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**SUSTAINABLE URBAN DEVELOPMENT AND ITS IMPACT ON  
FACILITIES MANAGEMENT: THE CASE OF THE CITY OF DOHA, QATAR**



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**TABLE OF CONTENTS**

<b>TABLE OF CONTENTS</b> .....	i
LIST OF FIGURES .....	vii
LIST OF TABLES .....	viii
DECLARATION .....	ix
ACKNOWLEDGEMENT .....	x
ABBREVIATIONS .....	xi
DEFINITIONS .....	xiii
ABSTRACT .....	xv
<b>CHAPTER 1: RESEARCH INTRODUCTION</b> .....	1
1.1 Introduction .....	1
1.2 Background to the study/research .....	1
1.2.1 Urban development drive .....	3
1.2.2 Urban development status .....	6
1.2.3 Sustainable development .....	7
1.2.4 Facilities management (FM) .....	9
1.2.5 FM and a developing city.....	12
1.3 Problem statement.....	13
1.4 Research question .....	13
1.7 Research objectives .....	13
1.8 Research method.....	14
1.9 Scope and limitations .....	14
1.10 Dissertation outline .....	14
<b>CHAPTER 2: THEORETICAL AND CONTEXTUAL FRAMEWORK</b> .....	16
2.1 Introduction .....	16
2.2 Urban development .....	16
2.2.1 Sustainable urban development.....	19
2.2.2 Sustainable city growth overview .....	20
2.3 Sustainable development definition .....	21

2.4 Sustainable construction.....	30
2.4.1 Sustainable design .....	34
2.4.2 Sustainable construction strategy .....	35
2.5 Qatar sustainability approach .....	37
2.5.1 GSAS/QSAS certification process .....	39
2.5.2 GSAS/QSAS compliance .....	41
2.6 FM in use.....	42
2.7 FM models and systems.....	45
2.8 Strategic FM.....	46
2.9 Positioning of FM .....	48
2.10 Performance of FM.....	50
2.11 FM and project briefing .....	52
2.12 FM and environmental management.....	54
2.13 Sustainable FM .....	55
2.14 Factors that affect sustainable FM.....	57
2.15 Concluding remarks .....	59
CHAPTER 3: RESEARCH METHODOLOGY .....	61
3.1 Introduction .....	61
3.2 Research philosophy.....	61
3.2.1 Qualitative versus Quantitative research .....	63
3.2.2 Theory development.....	65
3.2.3 Research design .....	65
3.3 Revisiting the research question .....	67
3.4 Methodology .....	69
3.5 Case study .....	71
3.5.1 Case study definition .....	71

3.5.2 Case study challenges.....	74
3.5.3 Selection of a case study.....	76
3.5.4 Single case study.....	77
3.6 Research methods and data collection .....	79
3.6.1 Data sampling.....	79
3.6.2 Interviews .....	81
3.6.3 Documentary evidence .....	83
3.6.4 Direct observations.....	83
3.6.5 Photographic evidence .....	84
3.6.6 Approach considerations .....	85
3.7 Sources of data .....	85
3.8 Data collection .....	87
3.8.1 Aide memoire vs contextual framework .....	89
3.8.2 Ethical considerations .....	90
3.9 Data analysis .....	95
3.9.1 Grounded theory data analysis technique vs thematic analysis .....	96
3.9.2 Data reduction, display and verification .....	98
3.10 Ethical issues.....	99
3.11 Limitations.....	100
3.12 Concluding remarks .....	102
CHAPTER 4: EMERGENT THEMES .....	103
4.1 Introduction .....	103
4.2 Background of the case .....	103
4.2.1 Pre-oil discovery settlement.....	103
4.2.2 The oil boom settlement .....	105
4.2.3 The post oil boom settlement.....	107

4.2.4 Concluding remarks.....	108
4.3 EMERGENT THEME 1: National Development Vision.....	109
4.3.1 Sporting sub-vision.....	109
4.3.1.1 Sports sub-vision’s impact on urban development .....	110
4.3.1.2 Sports sub-vision’s impact on sustainable development .....	112
4.3.1.3 Sports sub-vision’s impact on FM.....	113
4.3.2 Tourism sub-vision.....	115
4.3.2.1 Tourism sub-vision’s impact on urban development.....	117
4.3.2.2 Tourism sub-vision’s impact on sustainable development.....	118
4.3.2.3 Tourism sub-vision’s impact on FM .....	119
4.3.3 Education sub-vision .....	120
4.3.3.1 Education sub-vision’s impact on urban development.....	121
4.3.3.2 Education sub-vision’s impact on sustainable development.....	122
4.3.3.3 Education sub-vision’s impact on FM .....	124
4.3.4 Transport sub-vision.....	125
4.3.4.1 Transportation sub-vision’s impact on urban development.....	126
4.3.4.2 Transportation sub-vision’s impact on sustainable development.....	128
4.3.4.3 Transportation sub-vision’s impact on FM .....	129
4.3.5 Real estate sub-vision.....	130
4.3.5.1 Real estate sub-vision’s impact on urban development.....	131
4.3.5.2 Real estate sub-vision’s impact on sustainable development.....	132
4.3.5.3 Transportation sub-vision’s impact on FM .....	134
4.3.6 Concluding remarks.....	135
4.4 EMERGENT THEME 2 - Urban development.....	136
4.4.1 Urban planning process.....	136
4.4.2 Expatriate influence on urban development.....	137
4.4.3 Urban development vs sustainability .....	138
4.4.4 Urban development vs FM .....	139
4.4.5 Concluding remarks.....	141

4.5 EMERGENT THEME 3 - Sustainable development.....	141
4.5.1 Definitions of sustainable development.....	143
4.5.2 Sustainable development challenges.....	144
4.5.3 Qatar sustainability approach .....	146
4.5.4 Regional sustainable development (documentary).....	147
4.5.5 Concluding remarks.....	148
4.6 EMERGENT THEME 4 - FM.....	148
4.6.1 Emerging definition of FM .....	150
4.6.2 FM expertise and function .....	151
4.6.3 FM strategy, performance and positioning .....	153
4.6.4 FM demand and supply .....	155
4.6.5 FM prior, during and post hosting of major sporting events.....	156
4.6.6 MEFMA (Middle East FM Association) .....	158
4.6.7 Concluding remarks.....	158
4.7 Conclusion .....	159
CHAPTER 5: SUSTAINABLE URBAN DEVELOPMENT AND FM .....	160
5.1 Introduction .....	160
5.2 Emergent themes vs contextual framework .....	160
5.3 Identification of the core category .....	163
5.3.1 QNV implementation .....	163
5.3.2 Urban development dynamics .....	165
5.3.3 Sustainable development .....	167
5.3.4 FM unique position .....	167
5.4 A thematic analysis of urban development on FM.....	168
5.5 Research objectives and question revisited .....	170
5.6 Theoretical propositions.....	173

5.7 Research implications .....	175
5.7.1 QNV implementation .....	175
5.7.1.1 Sports .....	175
5.7.1.2 Tourism .....	176
5.7.1.3 Education .....	176
5.7.1.4 Transport .....	176
5.7.1.5 Real estate .....	177
5.7.2 Urban development .....	177
5.7.3 Sustainable development .....	178
5.7.4 FM challenges .....	178
5.8 Research limitations .....	179
5.9 Reflective thoughts .....	181
APPENDICES.....	185
Appendix A: Map of Interviewees .....	186
Appendix B: Interview Aide Memoire .....	187
Appendix C: Randomly Selected Interview Transcript .....	191
Appendix D: Emergent Theme Matrix .....	204
Appendix E: Ethics Clearance .....	206
Appendix F: Consent Form .....	207
REFERENCES .....	209

**LIST OF FIGURES**

Figure 2.1: Theory of space production for urban evolutions .....	18
Figure 2.2: Relation of sustainability variables .....	25
Figure 2.3: Sustainability themes and solutions .....	26
Figure 2.4: Construction process .....	32
Figure 2.5: QSAS Categories and environmental impacts .....	40
Figure 2.6: Workplace as a centre of activities .....	44
Figure 2.7: Strategic planning process .....	47
Figure 3.1: Research and design approach .....	67
Figure 3.2: Data analysis: Interactive model .....	99
Figure 4.1: Doha during pre-oil settlement .....	103
Figure 4.2: Urban structure of Doha during oil boom .....	103
Figure 4.3: Urban fabric during oil boom .....	105
Figure 4.4: Doha urban settlement fabric post oil discovery .....	106
Figure 4.5: Modern Doha's West Bay Central Business District.....	107
Figure 4.6: Katara Village Cultural Day .....	116
Figure 4.7: Qatar Foundation's Education City.....	121
Figure 4.8: Qata proposed rail routes.....	127
Figure 4.9: Modern Qatar's Pearl Development .....	131
Figure 5.1: Conceptual Framework of FM as a central core.....	164

