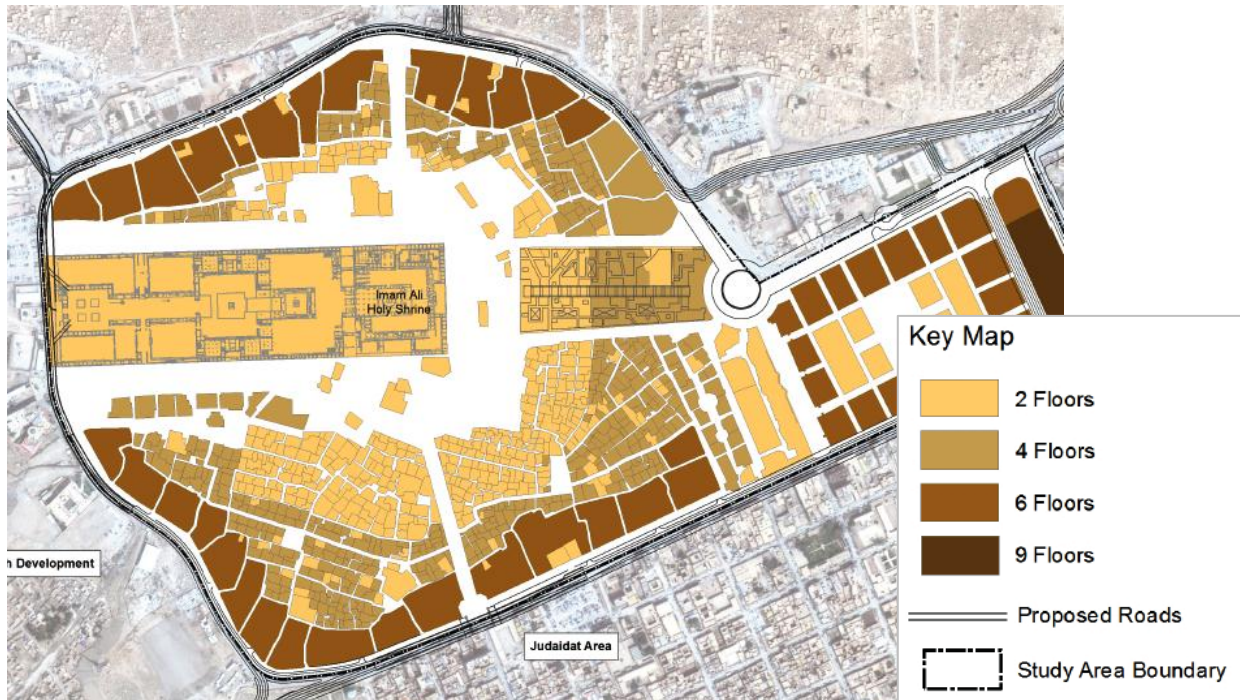


Figure 10.14 Proposed buildings heights in the study area. Source: Dewan (2015, p.12).

Strategy 4: Land Acquisition

Based on the information mentioned in the final stage of the regeneration proposal report, the total acquisition of land within the study area is around (118,000 m²); the main aims of these acquisitions are to provide enough spaces to cope with increasing demand for land as a result of social and economic changes and increase in the number of religious tourists. The acquisition would be conducted through property purchase from the owners if the land does not belong to the government or Ataba (Shrine administration). According to Dewan (2015) the adopted policy of acquisition follows five types (as shown in figure 10.15) depending on the intended purpose, as following:

Acquisition for expanding the visitors' area (90 m): concentrated in the areas surrounding the holy shrine from the north, east and south, in the western side it is already owned by the Ataba. Constitutes approximately (43%) of the total area of acquisition.

Acquisition for expansion of Zayn al-Abidin and Al-Sadiq streets (west): based on the new Ataba expansion project, they constitute approximately (13%) of the total area of acquisition.

Acquisition for expansion of roads: to provide the necessary spaces for infrastructure networks and to facilitate the entry of service and emergency vehicles, acquisition for road expansion is about (19%) of the total area of acquisition.

Acquisition for developing the Grand Suq: to provide spaces for the market development, it forms about (18%) of the total area of acquisition.

Acquisition for cultural area development: to provide enough spaces for developing cultural activities, about (6%) of the total area of acquisition.

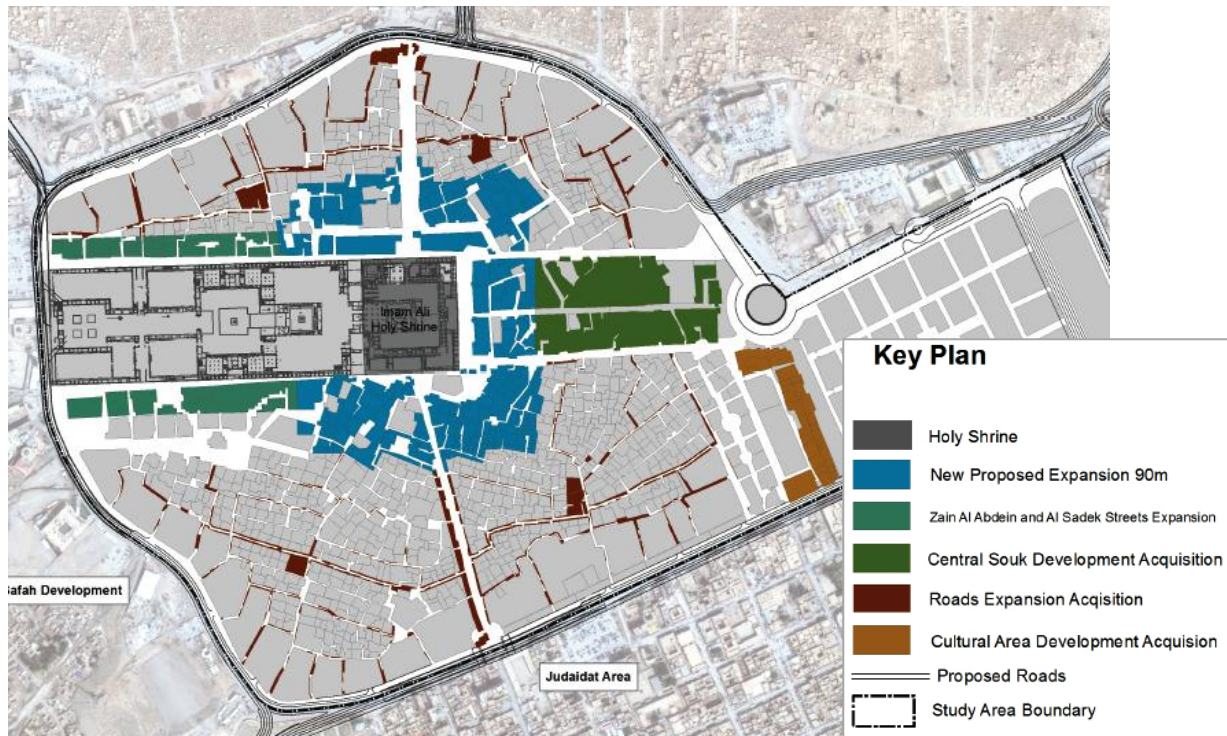


Figure10. 15 General acquisitions map. Source: Dewan (2015, p.16)

Strategy 5: Public Services

Based on the international and local standards that have been adopted in the regeneration proposal to calculate the needs for public services for the old city and depending on the estimated population for the target year, there are clear shortages in the existing services and public facilities. Some of these services are available within the study area for the base year. Due to the limited availability of land within the project area, the development strategy by consultants proposed to provide those public services within Al Judaidat area to the south of the old city. The proposed future expansion areas as public services are based on the estimates of the target year 2030 (Dewan, 2015, p.7). Based on the development requirements and target year of the old city regeneration, the analysis results conducted by the consultant team referred to the clear shortage or lack of several public services and facilities in the old city. The project final report shows in details the different public services and facilities which are needed for the target year 2030.

Strategy 6: Transportation system

The public transport stations in the new regeneration proposal have been located around the old city at appropriate distances to enable the residents and visitors to reach short distances through walking, as well as providing special tracks for electric cars to transport elderly and disabled persons directly to the shrine zone. Figure (10.16) shows the proposed locations of new stations of public transport and the expected religious tourists' volume at the target year 2030. In addition, figure (10.17) shows the proposed pedestrian walkways network which will be used by people in historic centre. According to (Dewan, 2015) These networks take into account the expansions of the paths and the improvement of the

entrance and exit routes for mass visitors in specific occasions, since many of the routes are used for different purposes at the same time, as well as providing a special path for emergency and services vehicles.

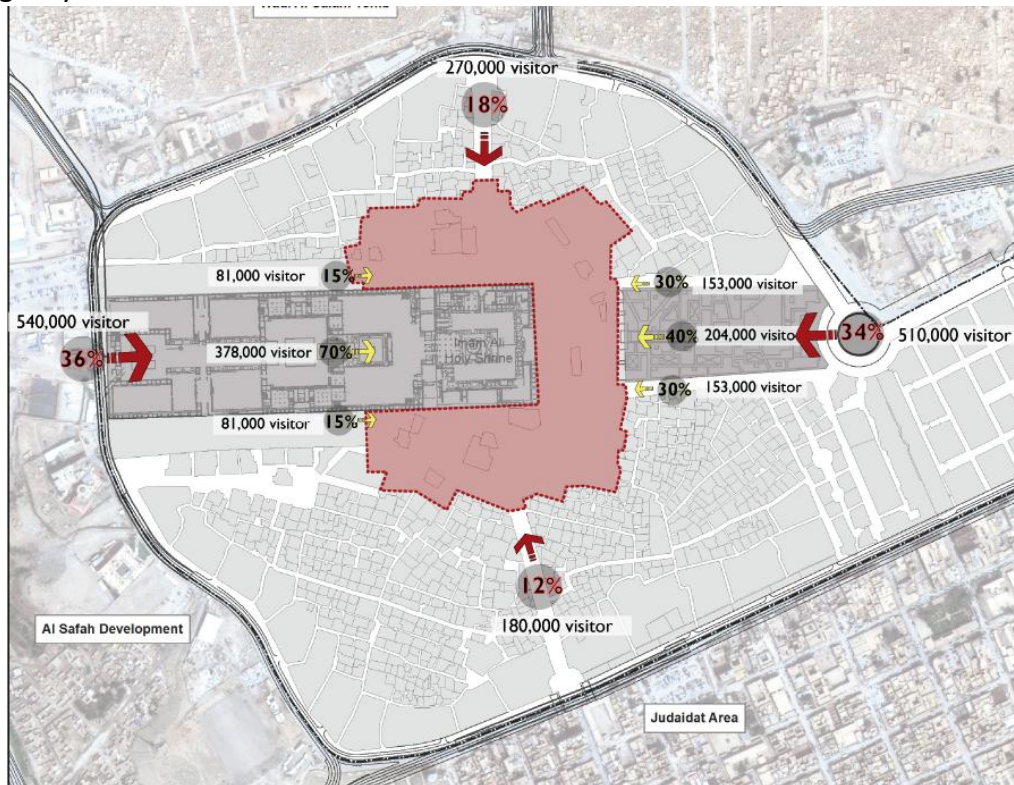


Figure10. 16 Expected visitors (religious tourists) volume in the target year 2030.
 Source: Dewan (2015, p.23)

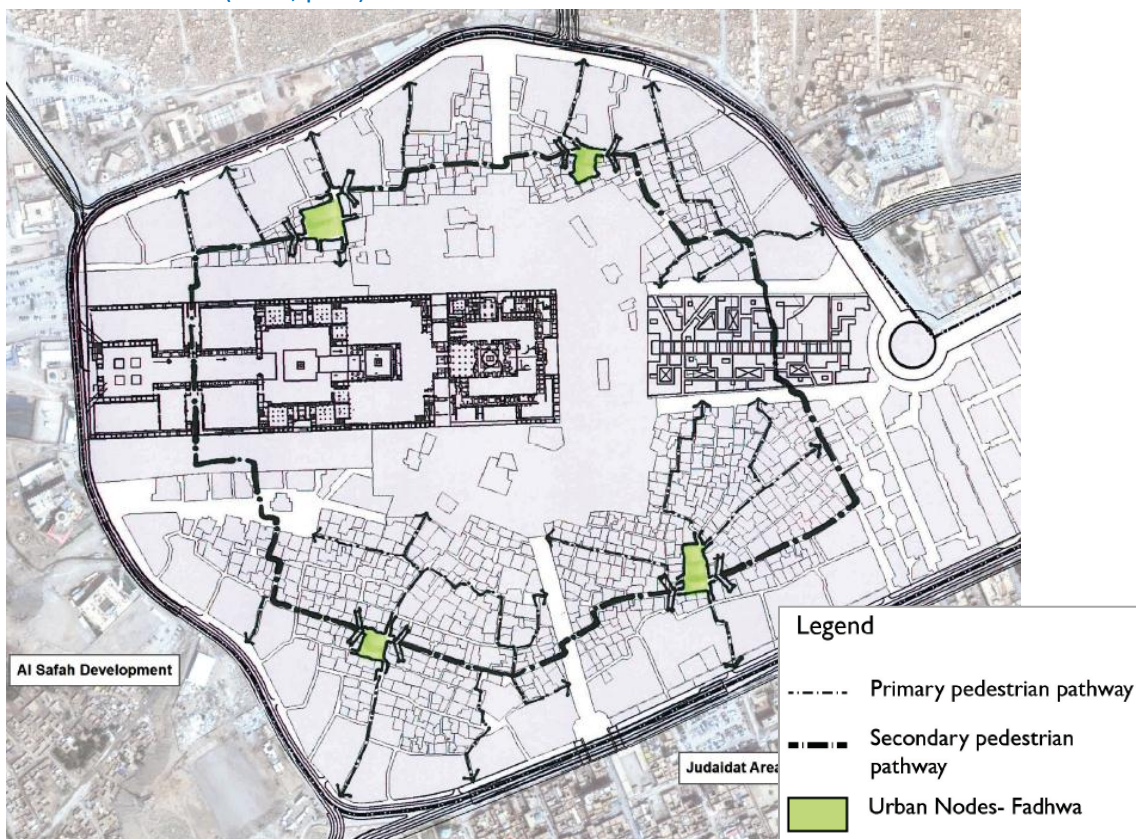


Figure10. 17 Pedestrian walkways network. Source: Dewan (2015, p.23)

10.4.4 Implementation strategies and organisational structure of Najaf city urban regeneration project

This section provides an overview of how the development proposal set out in the urban regeneration plan will be put into practice and how the implementation will be organised. The project consultant discussed the implementation process and mechanisms according to three levels: (1) Implementing the proposals according to predetermined phases; (2) Monitoring the progress of implementation and its effects; (3) Revising the proposals based on feedback from the monitoring of the process and effects of implementation.

According to Dewan (2015, p.203) the proposal of Najaf urban regeneration plan sets out a range of redevelopment procedures, which they expect will transform the city centre to an attractive urban area, especially the area surrounding the Shrine as a main core in the historic city, in addition to creating a vital economic centre and encouraging cultural and social activities for visitors and residents. The proposal is a mix of public and private sector projects. The implementation strategies of the proposal can be summarized as following:

Expansion of the area surrounding the Shrine: in order to cope with large numbers of daily or yearly visitors, moreover, massive visitors in special occasions.

Enhancing the transportation system: such as roads, utilities, pedestrian paths, car parks and public transport.

Implementation phases: due to the project scale, implementing the project will involve construction activities in different parts of the old city, which may cause disruption of the existing daily activities. Therefore it is important that the project construction is undertaken in a phased manner so that they are completed in a logical order.

Private sector projects management strategy: will be brought forward by a wide range of organizations and will be dependent upon demand for the development being proposed and the funding available to invest in construction.

Public sector projects management strategy: will mostly be the responsibility of the Municipality as well as undertaking the design works, projects tendering and contracts.

Project funding: The projects will require considerable public municipal funding. The projects will therefore have to be carefully phased over time to ensure that adequate funding and resources are available year on year.