**LIST OF TABLES**

Table 2.1: Briefing and considerations .....53

Table 2.2: FM functional levels.....56

Table 3.1: Comparison of Quantitative and Qualitative research .....64

Table 3.2: Theory and examples.....65

Table 3.3: Types of evidence: Strengths and weaknesses .....86

Table 3.4: Sources and method of obtaining data .....87

Table 3.5: Interviewee codes .....91

Table 3.6: Average length of interviews .....92

Table 3.7: Terms used in research quality assessment .....94

## DECLARATION

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Signed by candidate

Date: January 2015

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**ABBREVIATIONS**

BIFM	British Institute of Facilities Management
BIM	Building Information Modelling
BRE	Building Research Establishment
BREAM	Building Research Establishment Environmental Assessment Method
BOOT	Build Own Operate Transfer
BOT	Build Operate Transfer
CAFMS	Computer Aided Facilities Management Systems
CBC	Central Business District
CMMS	Computerised Maintenance Management Systems
DC	Design Consultant
ECS	European Committee for Standardisation
EU	European Union
EPI	Environmental Performance Indicators
DETR	Department of the Environment, Transport and the Regions
FIFA	International Federation Football Association
FM	Facilities Management
FMA	Facility Management Association of Australia
GCC	Gulf Cooperation Council
GHG	Greenhouse Gas
GORD	Gulf Organisation of Research and Development
GSAS	Global Sustainability Assessment System
IFMA	International Facility Management Association
IUCN	International Union for the Conservation of Nature
KPI	Key Performance Indicators
LCA	Life Cycle Analysis
LCC	Life Cycle Costing
LEED	Leadership in Energy and Environmental Design
MEFMA	Middle East Facilities Management Association
MENA	Middle East and North Africa
MMUP	Ministry of Municipality and Urban Planning
NDS	National Development Strategy
O & M	Operations and Maintenance Manuals

PFI	Private Finance Initiatives
QGBC	Qatar Green Building Council
QNV	Qatar National Vision 2030
QSAS	Qatar Sustainability Assessment System
QSDP	Qatar General Secretariat of Development Planning
Q22	Qatar 2022 FIFA World Cup
RERA	Real Estate Regulatory Association
RICS	Royal Institution of Chartered Surveyors
SD	Sustainable Development
SMR	Strategic Maintenance Regime
SWOT	Strengths, Weaknesses, Opportunities and Threats
UN	United Nations
UNCED	United Nations Conference on Environment and Development
WCED	World Commission on Environment and Development
WCU	World Conservation Union

## DEFINITIONS

**Axial coding:** This is the basis on which a concept is created through treating a category as an axis upon which reference is established to construct a model that presents the specific conditions, properties and dimensions of this category. This type of coding acknowledges the dynamic interrelationships of concepts and resembles data that is open for further coding (Strauss and Corbin, 1990:61).

**Capability:** The availability of all the skills needed to run an organisation (RICS Guidance Note, 2013:54).

**Categories:** These are concepts with common properties that emanate from the analysis of data. They highlight similar phenomena to enable data to be grouped and are also referred to as themes (Strauss and Corbin, 1990:159).

**Core category:** This is the central phenomenon around which all the other categories are related in a way that unites all the interpretations to provide an explanation of the perceptions under the study (Corbin and Strauss, 2008:104).

**Coding:** This is the process in which data collected is defined. Codes are assigned to categories or themes that emerge from the sources of data (Charmaz, 2006:186).

**Data display:** An organised, compressed, assembly of information that permits conclusion drawing and action (Miles and Huberman, 1994:11).

**Data reduction:** A form of analysis that sharpens, sorts, focuses, discards and organises data in such a way that a 'final' conclusion can be drawn and verified (Miles and Huberman, 1994:11).

**Facility:** An environment built, installed or established to serve an organisation in the delivery of its operational objectives. This can be a generic term used to describe a specific building or group of buildings with the same function (RICS Guidance Note, 2013:55).

**Grounded theory:** It is a method of conducting a qualitative study in which a set of inductive and iterative techniques are employed to create or identify categories or

concepts from the data. This method is systematic and the flexibility in collecting and analysing qualitative data to develop theories is grounded in the data (Charmaz, 2006:187).

**Open coding:** This is the form of initial categories of information from data gathered about the central idea being under investigation. It is therefore a process of splitting, examining, conceptualising, comparing and categorising the data (Strauss and Corbin, 1990:61).

**Phenomena:** Central ideas that form the concepts emanating from data collected and analysed (Strauss and Corbin, 1998:101).

**Selective coding:** A process of selecting the central or core category, systematically relating into other categories, validating those relationships and filling in the categories that need further development or refinement (Strauss and Corbin, 1990:116).

**Sourcing:** The process by which the provision of the work involved in providing services or goods is procured. This may be in-house, outside firm or partnership with another organisation (RICS Guidance Note, 2013:58).

**Strategic:** A term generally used to describe a purposeful way in which high level aims and objectives are pursued (RICS Guidance Note, 2013:58).

**Thematic analysis:** It is a process of encoding qualitative information such that codes, words or phrases are interpreted to develop labels or sections that lead to the formation and presentation of themes or conceptual models emanating from the data analysis (Boyatzis, 1998:vi).

**Theoretical coding:** It is a process of conceptualising the relationship of codes to each other as a hypothesis that can be integrated into a theory (Glaser, 1978:72).

**Theoretical sampling:** It is the process of collecting data for generating theory whilst the analysis simultaneously collects codes and analyses the data; decides the type of data to be collected next in order to develop the emerging theory (Glaser and Strauss, 1967:45).

**ABSTRACT**

This research study examines the extent of urban development in Doha in relation to the impact this development poses on Facilities Management (FM). The focus of this study is on the city of Doha, Qatar. Urban growth that is not underpinned by a sustainable development ethos presents unique challenges on social, economic, human and environmental development. Two fundamental drivers of the urban development, namely: the implementation of Qatar National Vision 2030 (QNV) and the preparation to host major sports events such as Men's Handball Tournament 2015 and FIFA Football World Cup in 2022 have been investigated. Particular emphasis is to be placed on the government to look beyond ambitions for creating a 'global hub city' and contextualise the position of Qatar in terms of limited population numbers, dependence on a foreign workforce and the hiring of knowledge instead of creating a base. The emergence of FM as an important dimension to sustainable development requires a paradigm shift in encouraging FM involvement in the development process. A case study was undertaken and a thematic analysis was adopted within a non-interventional interpretative paradigm. Field data were collected using semi-structured interviews with respondents being identified through convenience and purposeful sampling considerations. The data show that while the hosting of major sports events presents legacy issues and FM pressures after the events, it is the implementation of the QNV that also provided significant challenges on rapid urban growth, sustainable development and FM. Implications of the findings are that a national development strategy for an emerging economy is required to be underpinned by the application of a holistic and sustainable approach that provides social and economic development to the communities; the formulation of an urban development process that assists in creating a controlled urban growth that can offer a viable creation of social inclusivity needed to achieve sustainable development; and that the low level of FM expertise as a result of the limited number of FM firms and the lack of technology and techniques presents unique FM challenges in Qatar.

## **CHAPTER 1: RESEARCH INTRODUCTION**

### **1.1 Introduction**

This chapter aims to introduce the research topic and the need to conduct the research to gain an understanding of the rapid urban development in Doha, Qatar, in relation to the unique urban FM challenges that are posed by this rapid development. The introduction provides an outline and discussion of the research problem and the formulation of the research question. The concerns of how this rapid urban development affects/will affect the sustainability agenda and FM are argued in relation to wanting to address the formulated objectives thereof. The existing literature on sustainable development and FM plays an important role in providing discussions and comparisons of the background to the research problem and theoretical understanding of the research question. This will help to establish the aims and objectives that will be necessary to address the research question. This is followed by proving the research methodology, assumptions, limitations and outlining the structure of the dissertation.

### **1.2 Background to the study/research**

In Qatar there are increasingly large volumes of infrastructure and building developments in preparation for the hosting of major events such as the Man Handball Tournament in 2015 and the FIFA Football World Cup competitions in 2022. As a result the building stock is rapidly increasing. In this context there is a need to create FM policies that will address the challenges of maintaining the facilities beyond the events. It is paramount that government, business and the community are required to consider the macro management techniques that encompass all elements of infrastructure or property, environmental and ecological sustainability in order adequately contend with the ever changing economic and political variables.

A developing country such as Qatar needs to realise that sustainable development rests on pillars such as economic growth, environmental protection and social progress (Girard *et al.*, 2011). Sustainable development is meant to reduce the burden on natural capital and alleviate pressures on national debt for future generations. Urban development should be considered with the principles of sustainable development. On paper there are aspirations and policies being put in place by Qatar with regards to sustainable development. However, the urban growth appears to be based on the need

to hurriedly put the country on international recognition without letting the development space to be filled in organically while satisfying economic, social, and environmental sustainability.

Many cities that have accelerated growth as a result of hosting major sporting events often have setbacks in terms of FM sustainability and many infrastructure developments end up staying vacant thereby increasing the chances of becoming obsolete and making negative contribution to social sustainability of communities (Smith, 2009). This could entail the need for demolition and thereby increasing the green gas emissions and posing health and safety concerns and damaging the environment. The failures to address the sustainability dimension of hosting major events is often realised or identified post the events (Raco, 2004; Smith, 2009). The predominant major negative impacts are on social sustainability and FM. Social inequality is generated by the inevitability of providing different specifications on facilities, some which attract certain classes of the communities to use depending on location and affordability (Smith, 2004).

Hiller (2000) argues that the Cape Town 2004 Olympic Games bid had sustainability flaws and was not geared to address a delivery mechanism of sustainable housing regardless of it presenting a sound social basis to do so. The need to meet the high standard specifications as required by the international Olympic Committee is argued to have not considered the social sustainable use of the facilities post the games. Raco (2004) argues that the trend in the hosting of major events shows a poor record on social sustainability due to the neo-liberal philosophy of competing capital and community re-classification post the events. As discussed next, lessons can be learnt from Barcelona (1992 Olympic Games), Sydney (2000 Olympic Games) and Athens (2004 Olympic Games) in which there were a number of negative economic, social and environmental sustainability issues post hosting of the games.

Smith (2004) identifies the Barcelona 1992 Olympic village as a failure in improving a sustainable mixed housing due to the high specification standards which attracted and could only be afforded by high income earners. This in fact disenfranchised the communities with the local authorities unable to resist higher sales and thereby widening the gap between the 'haves' and the 'have not'. In Sydney post the Sydney 2000 Olympic Games, both the Stadium Australia and the Super Dome facilities could not attract the desired number of events to generate the profitability levels to make them

sustainable (Owen, 2002). Moreover, the re-branding of the Sydney Olympic Park to Sydney Jurassic Park could not resolve the sustainability level required.

In Athens post the Athens 2004 Olympic Games, economic and social indicators revealed a lack of integrated planning framework during the preparation stages. Postiou and Zentilis (2005) argue that the enthusiasm and national pride by the Athens 2004 organisers to stage a tournament that would surpass the success of previous cities and the introduction of many new players in the decision making process, resulted in the lack of consideration and overlooking of traditional and sustainability approaches in areas such as land management, FM and unemployment levels post the games. The Olympic Real Estate, the company that was responsible for managing the Athens 2004 Olympic facilities post the games, had to rethink their strategies to commercialise the Olympic infrastructure but the move was resisted by the government for political reasons and therefore still continues to present sustainability issues (Postiou and Zentilis, 2005).

Qatar should draw lessons from previous hosts of major events and prioritise investment on long term and sustainable projects and not concentrate on the provision of temporary facilities. This requires an integrated approach to ensure that the current and planned rate of infrastructure development will not provide a large stock of facilities that will not be in use after the major sporting events. The FM services that are intended to achieve the maintenance of the properties/facilities to the desirable conditions, status, accessibility to end-user/tenants, the attraction of visitors and the promotion or enhancement of heritage competition, ought to be sustainable.

### **1.2.1 Urban development drive**

There has been an extensive construction and infrastructure development boom in Qatar for the last decade. This construction boom has been fuelled by Qatar's wealth in natural gas and oil resources, the win of the bid to host the FIFA World Cup in 2022 and the QNV economic policy. Due to the hosting of the 2022 FIFA World Cup, the Qatar government has made significant commitments to deliver social, human, economic and environmental sustainability projects including a pledge to host the first carbon-neutral FIFA World Cup. This presents opportunities for sustainability visioning, innovation and learning as part of functional integration at all levels to deliver a carbon-neutral

tournament and leave behind an exemplary sustainability legacy (Qatar 2022 FIFA World Cup Bid Report, 2010).

The strategy to deliver a successful preparation to host these tournaments is aligned with the goal of the QNV, which aims to transform Qatar into an advanced country by 2030, "*capable of sustaining its own development and providing for a high standard of living for its entire people for generations to come*" (QNV, 2011:1-2). QNV (2011) defines the long-term outcomes for the country and provides a framework within which national strategies and implementation plans can be developed. QNV (2011) approaches long-term outcomes holistically and sets out four pillars for the sustainable development of Qatar:

- Economic development;
- Social development;
- Human development; and
- Environmental development.

The consideration of legacy issues requires an integrated approach throughout the entire planning processes and Qatar should ensure that the tournament serves as a catalyst for driving national growth and development in a manner that results in a lasting, sustainable legacy for Qatar, the Middle East and beyond. The developments include infrastructure, residential, hospitality, health, sport facilities and rail networks. It is imperative that the government plays a leading role in ensuring that awareness is raised on the need for pursuing the concept of sustainable development, with particular emphasis being placed on addressing human, social, economic and environmental issues (Girard *et al.*, 2011).

Sustainability is currently on focus globally, due to a variety of factors including climate change. The need to raise awareness of taking into account sustainability issues is high on the agenda worldwide. It is important to mention that governments of the world play a leading role in embracing and tackling the sustainable development issues. By formulating appropriate policy guidelines in consultation with business, the community, regional partnership and international players, governments can successfully facilitate and create an environment that fosters sustainability and sustainable development (Girard *et al.*, 2011).

Qatar has been developing and formulating a 'green building' certification system called Qatar Sustainability Assessment System (QSAS). QSAS has been developed by Qatar leading research department, the Gulf Organisation of Research and Development (GORD) to provide guidelines on how to achieve effective reduction of energy consumption and to promote the concept of sustainable development locally, regionally and internationally while accounting for climatic, geological and environmental conditions. While the jurisdiction of QSAS is aligned to the legal, legislative and environmental conditions in Qatar and the Middle East, it is recognised internationally as a comprehensive system to build a sustainable environment, reduce the carbon footprint and protect natural resources. In order to ensure the international recognition QSAS rebranded its remit and now also covers sustainability issues on the world stage under the term branded the Global Sustainability Assessment System (GSAS).

It is argued by Sage (1998) that although the concept of sustainable development is to protect the environment and address the issue of global warming, the fundamental aim in the infrastructure and property development context is to drive down costs during both the development phases and future maintenance. In general, business appears to embrace sustainable development from an economic perspective particularly reduction in development cost that result from adopting designs that specify low cost 'green' materials and construction methods that reduce development and future maintenance costs. However, in Qatar cost seems to be an insignificant driver of the concept of driving down development or construction costs because of the country's immense wealth.

Amongst a raft of Qatar government economic policies, high on the agenda is the empowering of local citizens through the 'sponsorship policy' in which every foreign business is sanctioned to practise or do business upon securing local partnership. There is high demand for facilities due to the influx of foreigners coming to Qatar predominantly for construction activities in preparation for the sports events in 2015 (Handball Tournament) and FIFA World Cup in 2022. This is leading to an increase in infrastructure and property developments. This 'short term' high demand is regarded as a factor diverting the attention from the sustainability concept as developers focus on short term economic gains.

It is worth mentioning that the limited property rights to foreign investors or expatriates rules out a free 'demand and supply' market. Wiedmann *et al.* (2012) argue that the Qatar master development plan does not incorporated real estate development driven by market forces. The property development market is driven by government policies to provide commercial, leisure and residential property to the foreign workforce that will leave Qatar at some point i.e. the end of their contracts or projects completion. The limited property rights for foreign investors can be a factor in reducing the influence of the property market as a driver of urban development. There is a need to establish the possibility of achieving a sustainable property development regime in a medium of no free operating property market drivers.