Projects coding: The proposed projects in the urban regeneration program have been given a reference number in separate documents of the project report for ease of identification.

The regeneration of Najaf historic city centre represents a large-scale urban design project. To control the redevelopment procedures and to ensure the achievement the objectives of the regeneration proposal, the consultants suggested establishing a special committee to manage the progress of old city development. This organisational body focuses only on the city centre and is independent of other authorities in the whole of Najaf. The committee could be set up by Najaf Development Authority to provide consulting and coordination with other authorities' representatives or stakeholders, which include for example: MMPW/Municipality planning, representatives of all ministries, representatives of

government and non-government associations, representative of the Universities, community and residents' representatives, etc. Meetings should be held regularly between these bodies to review and monitor development proposals and forward plans for the city centre. They should publish a report of their key resolutions and actions after each meeting. Najaf Development Authority should set up a smaller and more focused group, to meet and consider development proposals (Dewan, 2015, p.203).

10.5 The impact of the project on the local community

The project is still a proposal and the actual impact of the project on the community has not yet been tested. At this stage, the expert assessment by questionnaire will be relied on according to the developed assessment strategy of the current study to evaluate the expected impact of the project on the community and the urban fabric. In general the project received some criticism at early design stages, for example: The main criticism is the political interference on design decisions which affect design quality. The second main point is that the proposed height of buildings in the outer rings surrounding the old city (6floors) will overwhelm the shrine dome; hence the city's identity as traditional heritage city would be compromised.

10.6 Assessment of the regeneration project according to the developed strategy

This chapter examined the case of Najaf, it shows how the city has changed over the past century, while it's religious, economic and political significance has remained essential for the country. Despite the many changes and growing complexity and multiplication of development agencies, the historic centre still plays a crucial role in shaping the core of this city. The chapter identifies the main policies and design strategies that guide the proposed urban regeneration project, in addition to the implementation regulations which will be used to control the urban development procedures. It is obvious from reviewing the existing literature about the case study, the lack of a comprehensive urban development policy that would guide regulations in line with the needs of the community and the current socio-economic realities. This has contributed to the non-compliance to urban development and planning regulations in the city. By examining existing laws and regulations, a lack of concern for the current urban situation was observed and some of these laws may contradict the new regeneration programme.

This large-scale urban design proposal will be assessed according to the developed model of assessment strategy that was derived based on theoretical and conceptual frameworks of current research. The final form of the assessment strategy is present in chapter 7 and will be included in the 3rd part of the questionnaire survey. The questionnaire form was sent to the second group of respondents with brief details about the project containing the details that are mentioned in this chapter in addition to the available project maps and photos. The

assessor was asked to evaluate the urban policies and design strategies of the regeneration proposal, according to the main aspects or design principles that are mentioned in assessment strategy in order to determine the sustainability of the project and the extent of achieving the set goals. The assessment results will be mentioned in chapter 11 after gathering the answers from experts' responses and also the results of researcher analysis.

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Part IV: Findings, Conclusions and Recommendations

Chapter 11: Results and Discussion of Key Findings

11.1 Introduction

This chapter summarizes the main findings analysis elucidated in the previous chapters. By revisiting the objectives of this research and reconnecting them with the main questions and theoretical constructs, the researcher was able to show how the findings address the queries stated earlier and how the aim and objectives of the research have been met.

The findings in the current research can be divided into two sections, the first one deal with the findings of the theoretical reviews of the main themes in the current study. The second section represents the findings of the empirical part of the research which can also be divided into three parts according to the research progress and sequences of questionnaire survey, these parts are; firstly the findings for the assessment of the Iraqi existing heritage context, secondly the results of the evaluation of the developed assessment strategy and thirdly the evaluation of urban regeneration initiatives in Iraq by utilising the developed assessment strategy. As mentioned before, the data collection and analysis of the empirical part of the current research was conducted mainly through the experts' questionnaire survey and secondary data analysis. Table 11.1 illustrates the main steps in conducting the empirical part and analysis of the current research based on the empirical cycle by A.D. de Groot.

Table11. 1 The main steps in conducting the empirical part of the current research. Source: Author elaboration based on empirical cycle by A.D. de Groot.

Empirical cycle components	The empirical cycle in the current research
Observation The observation of a phenomenon and inquiry concerning its causes	Observing the situation of regeneration projects in Iraq and the role of urban design as an important generator in urban regeneration
Induction The formulation of hypotheses - generalized explanations for the phenomenon	Formulation of the assessment strategy, based on the urban design principles and sustainable indicators.
Deduction The formulation of experiments that will test the hypotheses (i.e. confirm or refute)	Evaluation of the components of developed assessment strategy, through the experts' questionnaire survey
Testing The procedures by which the hypotheses are tested and data are collected	Evaluation of the assessment model by application to selected cases
Evaluation Interpretation of the data and theory formulation	Final analysis and key findings

In relation to the objectives and questions of the research project, the main findings of the study can be grouped as follows:

Part 1: Theoretical reviews

11.2 Findings of the theoretical reviews of research

The importance of urban regeneration in the settlement of urban decay problems, the value of the sustainability concept in urban regeneration and the significance of urban design in achievement of sustainable development objectives are widely recognized in the literature. The review also revealed a growing body of international research concerned with the relationship between urban design values and urban regeneration assessment. However, there is still a lack of holistic research studying the interaction of sustainable development, urban regeneration and urban design, especially at the Iraqi local level. Therefore, this study was an attempt to investigate those issues and their interface.

In addition, this study has enhanced the understanding of the role of urban design in urban regeneration that leads to sustainable outcomes, and stressed a number of urban design principles that should be taken into account in project planning and design. The review pointed out that good urban design has a capacity to add value and these values can be measured using qualitative and quantitative methodologies. Significantly, this research consistently concluded that good urban design could confer social and environmental value and provide long-term economic gains from regenerative effects. At the local context the concepts of sustainability and urban regeneration are still in the beginning and many efforts are needed to improve the available knowledge about understanding and implementing these themes. With the help of local experts, a substantial contribution to the existing knowledge about the achievement of sustainable urban regeneration has been made. This study will contribute to the building of a related literature, knowledge and experience in Iraq and to promoting sustainable urban regeneration in historic city centres. In addition, the research outputs will also benefit academia by producing a sound foundation for further studies and arousing an interest among local scholars in exploring relevant research topics. The process of this study can serve as a starting point or a preliminary guide for the professionals to derive their own list of urban design considerations or assessment models.

Part 2: Empirical findings of the research

11.3 Findings of the assessment of the Iraqi existing heritage context

These findings represent the first part of the empirical research, which is related to part I of questionnaire's survey. As mentioned before, the aim of this part of the study is to evaluate the existing heritage built environment values in Iraq in order to answer the questions about the dilemma in the present definitions of the heritage characters of the Iraqi historic urban centers in addition to evaluating the role of local heritage in achieving the cultural led regeneration approaches.

11.3.1 Results of the assessment criteria

Five measurement parameters were used to evaluate the value of heritage context in Iraq. These parameters were used in part I of expert questionnaire survey, which was sent to the experts in order to obtain their opinions about the current status of the historic environment in Iraq. The experts were selected from (or represented) various regions in Iraq. They evaluated their local environment where they live or work. As the Iraqi heritage environment has many similarities, therefore the collected data can be representative of the overall Iraqi heritage context. After gathering the answers of the experts, the data were analysed and the following findings relating to the conditions of heritage value in historic centres could be identified:

Results of criterion (A) Architectural values of heritage context:

The evaluation indicated a lack of substantial architectural quality and the majority of heritage quarters were graded by experts between 1.0 and 1.8 points. A few of the urban fabric of historic cities were graded between 2.0 and 2.5 points. These represented scattered buildings or a few ensembles possessing architectural quality. The evaluation of urban heritage values in historic city centres in Iraq demonstrate that, even among the preserved monuments, large parts of the sites show a poor built-up environment that has lost relevant architectural qualities. The survey drew attention to the consequences of an unplanned and random renovation process in the historic cities characterised by the systematic replacement of buildings regardless of their architectural qualities.

This poor record of architectural quality indicates the critical state of conservation of the historical fabric in Iraqi cities. It also highlights the inadequacies of a conservation strategy focusing on monuments and listed buildings while neglecting their urban context. This pattern has increased since 2003 (after the war) due to a limited capacity for monitoring the heritage property and inadequate measures, namely planning tools, building regulations and management tools strongly needed to protect such sites or city centres.

Results of criterion B: Alignments of the historic streets

The results show that the street fronts in the urban fabric of historic cities are no longer recognisable. Most of the heritage parts in historic cities were graded by assessors between 1.0 and 1.5 points. The urban fabric was partially affected by realignments that altered the spatial character. Some of the heritage streets were graded less than 1 point, indicating the total alteration of historical alignments. These results confirm the loss of architectural values evident in the assessment of criteria (A). The realignment of new buildings in the streets of historic cities has had a detrimental effect on the renovation process of the historical urban fabric, combining the loss of architectural values with the alteration of the urban space.

The highest degree of persistence was found in a few number of heritage parts which includes a concentration of monuments, and in the modern urban fabric generated by the new streets as a result of traffic changes that occurred over the last few decades to ease the vehicular circulation in historic cities.

Results of criterion C: Persistence of traditional land subdivision patterns

The results corroborate the evaluation of the previous criteria and highlight the variety of textures within the historic urban fabric. The results showed that the largest part of the historic urban fabric was graded by assessors between 0.4 – 0.7 and characterized by a land subdivision pattern that reflects the historical urban texture because of the plot-by-plot redevelopment process in the historic centres. Some parts with lower grades correspond to areas affected by the street cuts and widening, while some have kept their modern land subdivision pattern almost intact. The most harmful ruptures can be observed in the emerging fabric where inconsistent structures and large-scale interventions (transportation projects and public buildings) were detected in large important city centres for example in Baghdad, Najaf, Basra and Mosul.

Results of criterion D: Continuity and compactness of the urban fabric

After the changes that resulted from the widespread renovation of historic centres in Iraq in the last decades, the heritage areas show lesser degrees of spatial continuity and compactness in their urban fabric. The results of this parameter were graded by assessors between 0.4 – 0.8 in most of the historic centres. These results show widespread discontinuities in urban fabric, due to the presence of vacant plots and ruined buildings, which demonstrate a physical and functional decay, as well as a potential environmental risk. A few results were graded between 1.2 – 1.7 which represent a more compact urban fabric. Consequently, most of historic centres in Iraq are characterized by ruptures that correspond to an irreversible alteration of the historic city's morphology. The vacant plots and ruins need to be identified as targets for an urban regeneration policy. They can be considered as a potential way to improve the city's environment with new public spaces, green areas, parking plots, and other spaces for public use.

Results of criterion E: Activities and uses of the urban space

Based on foreknowledge and community activity patterns in Iraqi traditional culture, the assessment of this parameter demonstrated that large parts of the historic centres are characterized by a diffused and well-structured presence of community-oriented activities and uses. The results revealed that this criterion was graded by assessors between 2.2 – 2.8. The highest concentration of traditional activities can be found near religious and commercial centres, which reflects the historical spatial distribution of commercial and market activities.

Some results represent deficiencies in concentration of activities or uses. These have a residential nature and the assessment results were graded between 0.6 – 1.5. In spite of the negative impact of some activities and uses, their persistence is considered a sign of vitality and an intangible heritage value that deserves to be preserved. These criteria demonstrate that the use of urban space can affect living conditions for the community as a whole and show how the control of land uses is a necessary tool for urban conservation.

11.3.2 The assessment of heritage values in Iraqi cities

Assessment of the heritage values of the urban fabrics evolved from an evaluation by experts for a wide range of selected heritage samples (urban fabric, streets, and monuments) within the heritage property in Iraqi historic cities, using the five parameters detailed above. However, due to the methodological and operational limitations of the current research, the obtained assessment results should not be construed as absolute values; they can be considered as useful indicators of relative values to be appreciated on a comparative basis. Despite the good grading in some of the criteria, the assessment showed that historical characteristics of the urban fabric have been lost, with the exception of monuments, listed buildings, and some remaining heritage values in historic centres. This reflects an urban condition characterized by the following features:

- The majority of historic city centres received an average or slightly below average grading. These low grades values indicate loss of heritage values.
- The presence of scattered buildings or ensembles of architectural interest set in an urban context dominated by ordinary and inconsistent buildings.
- Historical street patterns are not preserved and are disfigured in various places by re-alignments of the renovated buildings' fronts.
- A compact and continuous texture of urban fabric is still clear in some of the historic centres, despite the widespread presence of empty plots and large-scale intrusive re-developments, due to a plot-by-plot renovation or reconstruction process.
- A concentration of higher grades was found in some city centres, due to the presence of protected monuments and listed buildings, or a rehabilitation project undertaken by the government in the last decades.
- The presence of traditional activities and uses of urban spaces reflecting the intangible heritage values of the cities.

The overall assessment shows the weak morphological and spatial relationships between monuments and their surroundings in several parts of Iraqi historic cities. It demonstrates how, in some areas the monuments have lost their visibility and role as landmarks; instead, they appear as isolated spots in a distorted urban landscape. It also affirms the fact that, even when monuments in historic centres are protected by law or restored, some are still in danger or at risk of collapse. Despite significant restoration efforts carried out by national organizations in these sites, restored monuments are sometimes closed or devoted to sporadic tourist visits. This is due to the lack of a strategy for possible re-use, prevented by the existing legislation, making their integration into a changing urban fabric difficult and resulting in progressive physical decay. Consequently, these monuments or sites have had only a limited impact on the surrounding environment. To summarize, a combination of factors has led to a loss of heritage values in Iraqi historic context and the dilapidation of its urban fabric, including the following:

- The widespread plot-by-plot renovation that occurred over the last decades without appropriate measures to protect the historical urban fabric.
- The enforcement of regulations disregarding spatial, typological and morphological features of the historical urban fabric, particularly decrees enforcing the demolition of deteriorated buildings and the re-alignments of many streets
- The limited control of concerned authorities over diffused unplanned interventions, which occurred intensively in the historic city.

The retrieved results provide critical outcomes for the evaluation of urban heritage values of historic cities and demonstrate the lack of management systems and tools necessary for the preservation of the sites. Further, the surveys and analyses carried out by the research show that a process of physical decay and dilapidation of the historic urban fabric has been underway for decades – including widespread demolition and intrusive reconstruction – in the absence of protection measures except for listed buildings and monuments with the spread of uncontrolled high-rise constructions. An entirely different approach is required to address the many, diverse issues of a conservation policy, with the appropriate planning and management tools, in line with current international standards.

11.4 Findings of the evaluation of the assessment strategy

These findings refer to the results of part II of the questionnaire survey, which deals with the evaluation of the proposed assessment strategy and its assessment indicators. This part represents the main core of the current research by developing an assessment strategy for urban regeneration initiatives at the local level. For this purpose, the study attempted to derive the most appropriate set of indicators for the assessment model, and these indicators would represent the corresponding design criteria of the model after reaching a consensus about their validity. Even though some respondents commented about some of the indicators, the results of questionnaire survey highlighted that more than 75 % of the respondents had confirmed the validity of the 71 indicators that are used by the current study and they can be considered as elements of a measurement tool. After the questionnaire data were collected, it was found that there were no substantial suggestions or alterations made to the proposed indicators by the respondents. The comments or even criticisms during the evaluation process were concentrated on some indicators that have convergent explanations. The comments that were raised by the respondents were properly addressed and taken into account to develop the current and future studies.

It is believed that the assessment tools can address both practical and academic concerns, and can be fine-tuned with the aid of the professional knowledge and working experiences of the experts upon completion of the evaluation process. The key findings of the scoping and analysis provide a basis for the design guidance which will then be prepared for the city's strategic issues and for the individual areas. Due to the research limitations in this stage, the study focused mainly on qualitative parameters for scoring the assessment indicators and also adopted a qualitative approach in analysing the collected data. The

comments/ criticisms of the respondents were summarized with the respective response or follow-up actions below.