### 1.2.2 Urban development status

The rapid development in Qatar has been affecting the country culturally, economically, physically and demographically, as the country strives to create a global city to fulfil their vision of '*Doha the city of knowledge and creation*' (Shafik, 2012:1) and transforming into an economic hub that is sustainable economically, socially and environmentally (QNV, 2011).

The concept of urban development encompasses the provision of functional distribution of land uses, economic development that is intertwined with the urban growth or urbanisation. Rees (1992) and Holden (2004) argue that the central core of urban development requires the understanding of human ecology. In other words, urban development involves the planning, financial commitment, policy formulation and the delivery of services that ensures public safety and population mobility that is underpinned by sustainable economic prosperity of the community or city. The rate at which urban development occurs can be referred to as 'rapid' when the development activities are perceived to be occurring faster than the sustainability considerations can cope (Rees, 1992). The term rapid development and accelerated development are often interchanged. Accelerated urban development is considered by Rees (1992) as development that is speeded up by artificial influence other than the traditional environmental economics, land distribution and population mobility. The urban development in Qatar is perceived to be both *accelerated* and *rapid*.

The current urban development in Qatar has presented a re-arrangement of urban residential patterns in which some areas such as the traditionally core suburb of

Msheireb, have been deserted by the locals and occupied by migrant workers (Khalil and Shaaba, 2012). It is only recently that this area has been subject to the on-going revitalisation to restore the traditional heritage associated with this area.

There are distinct levels of development in the different phases of the country's economic history, namely *pre-oil*, *oil discovery*, *post oil* and current QNV. History reveals that the pre-oil period of 1939 and before, saw the city concentrated on the coast line due to the reliance on fishing, pearling and trading (Jaidah, 2010). The current phase of economic history making has seen the urban development expanding along major routes and the West Bay area emerging as the new Central Business District (CBD). This is resulting in the old locally occupied area either deteriorating or being over crowded by migrant workers thereby presenting issues of sustainability and FM challenges to maintain these facilities.

Qatar's population is approximately 1.68 million gross with 80% (1.34 million) being immigrant communities and 70% (1.2 million) of these immigrant communities being expatriate workers predominantly working in the engineering and construction sectors (Qatar Census, 2010). It is a cause for concern that when major engineering and construction activities scale down, i.e. after the preparation of infrastructure, accommodation and facilities to enable the hosting of FIFA World Cup 2022, the bulk of the migrant workers will return to their countries.

This will further widen the 'hole' that is currently being created by locals who have been re-locating to upmarket rebuilt residential areas and necessitating urban sprawling that is resulting in more properties and facilities being left unoccupied. These concerns hamper the achievement of the four pillars of the QNV 2030 as in human, social, economic and environmental development. Moreover, it is likely that FM will be stretched beyond coping. There is a need to investigate the current FM processes and strategies in relation to the unique FM challenges that could be experienced beyond the year 2022.

### **1.2.3 Sustainable development**

Sustainable development is mostly regarded as a concept where resources are utilised to meet the needs of a community while promoting wealth and self-dependence in

present times and the future in a manner that protects the environment (Girard *et al.*, 2011:103) define sustainable development in two aspects:

1. As an '*ecological and reduction of human impact through the ecologization of the economic processes and the implementation of integrated systems of environmental protection*'.
2. As a '*civilizational, or a search for the implementation of new forms of economic development, new technologies, new forms of energy and social communication and new forms of man's non-economic activities*'.

The World Commission on Environment and Development abbreviated as WCED (1987:43) defines sustainability in terms of resolutions as:

- a) *Environment and development are not separate challenges as they are inexorably linked and that development cannot subsist upon a deteriorating resources base and as such the environment cannot be protected when growth leaves out accounting the cost of environmental destruction.*
- b) *Sustainable development seeks to meet the needs of the current generation without compromising the ability of the future generation's needs while recognising the problems of poverty and that underdevelopment cannot be solved unless there is a paradigm shift in which developing countries play a large role and reap huge benefits.*

The Brundtland Report of 1987 appears to provide the most common definition of sustainability as a concept of the 'needs' of the world's poor, to which overriding attention should be accorded; and also as a concept in which technology and social organisation on the environment's ability to meet both the present and future needs. While these concepts appear more theoretical and inspirational than practical, they form the fundamental basis for the definition of sustainable development. Also these concepts place emphasis on any city or community to economically and environmentally grow in a path that allows humanity to improve and maintain the quality of life for the present and the future. Sexton and Barrett (2000) summarises the WCED definition in support of the concept of taking care of future generations by linking sustainable development to sustainable construction in which natural resources are used in such a

way that they meet economic, social and cultural needs, but not depleting or degrading the resources to the point that they cannot meet these needs for future generations.

The issue of sustainable development is an international agenda and is dealt with in different ways by different countries depending on whether their respective economies are developed or still developing. This scenario is supported by Keeping and Sheirs (2004) with the argument that different priorities by developing and developed nations are dependent on the use of resources, environmental protection, access to amenities, housing and shelter, community safety, energy, land use and waste management. Sustainable development should enable people to be aware of their environment and realise the potential of using that environment to improve the quality of life while protecting the environment (Parkin, 2000).

Sustainable development may be perceived as a concept of behaviour and culture rendering it to be multifaceted (Oriens, 1990). Shah (2007) believes the consideration of sustainable development has been encouraged by urban development and growth in the endeavour to improve the quality of life. From a behavioural perspective, Davids (2005) believes that an in-depth understanding of perception and relationship of factors that intertwine the urban fabric is paramount in achieving sustainable development.

### **1.2.4 Facilities management (FM)**

It is without exception that where there is large infrastructure development and urban growth, FM plays an important role in sustaining the development and growth (Atkin and Brooks, 2000).

The definition of FM has been evolving rapidly and has been presenting mixed sentiments amongst researchers whose intentions are to provide a definitive perspective of FM (Steele, 1983; BIFM, 2003). While this has been the case, there is sufficient evidence to show that other researchers have become interested in the FM subject and realise the opportunity to investigate how FM is perceived in different parts of the world and from organisation to organisation (RICS Guidance Notes, 2013).

Literature reveals that the trend of FM evolution is underpinned by how it is perceived in different parts of the world where different FM bodies have been closely monitoring this evolution in line with business objectives. The term FM used to be regarded as 'facility

management' in Australia, United States and other parts of Europe in reference to a 'facility' as a building of building complex (RICS Guidance Notes, 2013). At the time of its establishment in 1983, the International Facilities Management Association (IFMA) defined FM as:

*"...the practice of coordinating the physical workplace with the people and the work of the organisation. It integrates the principles of the business administration, architecture, and the behavioural and engineering sciences"* (RICS Guidance Notes, 2013:48).

This definition is thought to fulfil the concept of FM as a practical approach to bring people together at a work place to achieve set business objectives.

This is supported by Price (2003b) as he argues that the FM concept existed for a long time as good practice of maintaining a healthy environment in homes and communities of work place. Facility Management Association of Australia (FMA) enforces this argument by looking at FM from a community base inclination and defines it as:

*"...the involvement of the management, operation and maintenance of buildings, precincts and community infrastructure; and in all cities and regional areas, FM provides safe, healthy, productive environment, protecting the wellbeing of the Australian community"* (RICS Guidance Notes, 2013:48).

The need to maintain quality standards as advocated by the European Committee for Standardisation is seen as a major influence to the British Institute of Facilities Management (BIFM) in aligning its definition of FM to processes and policies by organisation, and defines FM as:

*"...the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities"* (CEN, EN15221-1).

Alternatively, FM is defined by highlighting the diversity of the activities with people managing the impact of the activities as:

*“...the integration of multi-disciplinary activities within the built environment and the management of their impact upon people and the workplace” (CEN, EN15221-1).*

This opened a window of opportunity within the European Union (EU) to further the concept prudently with contractual embedment. The European Committee for Standardisation (ECS) through its members stressed the definition of FM as:

*“...the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities” (RICS Guidance Note, 2013:48).*

Pitt and Hinks (2001:304) viewed these concepts of FM as the emergence of a profession that is required to meet set standards of service delivery. This is reflected by the 2003 response by IFMA which went on to define FM from a perspective of professionalism as:

*“...a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology” (RICS Guidance Note, 2013:48).*

FM is defined in many ways and Barrett and Baldry, (2003:xi) define FM as *an ‘integrated approach to maintaining, improving and adapting the buildings of an organisation in order to create an environment that strongly supports the primary objectives of that organisation’*. Alexander (1994:1) defines FM as:

*‘...the process by which an organisation delivers and sustains support services in a quality environment to meet strategic needs’.*

The services and environmental requirements ought to be clearly defined to enable strategic needs to be formulated. In any fast growing city, the scope of the strategic needs is required to incorporate aspects of property, space environmental control, health and safety and support services with the establishment of control points (Alexander, 1994). FM services in many circles are still being regarded as a repair and maintenance operation and not as a business that requires vision and strategy of operating in long term business modelling.