Indicators assessment findings

Assessment criteria and indicators	Points about the performance criteria that are underlined by experts in part II of questionnaire survey.
Context and detailed design indicators	<p>▪ Comment on: confusion in the understanding of compatibility or homogeneity with the surrounding environment, therefore, a lower point might be awarded to the regeneration project when its design was found to be different from the surrounding. Response: to address this, the study advises on the engagement of expert assessors who understand the concept of compatibility. Furthermore it needs to be realized that it is possible for a regeneration project to be compatible with the surrounding environment even though their details are not the same.</p> <p>▪ Comment on: difficulty in distinguishing between the meanings of some indicators. Response: In response to these comments, the wordings of “appointed indicators” were amended in order to clarify their meaning in the final form of the assessment model and more explanation was given.</p> <p>▪ Comment on: Some indicators of these design criteria are more subjective than objective. Response: The researcher agreed that some indicators are subjective, but having qualitative indicators here is inevitable and useful because assessing the compatibility of a development requires personal judgement from the users or experts.</p> <p>▪ Comment on: the <i>context criterion</i> indicators are too general to assess the impact of the regeneration project on the surrounding neighbourhood. The development could affect the neighbourhood in various significant issues influencing the economic, environmental and social domains of the community. These should not be overlooked. Response: Due to the current research scope it is difficult to cover all the issues in one study, the study suggests incorporating more aspects about compatibility indicators, to be represented by more qualitative statements and a quantitative point scoring system to cover important physical and environment aspects in the future.</p>
Layout/ Privacy and Amenity indicators	<p>▪ Comment on: the relationship between the project layout and assessment of a regeneration project in terms of development density. The respondents stressed the strong influence of density on the layout assessment. They suggested using the plot ratio in assessing projects in terms of density. Response: To address this, assessment indicators have different scoring systems, either qualitative or quantitative; this study focuses in the current model on a qualitative scoring aspect of indicators. More advanced scoring systems can be proposed in the future to give more precise results, such as density ratio for the assessment of the ratio of total above-ground construction area to total site area in the regeneration project.</p> <p>▪ Comment on: the visual appearance is a very subjective issue and therefore it would be difficult to give an objective judgment.</p>

	<p>Response: This study recognized this problem and thus it has already included other more concrete aspects e.g. height, bulk and density in this indicator to reduce the subjective effect.</p> <p>Response: The current study focuses on urban design qualities, which depend on physical features but reflect the general way in which people perceive and interact with the physical environment. Therefore the role of perceptions is evident as they intervene between the physical features and walking behaviour. Physical features of the built environment influence the quality of the walking environment both directly and indirectly through the perceptions and sensitivities of individuals.</p>
<p>Public Realm / Open spaces and Parking indicators:</p>	<ul style="list-style-type: none"> ▪ Comment on: open spaces were widely recognized by respondents as a significant provision to achieve sustainable development, and it is believed that creating more open spaces in a development is achievable. ▪ Comment on: the respondents revealed that based on their past experiences, having adequate open spaces within the design standards was rare and most of the regeneration projects in Iraq would not get a high point under this indicator. <p>Response: the study proposes that an appropriate point scoring system with more aspects for these indicators is necessary, to ensure that more open spaces would be provided for in the regeneration projects in the future.</p> <ul style="list-style-type: none"> ▪ Comment on: respondents recommended concentrating on the design of open spaces which is an important aspect to be considered when judging their quality. <p>Response: In view of these comments the design quality of the open spaces can become one of the more detailed assessment criteria and the indicator can be represented by different statements and point scoring system scale to cover more evaluation aspects.</p> <ul style="list-style-type: none"> ▪ Comment on: the sequences of indicators in the assessment model, respondents advised to re-sequence the indicators from general aspects to the more particular aspects. <p>Response: In response to these comments the researcher revised the indicators sequence in the final form of the model.</p>
<p>Inclusivity and Connections indicators</p>	<ul style="list-style-type: none"> ▪ Comment on: certain aspects in some indicators are irrelevant such as special facilities for children and elderly people are not required for every urban regeneration project. <p>Response: The researcher agreed that provision of special facilities are not required if there was no demand/request in the regeneration areas. As such, the study proposes to amend the list of indicators depending on the nature of the project. Because most of the regeneration projects are conducted or proposed in the old districts containing a wide mix of population, therefore providing a variety of facilities is highly recommended in order to meet the needs of different citizens or users especially for the dependent groups.</p> <ul style="list-style-type: none"> ▪ Comment on: respondents advised and proposed some changes in the wording of indicators, because it was difficult for them to distinguish between indicators and aspects. <p>Response: To ensure that the objectives of indicators became more distinguishable, their wordings were slightly changed</p> <ul style="list-style-type: none"> ▪ Comment on: the subjectivity of some indicators and the respondents advised to

	<p>develop more quantitative parameters for special facilities.</p> <p>Response: According to the research scope at this time only qualitative indicators were adopted and the researcher will conduct more study attempts in the future to develop a quantitative indicator in order to evaluate the provisions of special facilities for those with special needs.</p> <p>Comment on: the respondents referred to the importance of this urban design criteria and its role in the success of the projects.</p>
<p>Distinctiveness indicators</p>	<p>▪ Comment on: the subjectivity nature of this design criterion.</p> <p>Response: It is clear that evaluating the distinctiveness of an area is basically a subjective issue more than objective. Therefore these criticisms were relevant but it was the best way of measuring such abstract criterion. The study tended to accomplish such assessment by assessors who were able to identify the unique characteristics and the positive identity of the regeneration area, in order to minimize the adverse impact induced by these subjective indicators.</p>
<p>Adaptability indicators</p>	<p>▪ Comment on: the design features mentioned under the first indicator are not flexible or possible at all, as most of the development proposals only allowed small scale alterations.</p> <p>Response: The study is also aware of this concern, because flexibility is basically a constraint of urban regeneration. At this moment the researcher has already tried to incorporate the most possible ways to cope with future changes in this indicator.</p> <p>▪ Comment on: Regarding indicator 3, respondents argued that expansion, improvement and modification are usually permitted provided that the legislative requirements are met, and therefore the possible answer to the indicator should be “strongly agree”.</p> <p>Response: The researcher disagreed with the generalization in these comments. This indicator was introduced to identify whether the non-residential portion in the regeneration project could address future changes with ease. In reality, if the development had to undergo a complicated, lengthy and cost intensive process when conducting alterations and additions, such project could not be claimed to have high adaptability.</p> <p>Response: Based on the close relationship between rehabilitation and sustainability; adaptability in the urban regeneration projects can be promoted through adopting the developed assessment strategy of the current research.</p> <p>▪ Comment on: The respondents emphasized the importance of these indicators in achieving successful regeneration at the local level, even if it is not a common practice in Iraq, to rehabilitate and retain the existing properties during urban redevelopment. It is expected that most of the local regeneration proposals could get a high point under this indicator during the assessment, by raising the claims to conservation and rehabilitation of the existing heritage.</p> <p>▪ Comment on: respondents suggested developing a proper means to assess whether the right property had been kept after development, even if a certain percentage of existing properties was rehabilitated.</p>
<p>Variety</p>	<p>▪ Comment on: The respondents stressed the importance of this criterion in achieving the vitality in regenerated historic areas; further, they ascertained that</p>

<p>indicators</p>	<p>most of redevelopment or regeneration proposals in Iraqi city centres will get high points under this aspect, because of the active and vital nature of city centres in Iraq as socioeconomic centres.</p> <ul style="list-style-type: none"> ▪ Comment on: the definitions and the acceptable range of variety in the regeneration project, the respondents commented that the wide range of variety may cause the place to lose its identity. <p>Response: The researcher agrees with these concerns, and advised again to conduct the assessment or to apply the variety in the design by professionals who have good experience in this filed, to avoid confusion.</p> <ul style="list-style-type: none"> ▪ Comment on: the assessment based on personal judgment in some aspects was or may be highly subjective. <p>Response: This study used a qualitative indicator here aiming to assess whether a variety of facilities or business environment would be provided upon completion of the regeneration project or proposal which depend on personal judgement in some aspects.</p> <p>Response: Even though a variety of facilities are provided, the citizens and users are not satisfied unless there is a good mix and wide range of services and activities provided in their community. Therefore, their views on this area should be taken into account in future monitoring and assessment for the regeneration project.</p>
<p>Green construction indicators</p>	<ul style="list-style-type: none"> ▪ Comment on: the respondents emphasized the importance of this criterion at the local level, due to the lack of clear and sustainable construction approaches locally and the high consumption of the natural resources by the large development projects or individual buildings. <p>Response: In response to these concerns, the current research is an attempt to raise awareness about the green construction practices and its adoption in the future urban regeneration projects.</p> <ul style="list-style-type: none"> ▪ Comment on: the abstract value of this indicator was already mentioned in details in several international assessment schemes and this study could make use of these schemes to assess this criterion. <p>Response: this study intended to identify whether the green construction practices that are widely recognized recently in the construction industry, were adopted in the urban regeneration projects, but the detailed assessment of individual buildings was not the major target of the current assessment strategy.</p> <ul style="list-style-type: none"> ▪ Comment on: some respondents criticized that some indicators were too general to cover such a broad topic. They found it difficult for the professionals to conduct the assessment as they might not know all details of a regeneration project and it is a hard task to select the right assessor to give a good and valid answer. <p>Response: the indicators can be included in a set of specific indicators for a specific sustainability issue to facilitate the assessment.</p>
<p>Sense of safety indicators</p>	<ul style="list-style-type: none"> ▪ Comment on: it is difficult to assess a regeneration initiative in design or proposal stage because the assessment of this indicator is more subjective and depends on the end users' judgments to obtain a reliable result. <p>Response: The researcher agrees with these comments, and the assessors in the design stage can rely on their experience to evaluate the proposal and give approximate results.</p>

	<p>Response: This type of indicator was used here because assessing whether the pedestrian walkways and public transport systems are convenient, efficient and give a feeling of safety is a subjective issue. In this case the end users judgments should be obtained to get an accurate result.</p> <ul style="list-style-type: none"> ▪ Comment on: The residents or users go to many places in their daily life and use different means of travel. Therefore, it is difficult for the assessors to make a choice among the options given under the indicator during the project assessment. <p>Response: in general the residents or users would not find it difficult to travel to most destinations if the pedestrian walkways and public transport systems of the regeneration area are well-established, and these could be-to a degree- objectively assessed.</p>
<p>Compactness indicators</p>	<p>These indicators identify the access to public facilities.</p> <ul style="list-style-type: none"> ▪ Comment on: The respondents agreed on a qualitative indicator, because assessing whether the public facilities provided nearby were adequate to meet the citizens' needs required personal judgment. <p>Response: By adopting these qualitative indicators, it could be judged whether the residents could easily gain access to the public facilities they use very often.</p>
<p>Green design/Environmental improvement indicators</p>	<ul style="list-style-type: none"> ▪ Comment on: the aspects mentioned under these indicators were difficult to encounter when conducting the assessment process. ▪ Comment on: respondents claimed that assessing the use of natural resources was a technical issue and therefore these indicators should be assessed on the basis of physical measurement rather than personal perception. <p>Response: the aim of using these indicators in the current research is to ascertain that the users were satisfied with the passive design of the regeneration projects.</p> <ul style="list-style-type: none"> ▪ Comment on: respondents suggested separating the assessment aspects of some indicators instead of assessing them at one point, for example availability of natural lighting and natural ventilation, because some maybe satisfied with the amount of natural lighting but not be satisfied with that of natural ventilation to the same degree. ▪ Comment on: Even if natural lighting and natural ventilation was available within the regeneration sites, it did not necessarily mean user satisfaction. <p>Response: After taking into account these comments, this study proposed to amend the content of indicator by asking the assessors to rate the extent to which the use of natural lighting and ventilation was effectively maximized in the preliminary design of the project.</p>

11.5 Findings concerning the evaluation of urban regeneration initiatives in Iraq

This section discusses the findings of the third empirical part of the research; it refers to the findings of the implementation of the developed assessment strategy on the selected case studies. Suitability and applicability of the developed strategy for use at the local context was examined and an idea about past and current redevelopment or regeneration trends in Iraq was formed in order to evaluate and establish national urban regeneration approaches. Information was collected from the questionnaire survey part III. The experts responded to

the questionnaire and the collected data were analysed based on the developed strategy of current research and will be demonstrated in the hierarchy according to the assessment criteria given in the model. In the following the discussion of key assessment findings of each case study is presented:

11.5.1 Findings of assessment of urban regeneration initiatives in Iraq - Case 1

This part aimed to discuss and present the findings of the evaluation of a former large-scale urban redevelopment intervention in the Iraqi historic cities. Al-Rusafa historical zone urban redevelopment scheme was selected as a unit of analysis. This case study was discussed in detail in chapter 9. The assessment relied on the developed strategy which is mentioned in details in chapter 7 and the data obtained from the first group of respondents are discussed here and assessment results are analysed as shown below. As mentioned before the assessors used the developed model to evaluate the project and the discussions below are built on translation of their analysis results to qualitative description.

Urban design principle Character	
Performance criteria	Context
Assessment results discussion	
<ul style="list-style-type: none"> ▪ From the available data analysis and the experts' evaluation results, it is obvious that this project did not achieve adequate integration with the surrounding neighbourhood due to many reasons: ▪ The project was planned and designed by different foreign consultants and so harmony was difficult to achieve. The proposed designs had divergent styles and approaches, even after efforts of the client (Baghdad Municipality) at that time to integrate the different attitudes. ▪ Khulafa street development proposal by TAC for example, totally ignored the surrounding environment and proposed huge scale buildings without any regard to the historic fabric, this was also accompanied by proposed social, economic and administrative activities that were not compatible with the surrounding neighbourhood. ▪ In Bab al-Sheikh development proposal, the situation is slightly better even though the projects were designed by many consultants. In their designs, the consultants tried to acknowledge the surrounding historic environment by designing low-rise buildings with fragmented masses and tried as much as possible not to remove big parts of the existing fabric and benefitted instead from the vacant areas. ▪ The proposal of land use was more compatible with the surrounding community activities. They proposed also to transfer inappropriate uses, such as industrial uses to the edges of the heritage area. ▪ The region was indeed in need of the proposed modernisation of the area due to the declining physical and economic conditions in this vital part of the capital, but the decisions were not well studied and were subject to political influences. 	
Performance criteria	Detailed Design
Assessment results discussion	

<ul style="list-style-type: none"> ▪ In Khulafa Street and Bab al-Sheikh development proposals, the stakeholders and planners were ambitious to reflect a modern image of Baghdad and the designers tried to employ state of the art technology–this is in fact desired but needs to be used carefully in order not to damage the surrounding fabric. ▪ The construction and finishing materials in both projects were totally different from that of the surrounding buildings and that made them stand out from the surrounding. ▪ Based on the size and functions of the proposed projects, the landscape design of each project was concerned only with its specific area and was not integrated with the surrounding. This includes the pedestrian paths and connections with the old Suqs and the open spaces. ▪ An important point as well is the density of the new development as the introduction of high buildings and huge masses would disrupt the delicate fabric. 	
Urban design principle Continuity and enclosure	
Performance criteria	Layout
Assessment results discussion	
<ul style="list-style-type: none"> ▪ In Khulafa Street the designers not only used vacant spaces and demolished buildings, they also extended their project to existing routes and historic fabric. On the other hand, the consultant tried to benefit from the existing wide streets by aligning the new buildings with them. ▪ With regard to treating streets as places, this was ignored in some parts of Khulafa Street but in other parts of the project this aspect was taken into account by creating new plazas, street intersections and outdoor activities, but this was in large scale and in the style of modern cities. ▪ In Bab al-Sheikh project, this point was more respected in the design and most of the ground floors of public buildings were used for public activities such as shops, restaurants and cafes which made the streets more attractive for residents and visitors. ▪ The layout in both projects encouraged private car use and consequently led to uncontrolled traffic congestions. 	
Performance criteria	Privacy and Amenity
Assessment results discussion	
<ul style="list-style-type: none"> ▪ As the proposed redevelopment projects were large scale and multi-use projects, this led to disturbance of the privacy of this mostly residential area. ▪ The private open outdoor spaces were ignored in the new redevelopment. This point is more obvious in Khulafa Street than Bab al-Sheikh because the designers of the latter tried to create buildings or housing complexes containing traditional features such as courtyard private spaces. ▪ In Bab al-Sheikh the designers also employed the courtyard concept in designing the public and outdoor spaces. These treatments were suitable for the continuity of local traditions and environmentally for local climate. 	
Urban design principle Quality of the public realm	
Performance criteria	Public Realm
Assessment results discussion	
<ul style="list-style-type: none"> ▪ Public realm aspects were taken in consideration by the two projects and this was more obvious in Bab al-Sheikh project. ▪ Owing to the large scale of these projects, the hierarchy between private, semiprivate and public spaces was not so tangible or effective here specially for multi-uses buildings but was taken into consideration in projects with residential functions albeit in an international style. ▪ The projects were proposed for a very vital and active part of the city, therefore most of the 	