### 1.2.5 FM and a developing city

The relevance of FM to governments, business and the community, particularly to developing cities/countries should be rooted in the culture, management and policy strategies that are to be adapted when delivering the operating environment and services needed in an effective way (Alexander, 1994). Roberts (2004) argues that urban development and community needs are complementary. This presents the argument that FM, like sustainable development, is rooted in people, process, environment, health and safety (Alexander, 1999). Sustainable FM provides an enabling continuous service improvement through the provision of management of information that helps to enhance strategic FM in order to address the ever challenging external influence.

Barrett and Baldry (2003) identify some of the external influences on FM as technology, regulations, insurance and labour laws. A FM player or business organisation defines itself based on its core business strategy. Under consideration on core business FM strategies include investment, development, acquisition, disposal, user preference, location, and potential flexibility in use change.

There are two main types of FM services namely in-house and out-sourcing also known as contracting services (Alexander, 1996:137). These services are intended to achieve keeping of the property/facility in its desirable condition, maintain its status, accessible to end-user/tenants, attracting visitors and promoting heritage competition. FM is constantly shifting from being an individual organisational strategy of managing 'individual' facility to wider complex developments and multi sector management (Then, 1999). Michell (2010) takes it further and supports the argument that FM can be applied to a larger precinct such as an urban setting. Urban development which is not underpinned by the principles and requirements of FM presents sustainability challenges. Michell (2013) argues that urban development is a reflection of strategic micro propagation of sustainable development principles that should incorporate FM. The rapid development in Qatar presents sustainability challenges and unique FM challenges that have the potential to reverse the gains of the sustainable development.

### 1.3 Problem statement

Large infrastructure development and urban growth in preparation for major sporting events can be unsustainable in the long term for the host city/country. This would present unique FM challenges of sustainably keeping the facilities fully operational and utilised in the long term.

### 1.4 Research question

Can FM provide a sustainable solution to infrastructure development and urban growth that arises from the construction of sporting event facilities in the long term?

### 1.5 Research aim

The aim of the research is to establish the awareness of rapid urban development, sustainable development and the consideration of future impact on FM that is associated with the large infrastructure development and growth; particularly post the hosting of the major sporting events.

### 1.6 Research proposition

The proposition posed in this research may be stated as:

*FM provides a sustainable solution to infrastructure development and urban growth that arises from the construction of sporting event facilities in the long term.*

### 1.7 Research objectives

The objectives of the research are to:

- a) Establish *why* the awareness of sustainable development and FM consideration is paramount at an early stage in the development process;
- b) Obtain an in-depth level of understanding of *how* FM as an integral element of urban development and growth is impacted on from a sustainability perspective;
- c) Assess the current FM challenges and *what* roles they play to ensure measures are implemented to address future challenges;
- d) Establish *how* the extent of consultation of stakeholders ensures the long term sustainability and FM of the facilities; and
- e) Assess *what* sources of sustainable demand would fulfil the acceptable level of occupancy of the facilities and the adaptability of the facilities to other uses.

### **1.8 Research method**

The objectives listed above shall be achieved by conducting a non-intervention qualitative research method. This will consist of a literature review on urban development, sustainable development and FM and contextualisation to the large infrastructure development and urban growth in preparation of staging major sporting events by the host city/country. Particular emphasis is placed on FM and the context of Qatar as a case study. The case study will utilise the following:

- Conducting face-to-face semi-structured interviews with relevant government personnel, private business, professionals and stakeholders pertinent to the research,
- Current information from the media industry in Qatar,
- Documentary evidence,
- Photographic evidence,
- Analysis and interpretation of information, and
- Conclusions and recommendations.

Data will be analysed and interpreted to provide an in-depth of understanding the unique FM challenges that can be brought up by an urbanisation growth that is not sustainable.

### **1.9 Scope and limitations**

The research is limited to the urban development in the city of Doha, Qatar. It is also dependent on the availability of targeted interviewees and their willingness to provide information. Information of a confidential and sensitive nature has not been disclosed explicitly and a general summarisation has been adopted. Due to constraints on time and cost the number of interviewees and access to government departments has been limited and this may have affected the size of the sample. The type of the research is dependent on the opinions of the interviewees and how they present the data.

### **1.10 Dissertation outline**

The research structure adopts the structure set out under this section.

Chapter Two provides both the theoretical and contextual framework of the dissertation. To this end, a critical review of the literature on sustainable development, sustainable

urban development overview and FM will be provided. In addition, literature with reference to the aims of the Gulf Organisation of Research and Development in formulating and evolving QSAS will be cited and also the involvement of government, business and the community. The literature review is presented to align with the research question proposed and will be contextualised in the case of Qatar on:

- Definitions of sustainable development,
- Concept of sustainable development with emphasis on economic, environmental and social sustainability,
- Overview of sustainable urban development,
- Sustainable construction, sustainable design and sustainable construction strategy,
- Definition of FM, FM strategy, positioning and performance,
- Facility management and the briefing process, and
- Sustainable FM or sustainable urban FM.

Chapter Three describes the research philosophy and methodology proposed, theory research/design information, sources of data and data collection methods employed in the study. The research adopts a qualitative case study methodology. Chapter Four collates information obtained from face-to-face interviews of the study and analysis and reconciled with the literature to achieve the aim and objectives of the research in addressing the research questions. Moreover, it presents the emergent themes. This is followed by the Chapter Five as the concluding section of the study. Based on these conclusions, comments and recommendations are proposed or stated. The need for further research is mentioned.

## CHAPTER 2: THEORETICAL AND CONTEXTUAL FRAMEWORK

### 2.1 Introduction

The previous chapter provided an introduction to the research topic and an understanding of the research question to justify the need to conduct the research. It outlined the objectives and the research method. This chapter will develop and explore the theoretical framework and overview of *sustainable development*, *sustainable urban development* and *FM*. The literature review will provide the theoretical knowledge that is necessary to understand the factors underpinning the relationship of urban development, sustainable development and FM. This chapter will also provide the underlying principles upon which the research will be conducted.

### 2.2 Urban development

Urban development encourages cities to embrace the social and natural aspects of the environment of an area to pursue a 'life economy' (Mumford, 1938). He regards life economy as a product of ecological consideration and organic urban development. This notion fails to elaborate on natural resources influence that has seen many cities emerging and in some case dying due to depletion of the resources. Alexander (1987) likens urban development with a process of creating a 'growing whole' based on the following two fundamentals:

- 1) Incremental construction that is needed to 'heal' the city in response to changing local and global variables, and
- 2) Legislation that is needed to help in the creation of a framework for continuous growth to meet the present and future demands.

It appears that this notion is about responsiveness and reactivity which has witnessed many cities in many parts of the world becoming 'ghost towns' and subject to high revitalisation costs. Wheeler (1996) suggests that urban development should incorporate a sustainable development paradigm and compels planners to adopt systematic, holistic thinking and integrating different disciplines associated with the built environment.

Urban sprawl is defined by Brueckner (2000:161) as the *excessive spatial growth of cities*. Unlike the urban sprawl during the oil boom period, Wiedmann *et al.* (2012)

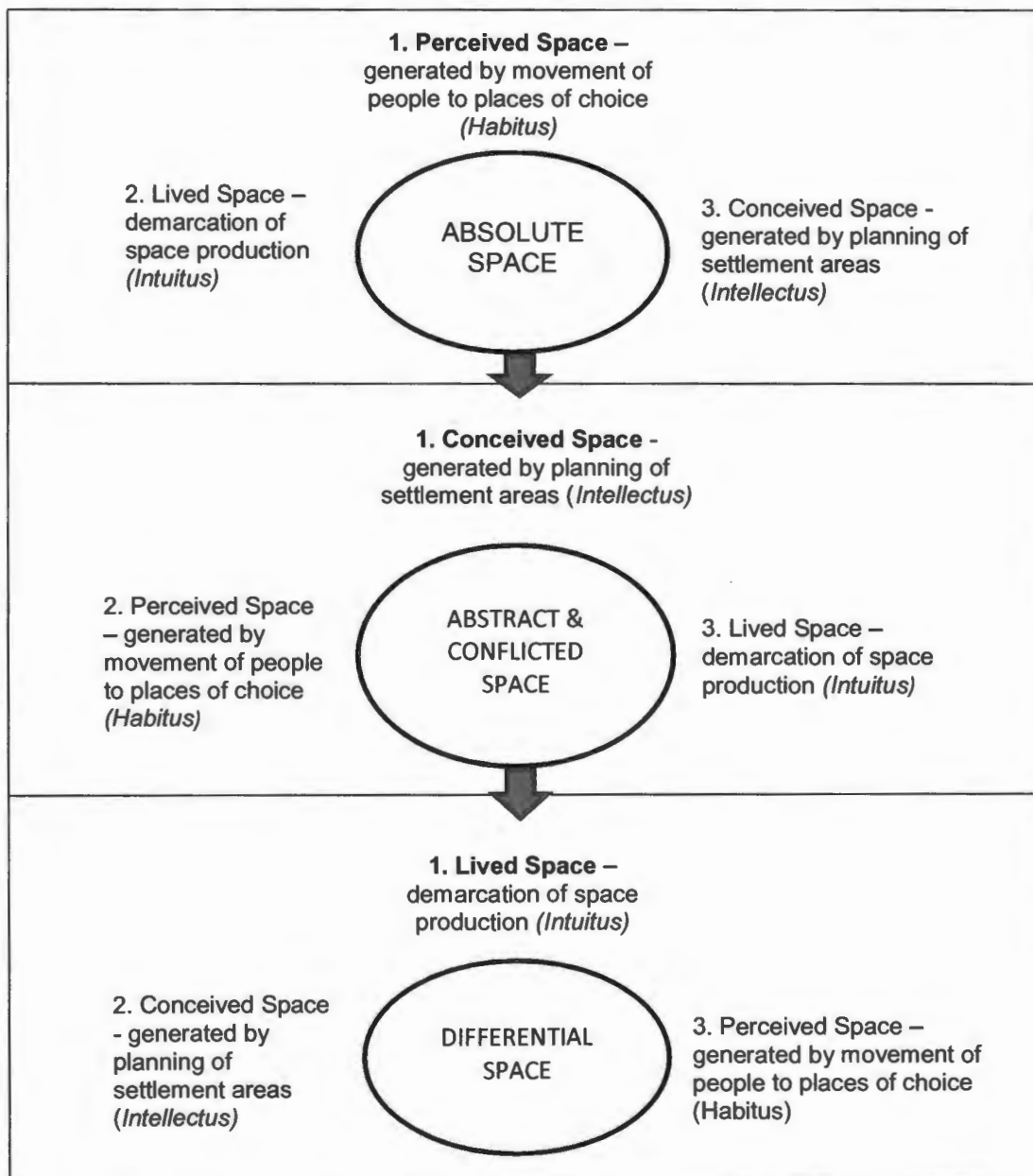
argues that the urban development of Doha resembles the concept of creating 'cities within a city'. This is evidenced by the development of Education City, Barwa City, Al Waab City, Lusail City, City Centre and the currently under construction of Doha City on the outskirts along Doha Expressway.

This sprawl has brought about significant challenges for Qatar as they try to meet the principles embedded in the WCED (1987) definition of sustainable development which advocates the need to meet the essentials of the present without compromising the ability of future generations to meet their own needs. Qatar's NDS is born out of this need and the desire to tackle and deliver social, human, economic and environmental sustainability initiatives. This is supported by the QNV 2030, which aims to transform Qatar into an advanced country by 2030 with the capability of *sustaining the development and providing for a high standard of living for the entire people for generations to come*. The QNV 2030 approaches long-term outcomes in a holistic strategy and sets out four pillars for sustainable development which are *economic development, social development, human development and environmental development*.

Wiedmann *et al.* (2012) believes that Qatar urban growth has been brought about and in a manner that resembles the Henri Lefebvre's '*theory of space*' creation. Lefebvre (1991) argues that the creation of space for urban development is driven by economic, social, and environmental pressures that map well detected urban morphologies in direct response to the environment. The space theory deals with urban space that is created by economic and cultural activities aligned to the prevailing environment and technological changes (Wiltfox and Deridder, 2007).

The three space creation models identified by Lefebvre (1991) and shown in Figure 2.1 are:

- a) *Conceived space* - determined by urban planning ideologies decided by urban planners and politicians;
- b) *Perceived space* - produced by spatial practices in relationship to the use of space by all users as they move from one area to the other; and
- c) *Lived space* - created by individual preferences to the use of space with the principle of demarcation and boundaries applied.



**Figure 2.1 - Theory of space production for urban evolution: Adapted from Lefebvre (1991:247) and Wiedmann et al. (2012:37).**

From the creation of the above space productions, Lefebvre (1991) believes that more research is required to establish whether this leads to the different concepts/models as shown in Figure 2.1. The absolute space concept which entails human spatial practices and their physical interaction with the environment, has witnessed the growth and development of trading centres and the emergence of many urban capital cities.

Unlike many other cities worldwide in which urban sprawl is restricted to encroach on agricultural land or other land uses on the peripheral of the cities, Doha presents a

unique scenario due to its desert climate and that the demand – supply land economics does not play a major role. This makes the regulations that deal with urban sprawl to often become ineffective. Brueckner (2000) states that, the effects of urban sprawl include the lack of re-development of urban neighbourhoods and that this promotes decay of downtown areas. Urban growth should be a resultant of competition for land for development (residential, retail, commercial, business, industrial, recreational etc.) amongst real estate, individual or government developers/investors. Qatar is unique in that the competition of land tends to be only between the government and real estate developers with little or no demand from individual (Wiedmann *et al.*, 2012). The demand and supply forces in the property market, according to Wiedmann *et al.* (2012), is not incorporated in the Qatar (and therefore Doha) master development plan to allow real estate development to be driven by market forces. The property development market is driven by government policies to provide commercial, leisure and residential property to the foreign workforce. The limited property rights for foreign investors can be a factor in reducing the influence of property market as a driver of urban development. This therefore provokes the need to understand the requirements of achieving sustainable urban development.

### **2.2.1 Sustainable urban development**

The concept of sustainable development encourages a broader consideration to the activities of urban development in order to develop a pattern that embraces the sustainability agenda. Mitlin (1992) argues that there is little attention accorded to sustainable urban development by both the developed and developing nations. This can be viewed to indicate lack of innovative urban development practices. Much literature draws the definition of sustainable urban development from the Brundtland's concept of sustainable development. Wheeler (1996) criticises the WCED definition by arguing that it does not mention natural ecosystems. Wheeler (1996:iii) considers the ecological concept and therefore defines sustainable urban development as:

*"...that seeks to create cities and towns to improve the long-term health of the planet's human and ecological systems".*

This definition is geared to address the following:

- a) Protection and restoration of natural ecosystems in the urban areas;

- b) Creation of an environment that enables the communities to realise and exercise their full potential;
- c) Efficient usage of land and natural resources;
- d) Provision of a platform to facilitate improved lifestyles; and
- e) Contribution towards achieving the global sustainability agenda.

It is important that urban development becomes a subject of constant review to contemporarily re-model human and natural environments to keep abreast with the ever changing global variables (Maclaren, 1996; Pearce, 1993). Wheeler (1996) suggests that there is nothing that has changed or deviated from Mumford (1938) whose concept of the core values of urban development remains to be underpinned by humanistic values, equity needs, fairness and the overall well-being of the community; now and in the future.

The achievement of humanistic values provides an indication of the sustainability of the community or city in growth terms. The next section provides an overview of a sustainable city.

### **2.2.2 Sustainable city growth overview**

The growth of a city is heavily dependent on whether it is linked or related to other cities nationally, regionally or globally. Benton-Short and Short (2008) defines a city as a complex system that should maintain a balance between factors affecting its growth and those that threatens the growth. Moreover, Girard *et al.* (2011) regards a city as a complex composition of structures and surroundings that complement the cultural and industrial activities necessary to promote economic development, quality of place, increase in economic productivity and encourage growth.