<p>public spaces and semiprivate spaces were overlooked by the residents and visitors.</p> <ul style="list-style-type: none"> ▪ In some of the designs, the parking was very well designed and became a part of the redevelopment landscape but at the same time it created a large asphalted area which is not environmentally adequate in such a crowded area. 	
Performance criteria	Open spaces and Parking
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The designs were proposed for a very crowded part of the city (residential, commercial as well as administrative) therefore the designers' goal was to make use as much as possible of the available land by covering this land with mass buildings, and furthermore, they suggested open spaces and new riverfronts that will improve the image of the urban spaces. ▪ This development coincided with the new wide and well-furnished streets. These new treatments and furniture were entirely different from the existing traditional elements and so harmony did not occur and needed further treatments to reconcile these two fabrics. ▪ The increasing dependence on car use led the designers to take into account providing enough car parking spaces. ▪ As the development was totally newly designed, therefore the parking location was taken into account and was easily accessed from the buildings and open spaces but the future expansions were not contemplated. 	
Urban design principle	
Ease of movement	
Performance criteria	Inclusiveness
Assessment results discussion	
<ul style="list-style-type: none"> ▪ Both Khulafa Street and Bab al-Sheikh redevelopment proposals provided a wide range of public facilities to serve the developed area and became an active urban centre. ▪ Taking into consideration the residents' needs was achieved and this point was more apparent in Bab al-Sheikh design proposal than Khulafa street project. ▪ Owing to the already crowded part of Baghdad, the projects didn't provide adequate open spaces. The priority was to make use of the land for constructions; nevertheless, the open spaces were well-designed with some attempts to create spaces inspired by traditional courtyards or arcades known to the surrounding neighbourhood. ▪ Although the size of the new buildings represented one of the physical barriers for the surrounding traditional areas, for the two projects, the new designs and regular and clear axes provided high percent of visual integration for residents and users that contributed to easy perception of the places. ▪ The project obtained good results regarding the indicator concerned with the relationship between pedestrian walkways and the public transportation system. ▪ As the project is a new development, the walkways and paths were well designed and used new materials and had good connections with alternatives of public transportation provided by the new development. 	
Performance criteria	Connections
Assessment results discussion	
<ul style="list-style-type: none"> ▪ According to experts' analysis, the project achieved a high score for creating an attractive and varied network of pedestrian, cyclist and vehicle movement as the project was designed in line with up to date standards at the time. ▪ The project achieved a low score for integration with the surrounding traditional fabric, paths 	

and street network.	
<ul style="list-style-type: none"> ▪ The manner in which the project was designed would encourage problems of high and uncontrolled traffic. This was visible in the implemented sections of the project. ▪ The existing and proposed public transportation network was not varied and sustainable to encourage its use. The available sorts were public buses that were not satisfactory in catering to the needs of the residents and users. There was a suggestion to join the project with the proposed Baghdad Underground Train, but this proposal was not implemented. 	
Urban design principle	
Legibility	
Performance criteria	Distinctiveness
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The project didn't obtain good scoring in respect to enhancing the local identity of the area; the project was designed in size and style different from the surroundings. This created a new urban fabric unlike the traditional one. This point may be not disadvantageous if the project achieved compatibility with the neighbourhood. ▪ Regarding the second indicator, a high score was obtained as the project was designed in modern style and materials, further, the building corners were designed in a way to create public open spaces for various social and community activities, therefore high legibility was achieved for residents and visitors. ▪ The project received an overall low score regarding 'memorable features', in contrast good results were obtained for individual buildings and open spaces. ▪ With regard to creation of a distinct urban centre or urban identity, the project obtained only low scores because the project was designed in a linear fashion along the existing streets and paths, thus indistinct fragmented centres were created. 	
Urban design principle	
Adaptability	
Performance criteria	Adaptability
Assessment results discussion	
<ul style="list-style-type: none"> ▪ Regarding the project layout, the flexibility of the project was limited due to the existing traditional fabric and monuments and so the project functions were predetermined. Nevertheless, most of the public buildings were capable of being used for a range of activities. ▪ The buildings pattern was not simple and the design was in diverse scales and forms, rendering it unadaptable for future use, therefore the two projects didn't obtain high scores here. ▪ Within the projects, the residential units were designed in a specific form and size, which made it difficult to allow for adaptation or subdivision for future expansion. ▪ Regarding 'rehabilitation', the project adopted the bulldozer strategy in some parts. Rehabilitation was undertaken only for a limited number of monuments with outstanding value, therefore this point was not a major factor, hence low scoring for the two projects. 	
Urban design principle	
Diversity	
Performance criteria	Variety
Assessment results discussion	

<ul style="list-style-type: none"> ▪ The projects obtained high scoring points regarding the mix of activities in accessible places to 'live, work and play'. The reason for this is the nature of the proposed layout that was designed by different consultants and contained varied activities. ▪ Due to the position of the projects at the heart of the capital and near the vibrant commercial and social centres, the projects had a wide range of facilities, services and community activities. Some of these activities were new to the established situation. High scores were given to this point. ▪ The projects presented themselves in a huge scale, with wide range of activities and designed by different consultants, therefore attaining harmony among all those variables was difficult, as well as with the surrounding. Some parts achieved partial harmony as individual urban centres. As a result both projects didn't achieve good scores. 	
Urban design principle	
Efficiency	
Performance criteria	Green construction
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The projects achieved medium level of scoring. As the project was designed in an already existing crowded urban area, therefore the questions of natural environment protection were not a priority for the stakeholders and the designers. ▪ In some parts of the scheme the redundant buildings and derelict sites were used with new functions. The construction practices in the projects were in huge scale and used different materials and the minimum consumption of natural resources was not a priority. 	
Urban design principle	
Safety and Security	
Performance criteria	Sense of safety
Assessment results discussion	
<ul style="list-style-type: none"> ▪ Both Khulafa Street and Bab al-Sheikh development projects received high scores regarding this issue, because the projects were totally new and the roads and paths were designed to be safe and convenient for citizens. ▪ The designers made great efforts to ensure that the roads and open spaces were overlooked by the buildings and that was obvious in the projects details provided by the consultants and in some of the constructed parts of the projects. ▪ Almost all the public facilities were located along the pedestrian routes and near the public spaces which helps to achieve 'self-policing'. ▪ The other point which makes the proposals or the implemented parts considered to be safe is the car parking that was designed to be near the buildings and walkways and overlooked at all time. ▪ A clear definition for public spaces and semiprivate spaces in some parts of the projects with clear distinctions between these spaces in individual buildings and in groups of buildings raised the level of feeling of security and safety for residents. 	
Urban design principle	
Services	
Performance criteria	Compactness
Assessment results discussion	

<ul style="list-style-type: none"> ▪ Based on the available reports, drawings and details about the projects, the assessors rated the projects with a high score for many reasons: ▪ The comfortable and safe locations of public spaces with consideration of distances between various facilities and resident units. ▪ The factor of location of facilities within 500 m was taken into account by the designers of these projects. ▪ The provision of special facilities for people regarding age and physical abilities were not clear in the details, but overall, the projects and proposals were characterised by compactness in layout and provided facilities due to their location in a dynamic area. 	
Urban design principle	
Green design	
Performance criteria	Environmental improvement
Assessment results discussion	
<ul style="list-style-type: none"> ▪ At the time of project design the concept of sustainability was not well recognised and was relatively new, in spite of that, the designers and the client representatives proposed and used some environmental treatments to benefit from the available potential on site such as sunlight or wind. ▪ Furthermore, they used some traditional treatments like courtyards and arcades paths to provide comfortable environments for the residents and users. ▪ But in general the projects represent a huge concrete mass within the heart of the delicate traditional fabric with high consumption rates of energy and a source of pollution. ▪ According to the contemporary standards of sustainability the projects did not score well. 	

11.5.2 Findings of assessment of regeneration initiatives in Iraq - Case 2

This assessment aimed to evaluate the recent large-scale regeneration interventions in the Iraqi historic cities. Urban regeneration proposal of Najaf historic city centre was selected for analysis. The case study was discussed in detail in chapter 10. The assessment relied on the developed assessment strategy by the current research and the assessment model of this strategy was mentioned in details in chapter 7, the assessors used this model to evaluate the project performance. The results and discussion of the data analysis which were obtained from the second group of respondents are shown below. The discussions below are built on translation of their analysis results to qualitative description.

Urban design principle	
Character	
Performance criterion	Context
Assessment results discussion	
<ul style="list-style-type: none"> ▪ From the provided data about the proposal and the expert opinions, Najaf historic city centre regeneration proposal obtained a high score regarding this issue. ▪ Despite the fact that the historic city centre of Najaf had lost a considerable amount of its features, the consultant tried to incorporate the cultural, heritage and historical context of the surrounding communities and places. ▪ The proposals tried to respect the traditional values and to integrate with the physical environment including for example existing streets, buildings and infrastructure. Furthermore, the 	

<p>proposal showed good attempts at compatibility with surrounding social and economic activities.</p> <ul style="list-style-type: none"> ▪ The proposed buildings and activities revealed reasonable efforts to consider the existing condition of the site. ▪ Most of the respondents commented that with this effort of the consultant, it is not easy to judge the degree of success of this project regarding compatibility with surroundings due to the complex existing situation and multiple social, political and economic factors affecting the decision taking. But the general appearance of the project gives a good impression about the future of the area if the project is realised. 	
Performance criterion	Detailed Design
Assessment results discussion	
<ul style="list-style-type: none"> ▪ A medium score was awarded to this criterion. ▪ Some details of the external design such as elevation details, arches types etc. are not close to the local style. ▪ The consultant tried to cope with the existing buildings and open spaces in aspects of visual appearance; however some details about building height surrounding the historical area face criticism due to excessive height which disturbs the view of the shrine in the centre of the historic city. ▪ The designers tried to profit from the available open spaces to create suitable public spaces by good design and high accessibility to and from the other project facilities. ▪ The density of the development was to a certain degree acceptable with regard to term of plot ratio. 	
Urban design principle Continuity and enclosure	
Performance criterion	Layout
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The proposal obtained high scores regarding this criterion. ▪ The designers attempted to align routes of the new development with the desired existing lines and the buildings relate to a common building line. This treatment was for two reasons, first the high real estate prices of the existing plots, second the wish of the designers to revitalise the traditional old fabric of the city. ▪ Most activities within the area are already situated at the frontages so the designers only enhanced this feature. ▪ Regarding ‘treatment of the street as a place ‘it is apparent from the design details that most of the streets, routes and open spaces in the old city are treated as pedestrian zones containing many social and community activities. Furthermore, the traffic is controlled by design and layout. ▪ Layout of blocks provides some public spaces and green areas in addition to the private spaces- this was aided by profiting from existing vacant plots. 	
Performance criterion	Privacy and Amenity
Assessment results discussion	
<ul style="list-style-type: none"> ▪ As the proposal was prepared for a distinguished historic and religious centre that is active 24 hours a day all year round, so this criterion was neutralised. The focus was on the provision of public services and facilities. ▪ Regarding privacy, after many changes in the land uses and social structure most of the building functions are public and in the nature of the traditional fabric, this criterion was not vital in the design process except for specific functions. 	

Urban design principle Quality of the public realm	
Performance criterion	Public Realm
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The public realm in this project was one of the most important requirements to consider in order to cope with the vast numbers of visitors to the religious centre. ▪ Based on the proposed design, the project obtained a high score. ▪ In the regeneration proposal there was a clear distinction between public, semi and private spaces. ▪ Roads and open spaces areas are considered as an integral landscape element within the public realm design. ▪ The designers attempted to benefit from the available spaces and routes to create enough spaces for the vast numbers of visitors while at the same time avoiding the disruption of the existing traditional fabric. 	
Performance criterion	Open spaces and Parking
Assessment results discussion	
<ul style="list-style-type: none"> ▪ Due to the complexity in the regeneration site and lack of adequate land, the provision of enough car parking spaces was a big challenge for the designers, but in general the proposal attained medium score for this criterion. ▪ The proposal used high quality and well-designed materials for street furniture that is integrated with the surrounding in an attempt to give identity and enhance the sense of place. ▪ There was no clear vision for parking facilities with maximum efficiency for accommodation in the project. 	
Urban design principle Ease of movement	
Performance criterion	Inclusiveness and Connections
Assessment results discussion	
<ul style="list-style-type: none"> ▪ A high score was given to this criterion. ▪ The proposed buildings reflect a positive impression to the passers. ▪ On reviewing the design, one notices priorities given to the walkways and pedestrian passage designs which connect to public transport in terms of location, width and material used. ▪ The proposed urban structure seems to have an attractive network of connected spaces and routes for pedestrians and cyclists along with reasonable solutions for vehicles. ▪ Regarding the new layouts' links to existing routes and places, as the project is designed for an area with an existing network of routes, the designer tried as much as possible to make use of these routes to create new networks. 	
Urban design principle Legibility	
Performance criterion	Distinctiveness
Assessment results discussion	

<ul style="list-style-type: none"> ▪ The proposal tried to benefit from the existing situation of what was left of the old historic centre to enforce the identity of locality-routes and spaces they serve. It is not easy to achieve such task after a long period of neglect of the traditional fabric and interventions of modern architectural styles with different identities. ▪ According to the available details about the project, the corner design and materials used were taken into account to improve the legibility of places and routes. ▪ The proposal succeeded in presenting a layout from the existing buildings and landform features to create a memorable layout. ▪ Regarding the focal centre of layout, the shrine already represents the centre focal point and the design reinforced this point. Based on the results obtained, this aspect attained a good scoring point despite some remarks related to the treatment methods of open spaces. 	
Urban design principle	
Adaptability	
Performance criterion	Adaptability
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The proposal is to be implemented in a populous area, having a wide range of activities with expensive real estate prices, so the opportunities for future changes or exchange will be limited and needs considerable resources. ▪ Furthermore, the building forms are already of a complex nature and most of these buildings are designed for a particular use, therefore the possibility for future modifications would be restricted to some uses. ▪ The designers tried to distinguish the properties that have significant values and give them more emphasis in the design process so as to rehabilitate them for modern uses. ▪ In spite of these attempts, this criterion obtained medium scores with comments about the ratio of retained buildings to the total new construction area on-site. 	
Urban design principle	
Diversity	
Performance criterion	Variety
Assessment results discussion	
<p>This criterion was awarded very good scoring. The reason for that is the nature of the city as a religious and vibrant centre containing a wide range of facilities and activities, namely social, cultural, commercial activities. Therefore the regeneration proposal just enhanced what is already present in the area.</p>	

Urban design principle	
Efficiency	
Performance criterion	Efficiency- green construction
Assessment results discussion	
<ul style="list-style-type: none"> ▪ The historic city centre of Najaf is a very complex urban structure which encloses a mixture of uses and activities within a multi-layered infrastructure. Therefore, solving the urban problems in one step and for a long duration is hard to accomplish. ▪ The regeneration proposal reached a medium score for this criterion. ▪ The designers intended to make use of the potential of the high density of the city by providing adequate accessibility to public transport and sufficient landscape area that does not disturb the heritage fabric. ▪ According to the reports provided with the proposal, the designers took in consideration the 	

<p>incorporation and application of sustainable infrastructure and services such as drainage systems and waste management.</p> <ul style="list-style-type: none"> ▪ It is also clear from the scheme that the redundant buildings and derelict sites are redesigned to productive use. ▪ The amount of consumption of resources and their efficient use was not a priority, as the goal of the project was the creation of a luxurious style of design. 	
<p>Urban design principle Safety and Security</p>	
<p>Performance criterion</p>	<p>Sense of safety</p>
<p>Assessment results discussion</p>	
<ul style="list-style-type: none"> ▪ Due to nature of the location, the new design made use of the existing roads and paths that are overlooked by public uses such as hotels, shops and offices or by residential units. So the sense of security was high for pedestrians and users. ▪ Public spaces are already secure because they contain mixed uses and sometimes the activities in these spaces go on the whole 24 hours. ▪ Traffic is very limited in the centre of the city; therefore there is safe and undisturbed pedestrian movement. ▪ In general this criterion did not impact the assessment very much and a good score was obtained here. 	
<p>Urban design principle Services</p>	
<p>Performance criterion</p>	<p>Compactness</p>
<p>Assessment results discussion</p>	
<ul style="list-style-type: none"> ▪ This point aroused controversies among the respondents due to the fact that the proposal came up with many alternatives for public facilities and services. ▪ In general, the criterion had a good score and most of the proposed public facilities were introduced in high quality design and materials and located in the main axes which make them safe and attractive for users and visitors. ▪ Furthermore, due to the circular shape of the city with a diameter of less than 500m, the facilities will be easily accessible. ▪ The quality and number of facilities was satisfactory and covered most of the city's needs. ▪ Some indicators were difficult to grasp by the assessors because of the lack of respective data or drawings such as the facilities for disabled persons. 	
<p>Urban design principle Green design</p>	
<p>Performance criterion</p>	<p>Environmental improvement</p>
<p>Assessment results discussion</p>	
<ul style="list-style-type: none"> ▪ The assessment of this criterion was not straightforward. In general, the assessors evaluated the available data and they justified that the project deserves a good score. ▪ The reason for this is the fact that the designers incorporated the traditional treatments in the fabric such as courtyards, arcades and shaded elevations to provide amenity in the environment. In addition, the traditional narrow alleys and closed courtyards already offer protection and reduce the impact of the adverse climate conditions. 	

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Chapter 12: Conclusions and Recommendations

12.1 Study overview and discussion of the main themes of the research

The sustainability concept has been gradually incorporated into planning and development strategies, but there are constant debates on how to transfer such an abstract concept into planning practices at the local level and how to measure their actual performance. Nonetheless, identifying how to deliver sustainable outcomes through urban regeneration was a critical research question. A great effort has been made by scholars, professionals and policy makers to seek practical ways to implement the idea of sustainable development. As mentioned before, the core aim of this study is to provide the local planners and designers with the information and assessment tools they need to improve the design quality and sustainability of the regeneration schemes they are involved with and to speed this process through the planning system. Furthermore, the study examined former and contemporary planning and urban regeneration approaches at the local level. The way to do this is by understanding and applying the essential values of the local tradition and architectural concepts with regards to their underlying physical, social and economic implications. This integration has to be adapting to meet the emerging needs of Iraqi historic cities.

Through the research process, this study stressed that urban design is a suitable means to achieve sustainable redevelopment. Therefore, it made an attempt to investigate its relationship with the concept of sustainability and urban regeneration, to identify relevant urban design principles and to highlight the design criteria that should be taken into account in the urban regeneration projects in order to create sustainable cities. After identifying the list of relevant urban design principles, the second aspect of the current study was to examine the applicability of these principles and their related indicators to the local context by means of experts' questionnaire survey. After analysing the data collected through different methods, a number of factors for achieving physical sustainability in Iraqi cities were deduced. The study used these factors to develop an assessment strategy to examine the capability of local urban regeneration proposals or projects to meet various sustainability dimensions. Afterwards, the study defined the assessment mechanisms of the model and demonstrated how the assessment strategy is capable of measuring the design quality and the sustainability level of urban regeneration project/proposal at the local context.

This chapter presents the final conclusions and recommendations of the study, which mostly refer to this experience and also summarises potential elements of future strategies for the urban regeneration of historic cities in Iraq, strategies that combine heritage protection and socioeconomic development in an effort to improve the liveability and the

vitality of the urban environment. Finally, the chapter identifies the implications of this study and proposes additional relevant recommendations and suggests potential fields for further study and investigation.

12.2 Summary of research conclusions

This study investigated the issues of interaction of sustainable development, urban regeneration and urban design and their interface in details. The research process confirmed that sustainable development is the most appropriate trend for achieving urban regeneration to meet the needs of present and future generations. Based on the evaluation of the Iraqi local context, more urban regeneration projects are expected to be implemented in the future. Therefore, sustainable urban regeneration approaches should be established through in-depth investigations. The findings of this study were generated with the help of various local professionals and experts; these findings have made a substantial contribution to the existing knowledge about the achievement of sustainable urban regeneration at the local level. The role of urban design in urban regeneration which leads to sustainable outcomes was clarified through the study processes; in addition a number of relevant urban design aspects that should be taken into account in project planning were brought to light.

The research investigation found that urban design is a highly effective means to achieve sustainable development. Hence, the study made an attempt to explore the theories of urban design, investigate its relationship with sustainability and regeneration concepts, and identify relevant urban design principles and aspects that should be taken into account in the urban regeneration projects in order to create sustainable cities. After a list of urban design criteria and their corresponding indicators was identified, the study examined the applicability of these considerations to the local context by means of experts' questionnaire survey. After that and to explore the relationship between sustainable urban regeneration approach and urban design, the study developed an assessment strategy for assessing the extent to which these concepts are applied to local practices.

The development of this assessment model can be regarded as the main achievement of the current research. It will provide a simple and clear means for the designers and stakeholders to evaluate the design quality and the performance of the urban regeneration proposals or projects, and produce an effective tool for the decision makers to review and reform the urban regeneration policies or strategies in historic cities in particular and all Iraqi cities in general. The developed model can be used either for selection of the most appropriate urban regeneration proposal or for evaluation of the regeneration projects before and/or after implementation.

Due to the limited research resources, it is impractical to develop a very large model covering a wide range of design criteria and their corresponding indicators. As a result, the relevant physical design criteria for the Iraqi context at this stage were included, and a reasonable and manageable amount of indicators was finally selected.

The extracted criteria and indicators were backed up by a comprehensive literature review, a series of analyses processes, and a number of discussions and lastly by the experts questionnaire survey. Further studies should be conducted to extend the scope of the study, and increase the total numbers of criteria and indicators in the model when more time and resources are available.

Another point to take into account, when conducting sustainability assessment, is the possibility of a negative reaction of the assessors, who may not be motivated to use the instrument to its fullest potential. Therefore, it should be designed in such a way that it can be practically used by experts or well-trained professionals. In the application of sustainability assessment it is important to make sure about the following conditions:

- Assessments should be performed by professionals who are aware of the concept of sustainable development and trained to translate it into practice.
- Assessments should stimulate planners, designers, policy and decision-makers to consider non-traditional ways of reaching long-term sustainable goals.
- Based on the database of “good practice” cases, the sustainability assessment process can lead to the introduction of innovative ideas in the formulation of new initiatives.

12.3 Responding to the research questions

The aim of the current research is to evaluate the sustainability of urban regeneration proposals or projects which are introduced to redevelop the Iraqi historic city centres and help to orient these proposals or projects towards more sustainability in the future. Through the research process the study tried to meet the aim and objectives that were stipulated at the beginning of the study, and also tried to address the research questions. Below is a description about how the research process was employed to achieve the objectives and answer the key questions of current study.

Central research question:

How can the physical dimensions of urban regeneration projects in historic city centres in Iraq be oriented towards more sustainability?

By developing an assessment strategy, which is built on an evaluation of the urban design quality and performance of urban regeneration projects, sustainability in these projects can be foreseen. The main and final outcome of the developed strategy is the assessment model, the structure of which includes a wide range of design principles and criteria in addition to assessment indicators, these components will help in raising awareness of local stockholders and professionals about the sustainability aspects of urban design and encourage them to achieve long term sustainable projects, in addition the elements of the model will be used as a design guidance and assessments tool. As a result the developed strategy will help to achieve sustainable urban regeneration in the future and encourage the use of sustainability aspects in urban design at the local level.

By adopting these kinds of strategies the design or evaluation process will be easier and more systematic, further the regeneration projects will be oriented towards more sustainability and the central study question can be answered. The current strategy is flexible and applicable at different scales and in different types of projects, also the components of the assessment model can be extended to include more qualitative and quantitative indicators and it can be adjustable according to the nature of the project that we need to evaluate. To complete this task the research chapters altogether have played a significant role in meeting the research objectives and addressing the queries stated in chapter 1.

Key research questions:

Q1: How can the concept of sustainability be adopted as the guiding principle for urban regeneration projects in Iraqi historic city centers?

This question is related to the theoretical background, which was employed to understand the main research themes and the relation between them and how they will be used to achieve the research aims and objectives. By drawing together the theories on sustainability, urban regeneration and urban design in chapter (2), the importance of achieving sustainability in urban areas through the urban regeneration process was emphasised and the variables that link between the main themes could also be concluded. The urban design principles are regarded as the common factor between sustainability and regeneration; therefore the principles and their associated criteria and assessment indicators were also identified. Chapter (3) highlighted the role of cultural heritage in achieving sustainable urban regeneration in historic areas as the fourth main theme in the research.

Q2: What is the role of urban design in achieving sustainable urban regeneration in the historic built environment?

The role of urban design in implementing the principles and concepts of sustainable urban regeneration is revealed, and a theoretical framework for a sustainable urban regeneration approach is built by correlating the important urban design aspects and principles with their assessment criteria and indicators that were used to build the assessment model. Chapter (5) introduced the theoretical background about the sustainable urban regeneration assessment approaches, and concludes with the conceptual framework.

Based on the investigation of the theoretical framework which is specified in chapters 2-5 in addition to the conceptual framework in chapter (5), a number of urban design principles and indicators were generated as sustainability parameters (represent the positive performance of a regeneration scheme) to encourage the promotion of more sustainable urban regeneration in Iraq, these principles will be the main components of the assessment model.

Q3: How can urban design principles and indicators be applied actively to assess the success and sustainability of urban regeneration projects?

In order to ascertain that the urban regeneration strategies in the Iraqi context in the long run can fulfil long term sustainability objectives from physical, economic, environmental and social perspectives, this study has derived an assessment strategy for evaluating the urban design quality and sustainability performance of the urban regeneration proposals or projects to be implemented in the local context. The assessment framework was developed on the findings of the literature review, expert judgments and data analyses described in the earlier chapters. All details related to the strategy model are presented in chapter (7) including its purposes, values, structure, assessment mechanism, final assessment indicators and their corresponding point scoring system. The performance indicators and their point scoring system underwent an evaluation process by experts to justify their appropriateness for project assessment. To examine the validity and reliability of the developed strategy to be used at local level, the model was used to assess and analysis two selected local cases of regeneration initiatives, that are mentioned in chapters (9) and (10).

Q4: What are the present challenges facing the heritage values of the Iraqi historic urban context?

To answer this query, chapter (8) presented an overview of the challenges and urban problems that face the historic cities in Iraq and highlighted the potentials of safeguarding the cultural heritage and its role in achieving integrated redevelopment, which links the heritage with the sustainable urban regeneration of historic urban areas. To evaluate the urban heritage values in Iraqi historic cities an assessment strategy with 5 design criteria was proposed for this purpose based on the literature review. These criteria with their associated indicators represent the most significant physical aspects contributing to historical urban fabric identity. To verify the validity of this assessment criteria and to assess the status of heritage context in Iraq, the questionnaire survey (part I) was conducted by using the developed assessment model in this chapter to gather the expert's opinions.

Q5: To what extent do the current urban regeneration initiatives in Iraq apply sustainable development principles?

It is concluded from the literature review, that most of the available information on the theories, practices and assessment models of urban regeneration at the local level are based on the international context. However, there is an uncertainty about the success of their application to the historic context in Iraq. Furthermore, valid and reliable investigation results cannot be obtained unless there is a full understanding of the redevelopment attempts of heritage areas in Iraq. In order to respond to these queries, a detailed investigation was conducted in chapters (9) and (10). These two chapters examined the characteristics of the urban redevelopment and regeneration initiatives in Iraq, by looking into the former and current practices and their impacts on the historic context as well as

their trend of sustainable development. The obtained information was used to identify the development trends and gave a perspective about the conservation management and regeneration approaches in the local urban heritage context; furthermore it was used to evaluate the applicability of the developed assessment model at the local level.

12.4 Promoting sustainable urban regeneration in the historic city centres in Iraq

This section summarises the policies that will help to promote, guide, offer advice or make decisions about regeneration initiatives that change or affect significant historic centres of Iraqi cities. More than one strategy or policy may be included in a particular urban design aspect. It is concerned primarily with the effect of regeneration proposals on the heritage values of places and how policies are framed accordingly. The main audience of the outcome of this process is expected to be the local parties who guide and control development. And the main aims are to define urban regeneration strategies and policies based on detailed survey and analysis of the existing physical and socio-economic situation; in addition to proposing concrete urban planning policies and urban design guidelines.

Before identifying the policies that should cover urban design principles to promote sustainable urban regeneration at the local level, the study suggested using the following management plan in order to ensure the success of conservation and regeneration processes in Iraqi historic cities, the management policies can be summarized as following:

1- Creation of an adequate institutional framework to implement the regeneration policies for historic city centres, which enforces and enhances cooperation between the different institutions involved.

2- Employing appropriate tools to revise and update the existing legislation on urban planning, architectural and urban heritage conservation, in order to provide an adequate legal framework for the urban regeneration of historic cities.

3- Establishment and enforcement of protection and conservation measures for the heritage properties.

4- Adequate economic and financial tools to enhance conservation and rehabilitation work and increase accessibility to affordable housing and property in the urban fabric.

5- Definition of a priority action area, and an action plan to implement a regeneration strategy in this area, which could be implemented in the whole historic area. The action area would then be addressed through a detailed plan integrating conservation, rehabilitation and regeneration aspects, including the necessary human and financial resources to ensure sustainability, in addition to a monitoring system, based on clear and measurable indicators.

6- The protection measures for the heritage properties, should concentrate on the following:

- Definition of applicable procedures for building permits in the heritage areas.
- Establishing criteria for adaptive reuse and functional compatibility in heritage areas.
- Establishing criteria for new buildings and existing building reconstructions (including height limitations, plot ratios, building materials and construction techniques).
- The preservation of historic street patterns.

- Preserving the visibility of architectural and landscape landmarks.

12.5 Policies that should cover urban design principles as controls for urban regeneration

Based on the data analysis, the important factors and indicators affecting the regeneration process of historical urban centres in Iraq were determined. Hence the significance of the assessment strategy was set, and the findings have been generalized. In this section, some of the policies and strategies for promoting sustainable urban regeneration in Iraqi historic cities are proposed. The policies are suggested in order to have objective representations for development of physical-cultural strategies. Due to the structural dimensions of sustainability and conservation, the design principles or objectives are grouped as themes that apply across policy areas and distributed across the different categories.

Various agents around the world developed and suggested different types of policies and strategies depending on their purpose and the context situation of each case. The formulation of the sets of policies below is based on different groups and design standards such as: [CABE \(2005, p.16-17\)](#); [Rodwell \(2007, p.136\)](#); [Biddulph \(2011, p.86\)](#); [UNESCO and ICCROM \(2013\)](#). The current study found that these policies are to some extent appropriate for the Iraqi context and are consistent with existing national design policies. The recommended following lists of policies can be used as an aide memoire, rather than as a definitive list of appropriate content and it represents good practice. The master plan reflects the principles outlined in the urban design studies, but also embraces a number of additional qualities for specific interventions and studies that need conservation or planning issues to be addressed at the institutional, legal, and technical levels. The following key issues identified in the guidelines need to be taken in consideration when developing the management plan and in preparing future legal planning documents; they represent priorities that will make it possible to implement rehabilitation and regeneration strategies for the historic city centres in Iraq and embrace urban design thinking.