Literature on the growth of cities reveals that there are two major processes that are regarded as the determinant factors for city growth (Girard *et al.*, 2011). These are *emergence* and *self-organisation*. Emergence is where the unanticipated demands and knowledge of the development systems that emerge are needed to be incorporated in the growth pattern. Self-organisation refers to when there is no external influence on the planned engineering of the growth patterns. These types of growth patterns reveal that cities exhibit different trajectories and specific characteristics in their development thereby presenting different presence, potentiality and pulse (Girard *et al.*, 2011)

Nijkamp (2008) argues that cities go through different processes in their growth while addressing and dealing with threats that can negatively affect their growth by adopting sustainable development principles. The major aspects of city growth are vulnerability (susceptibility to threats), resilience (ability to resist threats) and sustainability (sustaining development growth and high level environmental quality). This suggests that if the resilience is greater than the vulnerability, sustainable development is achievable and potentially provides and displays a high level of quality and liveability. This is demonstrated in the formula below by Girard *et al.* (2011:99);

$$\text{Vulnerability} < \text{Resilience} = \text{Sustainability} = \text{High Level of Liveability (HLL)}$$

*Vulnerability* is triggered by a number of challenges of social, environmental and economic nature. These include triggered disaster in the form of susceptibility, limitations, incapacities and deficiencies. Vulnerability can also be a resultant of the exposure to hazards of hazardous events that leads to losses of life or economic standing that triggers poverty (Girard *et al.*, 2011). *Resilience* is when a city is capable of self-organising to resist the vulnerability threats such as challenges underpinned by ethics, diversity, empowerment, accessibility to learning and inequalities; and the ability to maintain/sustain growth under such challenges. It is the resilience, when greater than the vulnerability that ensures sustainability and thereby *liveability*, which is an element of social status in terms of happiness and the ability to address issues of poverty and inequality, housing conditions, safe working environments, environmental pollution, policing, personal security and safety issues, transport facilities, cultural and recreational amenities, and the quality of the public realm (Jones *et al.*, 2003). Since sustainability is at the centre of the liveability, a number of definitions of sustainability are explored in the next section.

### 2.3 Sustainable development definition

Sustainable development is mostly regarded as a concept where resources are utilised to meet the needs of a community while promoting wealth and self-dependence in present times and the future in a manner that protects the environment. Girard *et al.* (2011:103) define sustainable development in two aspects:

1. As an '*ecological and reduction of human impact through the ecologization of the economic processes and the implementation of integrated systems of environmental protection*'; and
2. As a '*civilizational, or a search for the implementation of new forms of economic development, new technologies, new forms of energy and social communication and new forms of man's non-economic activities*'.

These concepts place emphasis on any city or community to economically and environmentally grow in a path that allows humanity to improve and maintain the quality of life for the present and the future.

The issue of sustainable development is an international agenda and is dealt with in different ways by different countries depending on whether their respective economies are developed or still developing. This scenario is supported by Keeping and Sheirs (2004) with the argument that different priorities by developing and developed nations are dependent on the use of resources, environmental protection, access to amenities, housing and shelter, community safety, energy, land use and waste management. Sustainable development should enable people to be aware of their environment and realise the potential of using that environment to improve the quality of life while protecting the same environment (Parkin, 2000).

The Brundtland Commission well known as the World Commission on Environment and Development abbreviated as WCED (1987:43) defines sustainability in terms of resolutions as:

- a) *Environment and development are not separate challenges as they are inexorably linked and that development cannot subsist upon a deteriorating resources base and as such the environment cannot be protected when growth leaves out accounting the cost of environmental destruction.*
- b) *Sustainable development seeks to meet the needs of the current generation without compromising the ability of the future generation's needs while recognising the problems of poverty and that underdevelopment cannot be solved unless there is a paradigm shift in which developing countries play a large role and reap huge benefits.*

The theme of WCED (1987) definition revolves around advocating environmentalism as a practice for poverty alleviating through global economic development. Addressing global environmental issues is perceived to be the key fundamental to economic development affirming that environmental issues and economic development issues are intertwined and cannot be dealt with separately. The criticism to the Brundtland Commission's definitions is its advocacy on human concerns and yet it is silent on other species and the ecosystems (Wheeler, 1996). The quality of human life is perceived to be dependent on other life existences from an ecological point. The World Conservation Union (1991) provides a definition of sustainable development with emphasis of quality improvement on human life and ensuring a way of living within the capacity of supporting ecosystems.

The maintenance of ecosystems within the means of nations becomes fundamental in sustainability frameworks and policy formulation. This definition supports the concept of Rees (1988) who defines sustainable development in terms of the provision of positive change while protecting the ecological, social, or political systems upon which society is dependent.

Prior to the formation of the WCED (1987) concept which other researchers criticised and questioned its universality, the more encompassing accepted definition of sustainable development came as resolutions of the 1986 International Union for the Conservation of Nature (IUCN) Conference on Conservation and Development, held in Ottawa, Canada. Sustainable development was regarded as that which seeks to address satisfaction of basic human needs, achievement of equity and social justice, integration of conservation and development, provision of social self-determination and cultural diversity and maintenance of ecological integrity.

Rio Earth Summit of 1992 concludes that 'the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations (UNCED, 1992a; Principle 3). The debate on sustainable development has been an on-going agenda with some authors arguing that its originality was about the environment and yet now deals with economic growth, social justice and the quality of the environment being added to the dimension. Bosetti *et al.* (2009) argues that sustainability is an ethical matter and a choice of self-restraint. Moreover, that whether sustainability principles are regarded strong or weak, they can be mapped to cost-

effectiveness and cost-benefit analysis as long as an appropriate approach is considered that maximises welfare. Therefore in essence the underlying principle of sustainability is the need to improve welfare through economic growth (Sexton and Barrett, 2000).

The challenging conflict lies in balancing economic growth and environment protection. During the 1972 Stockholm UN Conference on Human Environment, the then Prime Minister of India, Indira Gandhi, led the stance that the priorities of developing countries were to emancipate themselves from the yoke of poverty and deprivation (Kjellen, 2008). This shows that from early times when the sustainability issue became a global agenda, there were scepticisms among developing countries on the destined benefits of achieving sustainable development.

The developed nations were seen as advancing their economic interests and not welfare improvement to the needy population of the poor countries. It became evident that the continuous persistence by developed nations to lead in the sustainability agenda made a paradigm shift by developing countries and started to recognise the concept of sustainable development as policy guidance for economic, social and environmental sustainability (Kjellen, 2008).

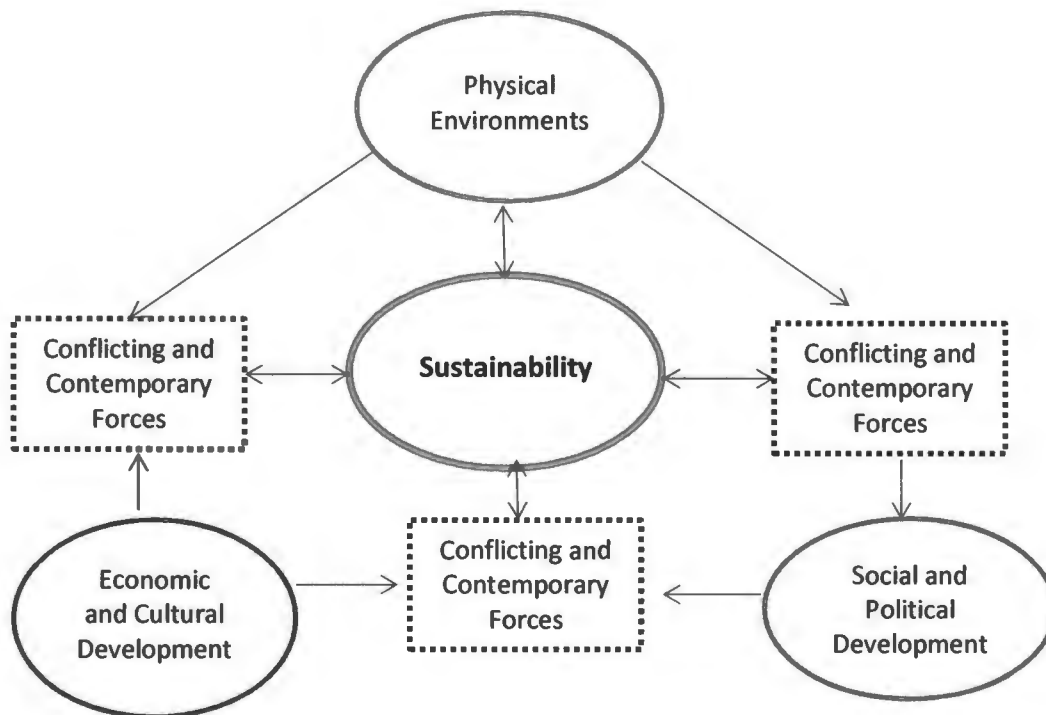
There appears to be agreement to the theoretical framework for sustainable development. The challenges remain as that of the implementation, measurement and financial capital commitment amongst developed and Third World nations. The environmental capital and the continued depletion of non-renewable resources, in theory, should be offset by new stock of environmental assets produced by the resultant economic development (Jackson and Roberts, 2000). The sustainability agenda regards the world as a single community of 'united' nations. This is evidenced by the United Nations Environment Programme Agenda 21 which advocates for development indicators for 'checks and balances' for a universal life system. This notion provided the basis for World Conservation Union *et al.* (1991) definition for sustainable development which incorporates the need for development that is necessary to improve people's quality of life in present times and for future generation, within the carrying capacity of the earth's life support system.