Table12. 1 Policies that should cover urban design principles as controls for urban regeneration

Design principles that should covered by policies	Policies
Policies on the design process	Promote the use of skilled designers.
	Promote pre-application processes to inform the design process.
	Understand the local physical, social, economic, environmental and policy context.
	Identify the design information requirements expected from applicants.
	Adopt planning techniques to suit local conditions, historic urban texture and scale.
	Encourage adopting a bottom-up rather than a top-down planning approach.
	Explain how the authority will use design codes, development briefs and other types of detailed design guidance.

Policies on historic environment conservation and urban governance	Be well integrated with design-based policies, incorporating urban design as well as architectural concerns.
	Key consideration is given to context, and preserving or enhancing the character and appearance of valued historic environments.
	Recognise the importance of the contribution of established land uses to the character of historic conservation areas.
	Consider using area action plans to manage change in historic environments.
	Encourage 'optimum viable use' for historic assets, consistent with their historic character, with minimum demolition, and ensure that design interventions have regard to stated characteristics.
	Emphasise the importance of the setting of listed buildings and other historic assets.
	Retain listed buildings, buildings with interesting characters and at least some of the pre-existing streets pattern.
	Limitation of new construction to infill that respects the scale and character of its historic context, for which several pointers are listed, including rhythm, mass, street boundary line, silhouette, traditional or compatible materials, window to wall ratio, quality.
Policies on local character and distinctiveness	Enhance the unique characteristics of places, identifying possible improvements for those of poor or mediocre quality.
	Set parameters for areas that require specific attention such as conservation areas, urban fringe, town centres, or waterways.
	Relate to particular local types or scales of development focusing on any design issues they raise.
	Treat a historic centre in the context of the wider city.
	Recognise that contemporary design can positively enhance the character and quality of conservation areas whilst discouraging the general use of replica solutions.
	Inform the management of both local and strategic views.
Policies on conservation of historic architectural value	Treat the existing historic fabric on equal terms with other factors in the general planning process.
	Respect the intangible cultural traditions of a historic city
	Distinguish simple buildings and vernacular architecture in a historic city from a group of monuments.
	Regular maintenance using traditional materials and building techniques.
Policies on urban form and scale	Seek appropriate development scales that respond to a range of local factors.
	Respond to the 'scale and massing' of buildings and the 'characters' of city centre.
	Set assessment parameters for the building properties (height, width, massing and depth) and the ratio between building and open spaces (which together represent density) for particular localities.
	Ensure appropriate consideration of the size and enclosure of public spaces, continuity of the building line and urban grid, road layout and block and plot size.

Policies on the public realm and open space	Support the adoption of high quality, open public space strategies.
	Encourage legible, comfortable, stimulating and safe streets and public spaces.
	Encourage active frontages at ground level to public spaces where feasible and appropriate for the land use and type of area, and consider how spaces can be creatively used.
	Incorporate public perceptions about what is important in the identity and quality of public spaces.
	Embrace designing-out-crime principles including defensible space, natural surveillance, visibility, lighting, and other security measures.
	Recognise the importance of parking and servicing but work to ensure they do not undermine other design objectives.
	Recognise the importance of good quality open space to the long-term creation of successful and viable sustainable communities.
	Explain how land use and spatial policies come together to implement the open space strategy and provide good-quality, well-maintained spaces for all.
Policies on mixed use and tenure	Support the mixing of uses, to create more sustainable living and movement patterns, and more vital and viable places.
	Encourage the mixing of tenures and designs that integrates a variety of tenure types.
	Ensure adequate private amenity space with a minimum of overlooking, and public open spaces suitably equipped for recreation.
	Secure beneficial use within the community through a mixture of residential, commercial and leisure activities that accord with the scale of the existing building and urban grain.
	Relocate any business or activity that is inappropriate for the redeveloped site.
	Provide full access to the main shopping routes and streets in the historic area.
Policies on connection, movement and inclusive access	Ensure movement opportunities are welcoming, understandable and easy to use.
	Ensure all people, including those with disabilities, can easily and comfortably move through and into developments, allowing freedom of choice for all to equally use the place.
	Promote walking and cycling by ensuring adequate space, networks and facilities.
	Ensure that road layouts prioritise safe, easy and direct pedestrian movement and the creation of a network of attractive, well-connected public spaces
	Aim to establish both visual and functional relationships between the parts of a development and between the development and its wider setting.
	Call for inclusive access to be considered from the start of the design process, not dealt with as an afterthought.
	Support designs that do not separate people with particular needs, or highlight special arrangements made for them.

	<p>Maximise the permeability over a 24 hour period.</p> <p>Reinforce the character of the city centre, especially the physical and commercial link with the neighbouring districts, the central business district and the waterfront if available.</p>
Policies on landscape and biodiversity	<p>Ensure that key landscape features on particular sites are protected and that the development is best suited to take advantage of, and maintain, landscape qualities and character.</p>
	<p>Ensure landscape is seen as a natural fully functioning system as well as visual resource and as a central pillar of sustainability policies.</p>
	<p>Ensure the best natural features and bio-diversity is protected with minimum damage to the natural processes of the site.</p>
	<p>Exploit the changes in levels across the site.</p>
Policies on architecture design	<p>Support the delivery of high-quality architecture that respects its context, without unduly restricting architectural styles.</p>
	<p>Recognise the contribution that high-quality architecture can make to the quality of the urban and rural environment.</p>
	<p>Recognise that the assessment of architectural quality is an objective, not subjective process, and ensures fundamental issues such as how the scheme relates to its context and expresses its proposed use through its design philosophy, structure, materials, proportions, visual order, functioning and detailing are assessed.</p>
	<p>Prevent out-of scale uses and building (including tall building).</p>
	<p>Create active perimeter frontages such as shop fronts rather than blank walls.</p>
Policies on green design and construction	<p>Provide for the assessment of sunlight, daylight, and the microclimate within and surrounding any development.</p>
	<p>Optimise energy and other resource use and performance through building shape, orientation, servicing, detailing and materials.</p>
	<p>Ensure that the principle of environmental capacity should be the determining factor in transport and traffic planning.</p>

12.6 The study implications

This research is founded on the Iraqi context as an attempted exploration showing how urban regeneration can meet the sustainable development objectives through good urban design in order to ensure the local regeneration projects can effectively meet the global trend towards sustainability. It would also form a platform for those who would like to adopt the same research approach in their regions in the future. To examine whether the design considerations and design factors extracted here have been taken into account when planning urban regeneration project in the Iraqi historic context, the study has tried to develop a practical, systematic, flexible and reliable measurement tool.

At the local level it was found that there is no model that is readily available or developed for assessing the extent to which the urban redevelopment or regeneration projects meet

the sustainability objectives from the design perspectives. Therefore, this study has been initiated to make its own. By assessing the regeneration projects against a number of qualitative and quantitative indicators, a clear picture of the project details can be drawn and the possible impacts of the projects on the community as well as on sustainable development can be revealed. Based on the assessment results, necessary adjustments and amendments can be made before implementation to optimize its positive impacts and mitigate its adverse effects. The assessment strategy is also valuable for the evaluation of the urban regeneration projects, it is capable of distinguishing between more sustainable projects from less sustainable ones, revealing the design quality of individual projects, and reflecting the level of satisfaction of the stakeholders or citizens with the project design. The strength and the weakness of a project can be observed and its effectiveness in sustaining the regenerated area from different domains can be evaluated.

The assessment process gives sufficient opportunities for the key stakeholders including the design professionals, the concerned groups, etc. to raise their awareness and express their views on the project design. In addition, the deficiencies of an urban regeneration project can be easily identified during the assessment. The concerned groups especially the policy makers can make reference to the assessment results in order to find out whether the objectives of urban regeneration stated beforehand have been achieved and a sustainable project has been implemented for the benefit of the community. Therefore a systematic and effective review of existing urban regeneration and redevelopment policies can be facilitated from time to time, and more sustainable urban strategies can be generated for the local historic context in Iraq.

12.7 Suggested further studies and possible project areas

The preservation and regeneration of historic cities is a long-term task that should be based on up-to-date information and an in-depth understanding of its urban dynamics. Also, this task cannot be successfully undertaken as a separate “project”, without a more general planning framework. It cannot be achieved once and forever, but must rather result from a continuous process and be implemented through programs and projects reflecting priorities and objectives that respond to changing needs and resources. As discussed, this study has identified a list of urban design aspects and developed a design assessment strategy. As such, it is a step in achieving sustainable urban regeneration in Iraq, and more research has to be conducted to meet such a long term goal in the territory. The current research approach and findings can be stimulating for interesting areas for further investigations. Based on these outcomes, the following recommendations can be made for future studies:

- The framework of the developed assessment strategy is flexible with design criteria and indicators that can be introduced or removed, and the priorities ranking of individual sustainable development objectives and design criteria can be adjusted to suit the needs from time to time without affecting the reliability and validity of the whole assessment model. Due to the research limitation, most of the assessment indicators adopted the

qualitative parameters. The author suggests conducting more studies in the future by using quantitative parameters to increase the accuracy, objectivity and ease of the assessment. Furthermore, the investigation of a larger number of parameters to extend the scope of study and increase the total numbers of criteria and indicators in the model would also be interesting in future studies when more resources are available.

- This study has identified a list of urban design principles and developed an assessment strategy. One of the future aspects of this study is by using computer software to conduct the same procedure of assessment. This may be done by designing a computer program which contains a wide range of criteria and indicators. By adopting these techniques, the assessment process would be easier, faster and more accurate; further, different kinds of results would be obtained. All the project data can be fed to the program. The development of a user friendly computerised form of the assessment model could be an interesting area in further projects.
- The study explored the physical dimension of sustainability according to the scope of the current research. Further research adopting other dimensions such as social, economic, environmental etc. would be desirable, upon availability of the appropriate resources, in order to obtain a wider viewpoint and come up with more robust solutions at the local context.
- The survey adopted in this study relied solely on expert opinion. In order for future studies to be more comprehensive, public opinion as well as expert opinion could be engaged in order to assess the overall satisfaction and quality of life generated from the regeneration projects.

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Appendices

Appendix A: Covering Letter for Questionnaire Survey



**A Questionnaire survey for promoting Sustainable Urban Regeneration
In Historic City Centres in Iraq**

Dear Sir /Madam

I am a PhD candidate in the Department of Urban Design and Land Use Planning, Faculty of Spatial Planning, TU Dortmund University. I would like to thank you in advance for your involvement in this survey. This survey is part of my PhD study entitled:

Towards Sustainable Urban Design Strategies for Historic City Centres in Iraq
Development of an Assessment Approach for Urban Regeneration Projects

That attempts to incorporate the concept of sustainability into urban regeneration process by means of urban design. Such information is vital to local urban redevelopment in the future as it helps to rectify the deficiencies of current urban regeneration practices and create sustainable communities in Iraq. In order to identify the views of different local experts on the significance of urban design principles towards sustainable urban regeneration, the attached questionnaire is designed to collect your valuable viewpoints.

I would appreciate it if you could spend some time to complete the attached questionnaire. After completing this questionnaire, please send it to me via email: aqeel.al@tu-dortmund.de

Thank you very much for your participation and I look forward to your reply

Yours sincerely

Aqeel Al-Mosawi
PhD Candidate

The questionnaire is divided into three sections

Part I: the aim of this questionnaire is to carry out a systematic assessment of urban heritage values in Iraqi historic cities; the respondents will assess the current status of the historical urban fabric of the city where they live (different cities in Iraq) according to the predetermined evaluation criteria. The questionnaire also aims to confirm the validity and revise the proposed assessment parameters. The assessment strategy at this level proposes 5 design criteria and their associated indicators. The assessors will grade the historical urban fabric according to predetermined values of each parameter. The sum of the grades assigned to the indicators defines the heritage values of the city centres or historic quarters and the average of these grades defines the overall grading of the city. Furthermore, photos of their cities are requested from the assessors to reinforce the evaluation results. Identifying the physical aspects that contribute to the identity of the historical urban fabric is important for planning national conservation and regeneration policies in the future.

Part II: contains the main research objective, the respondents will evaluate the extent of the appropriateness of the derived urban design criteria and their assessment indicators to be used in the local context. Based on the literature review, 71 indicators for 15 urban design criteria for sustainable communities were derived, i.e. 4-5 indicators per each criterion. The target respondents will determine whether the proposed indicators are accurate in representing the design criteria, and to give suggestions under the open ended questions when the indicators are considered inappropriate. The respondents are also encouraged to provide some comments on the content of the indicators and their corresponding point scoring system.

With reference to the comments of the practitioners in the questionnaire survey, the final list of design criteria and assessment indicators will be revised, and the structure of the questionnaire part III will be amended for the next part. As results of this part, the final list of urban design criteria and indicators will be revised and the model of the assessment strategy is also developed for the questionnaire survey in part III.

Part III: refers to the possibility of using the developed assessment strategy in the practical field at the local level. In this part the assessor will apply the developed assessment strategy on the specific case studies, to identify the extent to which an urban regeneration project being assessed achieves sustainable development in terms of various design criteria. To determine the applicability of the developed strategy in the local context two case studies were selected, the first is representative of the previous trends in urban redevelopment in Iraq. The second case is representative of the recent trends in urban regeneration in Iraq.

Due to the large number of assessment indicators and to facilitate the assessment process in this part, the same respondents will be divided into two groups and each group evaluates one project or proposal. The assessor will be provided with all relevant information about the projects, such as the development schemes, plans, photos, etc.

Please provide your personal information

a	Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
b	Age	<input type="checkbox"/> 30-39 <input type="checkbox"/> 40-49 <input type="checkbox"/> 50-59 <input type="checkbox"/> > 60
c	Educational level	<input type="checkbox"/> High Cert./ Diploma <input type="checkbox"/> Bachelor Degree <input type="checkbox"/> Master Degree <input type="checkbox"/> PhD (Doctor) Degree
d	Nature of work	<input type="checkbox"/> Property Development <input type="checkbox"/> Architectural Design <input type="checkbox"/> Urban Design <input type="checkbox"/> City Planning
e	Target group	<input type="checkbox"/> Urban design practitioner i.e.: Architect, Planner, Urban designer or Developer. <input type="checkbox"/> Scholar
h	Contact	Name: Email: Tel.:

Appendix B: Sample of Questionnaire part I for evaluation of urban heritage values in historic city centres in Iraq

Thank you for your participation in this questionnaire survey. This survey is to verify the representation and validity of Assessment criteria and their associated indicators for evaluating the urban heritage values which will then be used to assess the heritage property in Iraqi historic cities. The assessment strategy proposes 5 design criteria as shown below derived by exploratory and analytic process of literature review conducted during the research process. The most significant physical integrity and intangible aspects contributing to historical urban fabric physical identity are identified to be considered when planning national regeneration projects in the future.

The grades assigned to each parameter are graded based on an average of the scale for rating the i.e.: presence/absence or importance of the feature in the historic fabric as example:

	Least presence (absent) ;least important		Average		Extremely present; extremely important
Scale	0.1-1	1.1	→	2	2.1 - 3

The sum of the grades assigned to the criteria defines the heritage values of historic area. The average of these grades defines the overall grading of the city or heritage quarter.

Please assess (grade) the historical urban fabric of your city according to the following evaluation criteria:

Information about the surveyed city	
City or historic district name	
Location	
Data	

Criteria A: Architectural value of heritage context		
It refers to the presence or absence of buildings with interesting features or high architectural values in the historic fabric, with no reference to specific architectural styles or typologies.		
Assessment indicators	Grade	Pictures
Assessment indicator: 1 Absence or rare presence of heritage building in the historic fabric	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	Please add picture from your city
Assessment indicator: 2 Presence of some scattered building or parts of architecturally interesting buildings in the historic fabric	<input type="checkbox"/> 1.1 <input type="checkbox"/> 1.2 <input type="checkbox"/> 1.3 <input type="checkbox"/> 1.4 <input type="checkbox"/> 1.5 <input type="checkbox"/> 1.6 <input type="checkbox"/> 1.7 <input type="checkbox"/> 1.8 <input type="checkbox"/> 1.9 <input type="checkbox"/> 2	Please add picture from your city
Assessment indicator: 3 Presence of continuous and consistent street fronts, larger groups or ensembles of building of high architectural value	<input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.3 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 <input type="checkbox"/> 2.6 <input type="checkbox"/> 2.7 <input type="checkbox"/> 2.8 <input type="checkbox"/> 2.9 <input type="checkbox"/> 3	Please add picture from your city
Other suggestions:		
Notes on heritage features:		

Criteria B: Persistence of historic street alignments		
<p>It refers to the persistence or alteration of the front elevations of streets in historic cities, highlighting interventions related to the streets' widening or re-alignments, as well as building lines within which building activities are not permitted.</p>		
Assessment indicators	Grade	Pictures
<p>Assessment indicator: 1</p> <p>Historical street fronts systematically modified with set-back of reconstructed buildings preventing the perception of the historic street front alignments</p>	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	<p>Please add picture from your city</p>
<p>Assessment indicator : 2</p> <p>Frequent recent setback of reconstructed building with recesses not completely preventing the perception of the historic street fronts</p>	<input type="checkbox"/> 1.1 <input type="checkbox"/> 1.2 <input type="checkbox"/> 1.3 <input type="checkbox"/> 1.4 <input type="checkbox"/> 1.5 <input type="checkbox"/> 1.6 <input type="checkbox"/> 1.7 <input type="checkbox"/> 1.8 <input type="checkbox"/> 1.9 <input type="checkbox"/> 2	<p>Please add picture from your city</p>
<p>Assessment indicator : 3</p> <p>Few or no recent setbacks and recesses and persistence of historic street alignment</p>	<input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.3 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 <input type="checkbox"/> 2.6 <input type="checkbox"/> 2.7 <input type="checkbox"/> 2.8 <input type="checkbox"/> 2.9 <input type="checkbox"/> 3	<p>Please add picture from your city</p>
<p>Other suggestions:</p>		
<p>Notes on heritage features:</p>		

Criteria C: Persistence of traditional land subdivision patterns		
It refers to the persistence of land subdivision patterns with regard to historical plot patterns and their width on street fronts. It is essential when verifying the texture of the urban fabric.		
Assessment indicators	Grade	Pictures
Assessment indicator: 1 Historical and traditional land subdivision pattern completely altered by inconsistent building redevelopments	<input type="checkbox"/> 0	Please add picture from your city
Assessment indicator: 2 Historical or traditional land subdivision pattern preserved or partially modified but keeping the same "texture"	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	Please add picture from your city
Other suggestions:		
Notes on heritage features:		

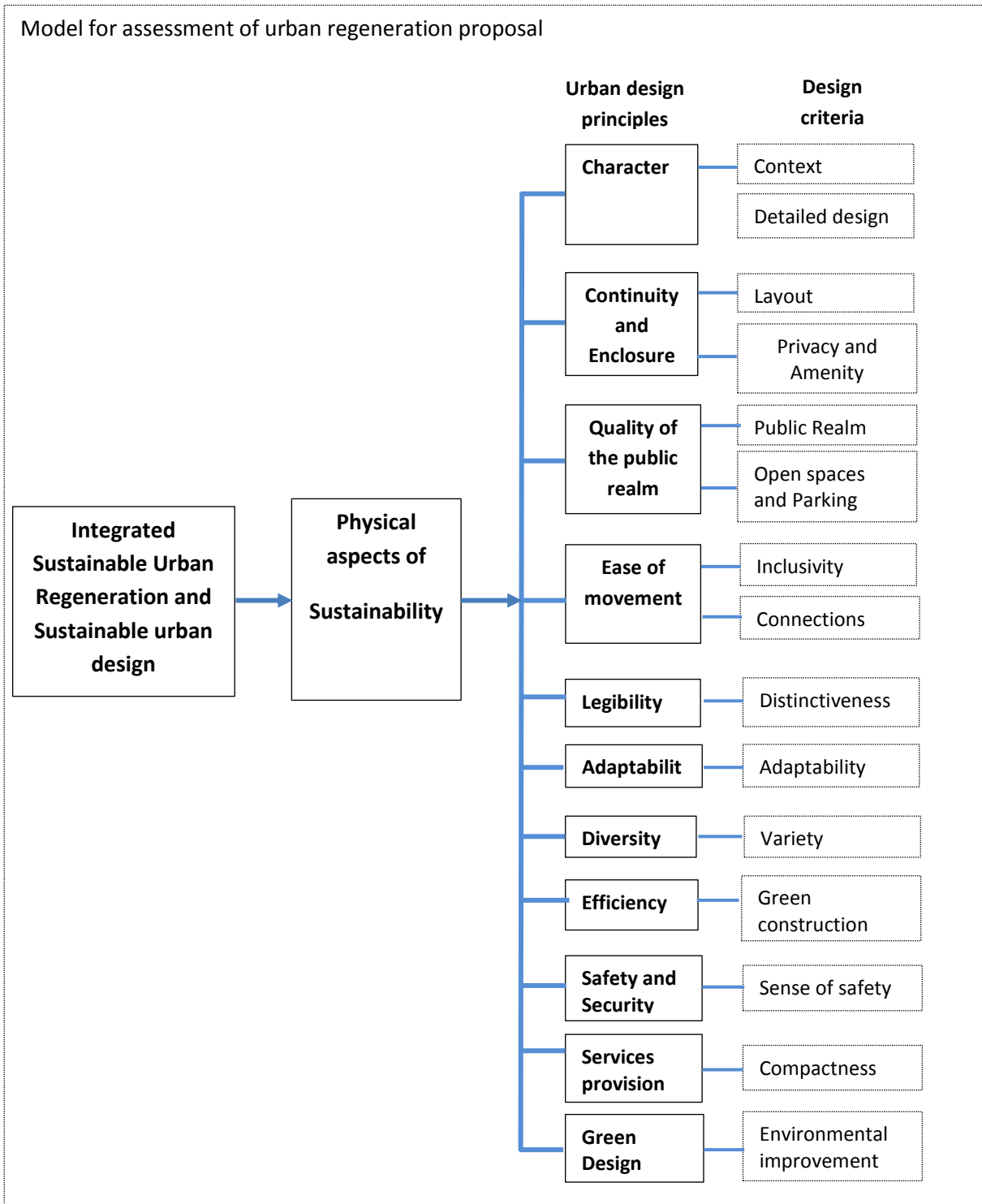
Criteria D: Continuity and compactness of the urban fabric		
It refers to a vital morphological feature of the historical urban fabric, highlighting the distinctiveness of anchors and landmarks (i.e. monuments), as well as important urban spaces.		
Assessment indicators	Grade	Pictures
Assessment indicator : 1 Presence of large vacant areas or ruins	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	Please add picture from your city
Assessment indicator : 2 No relevant presence of vacant areas and ruins	<input type="checkbox"/> 1.1 <input type="checkbox"/> 1.2 <input type="checkbox"/> 1.3 <input type="checkbox"/> 1.4 <input type="checkbox"/> 1.5 <input type="checkbox"/> 1.6 <input type="checkbox"/> 1.7 <input type="checkbox"/> 1.8 <input type="checkbox"/> 1.9 <input type="checkbox"/> 2	Please add picture from your city
Other suggestions:		
Notes on heritage features:		

Criteria E: Activities and uses of the urban space		
<p>It refers to the presence or absence of activities and uses in urban spaces. It is considered a fundamental relevant value that indicates the socioeconomic vitality and identity of the <i>urban spaces</i> in Historic cities.</p>		
Assessment indicators	Grade	Pictures
<p>Assessment indicator : 1</p> <p>No presence of community-oriented activities</p>	<input type="checkbox"/> 0.1 <input type="checkbox"/> 0.2 <input type="checkbox"/> 0.3 <input type="checkbox"/> 0.4 <input type="checkbox"/> 0.5 <input type="checkbox"/> 0.6 <input type="checkbox"/> 0.7 <input type="checkbox"/> 0.8 <input type="checkbox"/> 0.9 <input type="checkbox"/> 1	<p>Please add picture from your city</p>
<p>Assessment indicator : 2</p> <p>Few scattered community-oriented activities</p>	<input type="checkbox"/> 1.1 <input type="checkbox"/> 1.2 <input type="checkbox"/> 1.3 <input type="checkbox"/> 1.4 <input type="checkbox"/> 1.5 <input type="checkbox"/> 1.6 <input type="checkbox"/> 1.7 <input type="checkbox"/> 1.8 <input type="checkbox"/> 1.9 <input type="checkbox"/> 2	<p>Please add picture from your city</p>
<p>Assessment indicator : 3</p> <p>Community-oriented activities forming well consolidated “spines” or “cores”</p>	<input type="checkbox"/> 2.1 <input type="checkbox"/> 2.2 <input type="checkbox"/> 2.3 <input type="checkbox"/> 2.4 <input type="checkbox"/> 2.5 <input type="checkbox"/> 2.6 <input type="checkbox"/> 2.7 <input type="checkbox"/> 2.8 <input type="checkbox"/> 2.9 <input type="checkbox"/> 3	<p>Please add picture from your city</p>
<p>Other suggestions:</p>		
<p>Notes on heritage features:</p>		

Thank you for your participation. That is the end of part I of questionnaire

Appendix C Sample of questionnaire part II for evaluation of Assessment strategy

Thank you for your participation in this questionnaire survey. This survey is to verify the representation and validity of indicators for elected design criteria which will then be used to assess the performance of urban regeneration projects selected as case study. The assessment strategy containing 15 design criteria as shown below is derived by exploratory and analytic process of literature review conducted during the research process, the significant aspects contributing to physical sustainable urban regeneration are identified and to be considered when planning national regeneration projects in the future.



Questionnaire: please comment on the validity of the corresponding indicators of the following design criteria:

1	<p>Context</p> <p>It refers to the sense of place history and how the development responds to its surroundings, to reinforce the local patterns and identity.</p>
	<p>Assessment Indicator 1: The regeneration scheme positively contributes to the character and identity of the surrounding neighbourhood properties. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: the regeneration scheme incorporates the heritage, culture and historical context of surrounding communities and places. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: the regeneration scheme integrates with the physical environment, including its topography, biodiversity, landscape and views, existing streets and buildings, and infrastructure. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: the regeneration scheme is compatible with the surrounding social and economic activities. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: the regeneration scheme despite increase in density respects the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Other suggestions:</p>

2	<p>Detailed design</p> <p>How well thought through is the building and landscape design? It refers to the new development that complements and blends in with the physical characters of the surrounding neighbourhood.</p>
	<p>Assessment Indicator 1: in the regeneration scheme the materials and external design make a positive contribution to the locality. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: The regeneration scheme displays satisfactory visual appearance of the properties in terms of appropriate height and bulk of individual buildings Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme the design of the buildings and public space will facilitate easy and regular maintenance. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme the landscape design facilitates the use of the public spaces from the outset. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: in the regeneration scheme acceptable density of development within regeneration site in terms of plot ratio (PR= total gross building floor area / total site area to be renewed) Comments: Whether this is a valid indicator?</p>

	<input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

3	<p>Layout</p> <p>How does the proposal create people friendly places and streets where public and private spaces are clearly distinguished?</p>
	<p>Assessment Indicator 1: in the regeneration scheme layout aligns routes with desire lines and the building relate to a common building line to create a permeable interconnected series of routes that are easy to navigate around and define the street Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme the layout focuses activity on the streets by creating active frontages with front doors directly serving the street Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme the streets are designed as places, helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme the traffic speeds are controlled by design and layout rather than by speed humps Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: in the regeneration scheme block layout places some public spaces in front of building lines as squares or greens, and some semi private space to the back as communal courts. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	Other suggestions:

4	<p>Privacy and Amenity</p> <p>How does the scheme provide a decent standard of amenity?</p>
	<p>Assessment Indicator 1: in the regeneration scheme the design maximises the different used of front and backs of building , and ensure that entrances to properties front onto streets or spaces, to distinguished between private and public spaces Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: the regeneration scheme clearly defines and encloses useable private outdoor space, that provides for better privacy and security Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme development helps to define the relationship between the public spaces fronts of buildings and the streets benefits their respective uses. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme the design prevents sound transmission by appropriate layout and the windows are sited to avoid views into the home from other houses or the street Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator</p>

	<input type="checkbox"/> No, reason:
	Other suggestions:

5	<p>Public Realm It refers to the new development with attractive and successful outdoor spaces and to what extent the public areas are safe, secure and enjoyable?</p>
	<p>Assessment Indicator 1: in the regeneration scheme the public realm is considered as a usable integrated element in the design of the development. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme there is a clear definition between public, semi-private, and private spaces Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme the public open spaces are overlooked by surrounding buildings so that this amenity is owned by the residents and allow natural surveillance, feel safer and safe to use Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme roads and open car parking areas are considered as an integral landscaped element within the public realm design and are treated accordingly. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: in the regeneration scheme large ground floors designed to make a positive contribution to the street scene and creating an active building frontage, with interest uses that relate directly to passing pedestrians Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	Other suggestions:

6	<p>Open spaces and Parking How will the parking be secure and attractive?</p>
	<p>Assessment Indicator 1: in the regeneration scheme the design of public open and green spaces respect the natural features, takes account of the micro-climate and are accessible Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme adequate percentage and proper location of provided open spaces within the regeneration area Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme works of art and street furniture are integrated into the design of public spaces, to give identity and enhance the sense of place Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: the regeneration scheme Integrates materials and soft landscape elements, with the rest of elements of parking, street and paving in a coordinated way Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator</p>

<input type="checkbox"/> No, reason:
Assessment Indicator 5: in the regeneration scheme parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
Assessment Indicator 6: in the regeneration scheme the car parking is on kerb or within easy reach for different users and the parked cars are overlooked by residents, pedestrians and traffic, or stored in secure underground arrangements Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
Other suggestions:

7	Inclusivity How easy is it for people to use and access the development?
	Assessment Indicator 1: in the regeneration scheme there is a range of public, communal and/or private amenity spaces and facilities for children of different ages, parents and the elderly Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 2: in the regeneration scheme the areas defined as public open space that have been either taken in charge or privately managed will be clearly defined, accessible and open to all Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 3: in the regeneration scheme new buildings present a positive aspect to passers-by avoiding unnecessary physical and visual barriers Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 4: in the regeneration scheme there is appropriate physical design of the pedestrian walkways and pedestrian passages to public transport in terms of location, width and material used Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

8	Connections Related to how well connected the new neighbourhoods are and the required quality of the pedestrian walkways and mass transport system.
	Assessment Indicator 1: in the regeneration scheme the urban structure has an attractive network of connected spaces and routes, for pedestrians, cyclists and vehicles Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 2: in the regeneration scheme the layout links to existing routes and places, In addition to the way development is laid out can encourage low traffic speeds. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 3: in the regeneration scheme the layout and density of development help to support efficient public transport and increase accessibility to the site rather than creating big blocks. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:

	<p>Assessment Indicator 4: in the regeneration scheme transport interchanges in the development's layout promote the use of public transport and provide for seamless movement between all modes of travel</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	Other suggestions:

9	Distinctiveness
	How do the proposals create a sense of place?
	<p>Assessment Indicator 1: in the regeneration scheme the design, location and function of buildings reinforce the identity of the locality - routes and spaces they serve</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme the corners design, detailing and quality of materials in new development improved legibility by creating visual interest and contributing to a distinctive identity</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme the place has recognisable features so that people can describe where they live and form an emotional attachment to the place</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme the layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout.</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: in the regeneration scheme there is a discernible focal point to the proposals reinforcing the role of an existing centre</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	Other suggestions:

10	Adaptability
	Refers to the flexibility to cope with future changes in use, lifestyle and demography without substantial alterations of building structures
	<p>Assessment Indicator 1: in the regeneration scheme the development has flexible layouts and places design is capable of being used for a range of activities.</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme the building forms are simple, robust and not tightly designed to a very particular use, allow for the greatest variety of possible future uses to be accommodated.</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme the non- residential portion of the redevelopment is readily allowed for future expansion, improvement & modification involving structural & and non-structural alterations</p> <p>Comments: Whether this is a valid indicator?</p> <p><input type="checkbox"/> Yes , No comment</p> <p><input type="checkbox"/> Yes with comments on indicator</p> <p><input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: in the regeneration scheme the homes design allows for adaptation and subdivision without ruining the character of the types, layout and outdoor space</p>

	<p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 5: the regeneration scheme properly retains and rehabilitates to the existing properties that have significant values [The percentage of retained existing properties = total retain area/ total construction area in the site * 100%]</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

11	Variety
	<p>How does the development promote a good mix of activities?</p> <p>Assessment Indicator 1: the regeneration scheme creates a mix of activities in the most accessible places to attract people to live, work and play in the same area, and contribute to meets different needs.</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 2: in the regeneration scheme the diversity of layout, building form and tenure to contribute making successful living and working environments</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 3: in the regeneration scheme there is a range of facilities, services and activities establishments per population.</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 4: in the regeneration scheme there is a rich range of experiences—how you move around and interact with others, what buildings and spaces look and feel like, and what things you can do</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 5: in the regeneration scheme despite the diversity, there is an overall harmonious blend and each locality has its own characters and activities are compatible with those already available in the neighbourhood</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

12	Efficiency (Green construction)
	<p>How does the development make appropriate use of resources, including land</p> <p>Assessment Indicator 1: in the regeneration scheme the proposal looks at the potential of higher density, taking into account appropriate accessibility by public transport and the objectives of good design</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 2: in the regeneration scheme landscaped areas are designed to provide amenity and biodiversity, protect buildings and spaces , and incorporate sustainable urban drainage systems</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	<p>Assessment Indicator 3: in the regeneration scheme the buildings, gardens and public spaces are laid out to exploit the best solar orientation</p> <p>Comments: Whether this is a valid indicator?</p> <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:

	<p>Assessment Indicator 4: in the regeneration scheme the scheme brings a redundant building or derelict site back into productive use. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: the regeneration scheme adopted construction practices in the project, can effectively minimize the consumption of natural resources and use them in an efficient way Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	Other suggestions:

13	<p>Sense of Safety a place where the users feel and are as safe as possible</p>
	<p>Assessment Indicator 1: in the regeneration scheme the roads and paths are safe and convenient for all citizens to walk or walk to the nearest public transport facilities or ride their bikes Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: the regeneration scheme ensures all routes and open spaces are well overlooked by building to avoid creating hiding places and segregating pedestrians, cyclists and vehicles Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: the regeneration scheme concentrates the activity along a network of pedestrian-friendly key routes and public spaces so that these can be “self-policing” Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 4: the regeneration scheme ensures public car parks and secure cycle parking areas are accessible with secure and visible entrances and exits Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 5: the regeneration scheme provides a clear distinction between the publicly accessible streets and space and private space associated with individual buildings and groups of buildings Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	Other suggestions:

14	<p>Compactness The possibility of approaching the places where the public facilities are located</p>
	<p>Assessment Indicator 1: in the regeneration scheme the proposal considered the factors of distance ,comfort and safety , when locating the public facilities Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 2: in the regeneration scheme access to local / neighbourhood public facilities ‘that are essential to the daily necessity of community’ can be found within 500m in the residential development in the regeneration project Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:</p>
	<p>Assessment Indicator 3: in the regeneration scheme accessible design and adequate facilities are provided for the people regardless of age & physical abilities Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator</p>

	<input type="checkbox"/> No, reason: Assessment Indicator 4: the regeneration scheme provides local services and deals with the volume of solid waste generated Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

15	Green Design Refers to the design approach that minimises the impact on our environment and optimize the use of natural resources.
	Assessment Indicator 1: the regeneration scheme ensures that the layout and orientation of buildings benefits from passive solar gain for natural heating and use natural ventilation to reduce the mechanical requirements Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 2: the regeneration scheme locates buildings where they are least exposed to the chilling effect of prevailing winds, using topography, other buildings and tree belts to provide shelter Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 3: the regeneration scheme reduces the potential for overheating on south facing facades and the need for mechanical cooling (through appropriate window sizes or blinds, screens or planting to provide shading) Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Assessment Indicator 4: the regeneration scheme provides for natural daylight and sunlight to illuminate the interior of buildings reducing the need for artificial lighting. Comments: Whether this is a valid indicator? <input type="checkbox"/> Yes , No comment <input type="checkbox"/> Yes with comments on indicator <input type="checkbox"/> No, reason:
	Other suggestions:

Thank you for your participation. That is the end of part II of questionnaire.

Appendix D Sample of questionnaire part III for implementation of the developed assessment strategy

Thank you for your participation in this questionnaire survey. This survey is to examine the applicability and reliability of the developed assessment strategy as a useful tool to assess the design quality and the sustainability level of an urban regeneration project, and thus to select an appropriate regeneration proposal for an area. In this part of the questionnaire, the assessor is asked to apply the developed assessment strategy on the specific case studies, to identify the extent to which an urban regeneration project being assessed achieves sustainable development in terms of various design criteria. The indicators that were developed through the research processes will play an important role in the assessment mechanism, they provide guidance for the decision makers concerning sustainable development to work out the most appropriate urban regeneration proposal for a particular area and to provide an early warning to the project designers to minimize/prevent potential economic, environmental and social damages before project commencement.

To identify the applicability of the developed strategy in the local context two case studies were selected, the first represents the previous trends in urban redevelopment in Iraq, and the selected project is the urban redevelopment scheme for Al-Rusafa historical zones in Baghdad. The second case represents the recent trends in urban regeneration in Iraq, and the case is the regeneration proposal for Najaf city.

Due to the large number of assessment indicators and to facilitate the assessment process, the respondents are divided into two groups and each group evaluates one project or proposal. The assessor is provided with all relevant information about the project such as the development schemes, plans, photos, etc. Some of the indicators could only be roughly assessed, since not all details of the projects are accessible for public inspection.

Questionnaire: please evaluate the urban regeneration proposal of (Najaf city/Al-Rusafa district) according to the developed assessment strategy in the following model:

Project details				
Urban design principles	Performance criteria	Assessment indicators (Positive impacts) represent the positive performance of regeneration scheme	Guideline: Evaluation Points allocated on a scale of 1 – 5, of individual criteria. 1= not at all successful 5= very successfully	
Character Sense of place and history	Context	The regeneration scheme seems to:		
		Ind.1: Positively contribute to the character and identity of the surrounding neighbourhood properties	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: Incorporates the heritage, culture and historical context of surrounding communities and places	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Integrate with the physical environment, including its topography, biodiversity, landscape and views, existing streets and buildings, and infrastructure	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Be compatible with the surrounding social and economic activities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Respect the form of buildings and landscape around the site's edges and the amenity enjoyed by neighbouring users when increasing in density.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Result		
	Comments			
	Detailed Design	In the regeneration scheme:		
		Ind.1: The materials and external design make a positive contribution to the locality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion
		Ind.2: Satisfactory visual appearance of the properties in terms of appropriate height and bulk of individual buildings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Either succeed in 1 indicator <input type="checkbox"/> 1 point
		Ind.3: Design of the buildings and public space will facilitate easy and regular maintenance	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Any 2 indicator <input type="checkbox"/> 2 points
Ind.4: The landscape design facilitates the use of the public spaces from the outset		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Any 3 indicator <input type="checkbox"/> 3 points	
Ind.5: Acceptable density of development within regeneration site in terms of plot ratio (PR= total gross building floor area / total site area to be renewed)		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Any 4 indicator <input type="checkbox"/> 4 points	
	Result			
Comments				
Continuity and enclosure	Layout	The regeneration scheme shows:		
		Ind.1: Layout ensures that there is continuity in the frontages of streets and spaces through buildings relating to a common building line, street blocks or alongside public spaces; to create a permeable	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
			Score weight of criterion	

Clarity of form		routes and define the street.		Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: The layout focuses activities on the streets by creating active frontages with front doors directly serving the street	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: The streets are designed as places , helping to create a hierarchy of space with less busy routes having surfaces shared by pedestrians, cyclists and drivers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Block layout places some public spaces in front of building lines as squares or greens, and some semi private space to the back as communal courts	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Traffic speeds are controlled by design and layout rather than by speed humps	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Result		
	Comments			
Privacy and Amenity		In the regeneration scheme:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: the design maximises the different use of front and backs of buildings, and ensures that entrances to properties are located in a way to distinguish between private and public spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: Clearly defining and enclosing useable private outdoor space, that provides for better privacy and security	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Development helps to define the relationship between the public spaces fronts of buildings and the streets regarding their respective uses	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: The design prevents sound transmission by appropriate layout and the windows are sited to avoid views into the home from other properties or the streets	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Result		
	Comments			
Quality of the public realm Sense of wellbeing and amenity	Public Realm	In the regeneration scheme:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: The public realm is considered as a usable integrated element in the design of the development	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: There is a clear definition between public, semi-private, and private spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: The public open spaces are overlooked by surrounding buildings so that this amenity is owned by the residents and allow natural surveillance, feel safer and safe to use	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: Roads and open car parking areas are considered as an integral landscaped element within the public realm design and are treated accordingly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Ground floors designed to make a positive contribution to the street scene and create an active building frontage, with interesting uses that relate directly to passing pedestrians	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			

	Comments		
	Open spaces and Parking	The regeneration scheme shows:	
		Ind.1: The design of public open and green spaces respect the natural features, takes account of the micro-climate and are accessible	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.2: Adequate percentage and proper location of provided open spaces within the regeneration area	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.3: Works of art and street furniture are integrated into the design of public spaces, to give identity and enhance the sense of place	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.4: Integrate materials and soft landscape elements, with the other elements of parking, street and paving in a coordinated way	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.5: Parking is provided communally to maximise efficiency and accommodate visitors without the need to provide additional dedicated spaces	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.6: The car parking is on street or within easy reach from different users and the parked cars are overlooked by residents, pedestrians and traffic, or stored in secure underground arrangements	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Result	
	Comments		
Ease of movement Connectivity and permeability	Inclusivity	In the regeneration scheme:	
		Ind.1: There is a range of public, communal and/or private amenity spaces and facilities for children of different ages, parents and the elderly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.2: Areas defined as public open space that has been either taken in charge or privately managed will be clearly defined, accessible and open to all	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.3: New buildings present a positive aspect to passers-by avoiding unnecessary physical and visual barriers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.4: Appropriate physical design of the pedestrian walkways and pedestrian passages to public transport in terms of location, width and material used	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Result	
	Comments		
	Connections	The regeneration scheme shows:	
		Ind.1: the urban structure has an attractive network of connected spaces and routes, for pedestrians, cyclists and vehicles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
		Ind.2: The layout links to existing routes and places, In addition to the way development is laid out can encourage low traffic speeds	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5
Ind.3: The layout and density of development help to support efficient public transport and increase accessibility to the site rather than creating big blocks		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
Ind.4: Transport interchanges in the development's layout promote the use of public transport and provide for seamless movement between all		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	

		modes of travel		
		Result		
	Comments			
Legibility Ease of understanding	Distinctiveness:	The regeneration scheme seems to:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: The design, location and function of buildings reinforce the identity of the locality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: The corners design, detailing and quality of materials in new development improve legibility by creating visual interest and contributing to a distinctive identity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: The place has recognisable features so that people can describe where they live and form an emotional attachment to the place	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: The layout makes the most of the opportunities presented by existing buildings, landform and ecological features to create a memorable layout	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.5: There is a discernible focal point to the proposals reinforce the role of an existing centre	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
		Result		
	Comments			
Adaptability Ease of change	Adaptability	In the regeneration scheme:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1: Development has flexible layouts and places design is capable of being used for a range of activities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: The buildings forms are simple, robust and not tightly designed to a very particular use, allowing for the greatest variety of possible future uses to be accommodated	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: The non- residential portion of the redevelopment is readily allowed for future expansion, improvement and modification involving structural and non-structural alterations	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4: The home design allows for adaptation and subdivision without ruining the character of the types, layout and outdoor space	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.5: the existing properties that have significant values are properly retained and rehabilitated [The percentage of retained existing properties = total retain area/ total construction area in the site * 100%]	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
		Result		
	Comments			
Diversity Ease of choice	Variety	The regeneration scheme seems to:		Score weight of criterion Either succeed in 1 indicator
		Ind.1: Create a mix of activities in the most accessible places to attract people to live, work and play in the same area, and contribute to meets different needs	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2: Have a diversity of layout, building form and tenure that contribute to successful living and	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	

		working environments		<input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.3:Have a range of facilities, services and activities establishments per population	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:Have a rich range of experiences—how you move around and interact with others, what buildings and spaces look and feel like, and what things you can do	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: Have an overall harmonious blend, despite the diversity, and each locality has its own characters and activities that are compatible with those already available in the neighbourhood	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Result		
	Comments			
Efficiency appropriate use of resources	Green construction	In the regeneration scheme:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1:The proposal looks at the potential of higher density, taking into account appropriate accessibility by public transport and the objectives of good design	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2:Landscape areas are designed to provide amenity and biodiversity, protect buildings and spaces, and incorporate sustainable urban drainage systems	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:Buildings, gardens and public spaces are laid out to exploit the best solar orientation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:The scheme brings a redundant building or derelict site back into productive use	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: The adopted construction practices in the project, can effectively minimize the consumption of natural resources and use them in an efficient way	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			
	Comments			
Safety and Security place where the users feel and are as safe as possible	Sense of safety	Regeneration proposals designed to:		Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.1:Ensure design of roads and paths are safe and convenient for all citizens to walk or walk to the nearest public transport facilities or ride their bikes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.2:Ensure all routes and open spaces are well overlooked by building to avoid creating hiding places and segregating pedestrians, cyclists and vehicles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3:Concentrate the activity along a network of pedestrian-friendly key routes and public spaces so that these can be “self-policing”	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.4:Ensure public car parks and secure cycle parking areas are accessible with secure and visible entrances and exits	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.5: provide a clear distinction between the publicly accessible streets and spaces and private spaces associated with individual buildings and groups of buildings	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Result			

	Comments			
Services provision appropriate and high quality service infrastructure	Compactness	Regeneration proposals designed to:		
		Ind.1: Consider the factors of distance, comfort and safety, when locating the public facilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: Provide access to local / neighbourhood public facilities in the residential development 'that are essential to the daily necessity of community' these can be found within 500m in the regeneration project	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: Provide accessible design and adequate facilities for the people regardless of age and physical abilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.4: Provide local services and deal with the volume of generated solid waste	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
	Result			
	Comments			
Green design Minimising the impact on our environment	Environmental improvement	Regeneration proposals designed to:		
		Ind.1: Ensure that the layout and orientation of buildings benefits from passive solar gain for natural heating and use natural ventilation to reduce the mechanical requirements	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	Score weight of criterion Either succeed in 1 indicator <input type="checkbox"/> 1 point Any 2 indicator <input type="checkbox"/> 2 points Any 3 indicator <input type="checkbox"/> 3 points Any 4 indicator <input type="checkbox"/> 4 points All or above <input type="checkbox"/> 5 points
		Ind.2: locate buildings where they are least exposed to the chilling effect of prevailing winds, using topography, other buildings and tree belts to provide shelter	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
		Ind.3: reduce the potential for overheating on south facing facades and the need for mechanical cooling (through appropriate window sizes or blinds, screens or planting to provide shading)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5	
	Ind.4: provide for natural daylight and sunlight to illuminate the interior of buildings reducing the need for artificial lighting	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1 2 3 4 5		
	Result			
	Comments			

Thank you for your participation. That is the end of part III of questionnaire.