Shaw *et al.* (2006) considers the political dimension, particularly in the industrial society, in the definition of sustainable development to encourage a wider policy framework that can be used as a planning tool. This is in support of Campbell (1996:297) who defined sustainable development as:

*“... that acts as a lightning and useful rod to focus conflicting economic, environmental and social interests”.*

The understanding of the definition is that by giving attention to the conflict aspects of the world order, debate will be stimulated and thereby provoke the emergence of new ideas that address the long term benefits of urban sustainable development.

Figure 2.2 shows the intertwining relationship of the sustainability variables and that conflicting political and economic forces provide the debate that can bring meaningful resolutions.



**Figure 2.2 Relationship of sustainability variables: Derived from Shaw *et al.* (2006:1050-1052)**

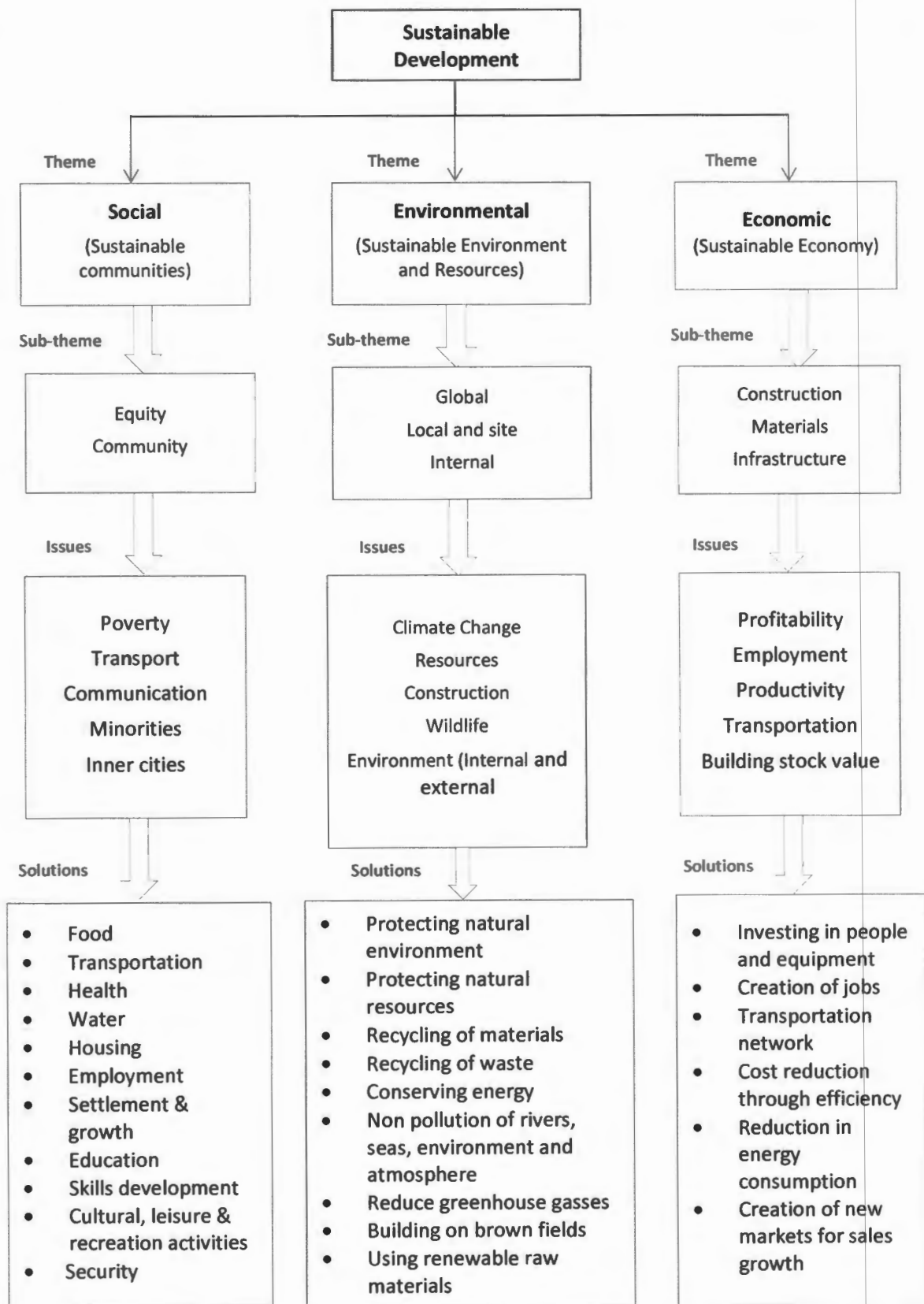


Figure 2.3 Sustainability themes and solutions: Adapted from Shelbourn et al. (2006:59) and Parkin et al. (2003:20)

Figure 2.3 presents an analysis that advancing the sustainable development agenda requires the identification of the parent themes of this concept which are social, environment and economic (Parkin *et al.*, 2003; Shelbourn *et al.*, 2006). The analysis shows that the main themes can be broken down into sub-themes, the identification of issues and the solutions that are to be provided to ensure the achievement of a sustainable society, environment and economic growth. The main themes are often referred to as the *Triple Bottom Line* and these form the fundamental basis that gives a broader spectrum of elements that the sustainability agenda should be tackled to address the *issues* identified in Figure 2.3. The solutions, not limited to those identified, provide the measure of addressing the sustainability agenda and meeting the provision of the desired requirements would be an indication of tipping the scale of sustainability towards social, environmental, economic development and accountability.

There is often an argument from the developing world that the sustainability agenda can be best tackled by striving for the provision of the solutions (Figure 2.3) with the developing world doing much more in providing assistance and resources to poor countries (Parkin, 2000; Kjellen, 2008). In doing so, it is argued that the *issues* would be addressed to meet the *themes* and resultantly achieving sustainable development goals.

Pieterse (2010) argues that the achievement of long term economic resilience and environmental sustainability is essential as a sustainable development goal toward a low carbon society. The achievement of sustainability entails a wider participation by the public, public and private players/organisations (Pieterse, 2010). The fundamental aspect of urban sustainability is the conformity to the Brundtland Report 1987 in embracing the issues that influence the 'needs' of the world's poor, to which overriding priority should be given and utilising technology and social organisation to meet both the present and future needs. Allen (2001) identifies the types of sustainability to be underpinned by social, economic, natural, physical and political frameworks. Moreover, Allen (2001) defines these frameworks in terms of sustainability as follows:

*Economic sustainability* - when the local economy is able to sustain itself through maximising productivity and thereby widening the capital base that is a necessity to reverse the damages to the natural resources on which the economy depends. A sound

capital base provides greater opportunities for economic globalisation and competitive edge amongst other cities, regions or nations.

*Social sustainability* - deals with the improvement of the quality of life through regulatory frameworks that prioritise the fair access and distribution of resources and giving equal opportunities and platform for improving the standard of living conditions as a basic need. Formulated strategies are geared at advancing popular economic goals and increasing the preparedness in dealing with impacts of economic globalisation in a holistic approach that eliminates marginalisation amongst the people, public and private players or organisations.

*Natural sustainability* - entails the rational management of natural resources and the minimisation of the impact of waste generated by the extraction of the natural resources. The drive for economic sustainability in building a capital base plays an important role in cushioning the pressures on the environment exerted by the global economy and urban systems that demand the use of natural resources and capital.

*Physical sustainability* - refers to the urban built environment and techno-structures that is fundamental to support human life and industrial activities. Therefore the management of natural crises, carrying capacity of natural resources and technical infrastructure becomes a high priority.

*Political sustainability* - requires the participation of civil society in decision making of urban governance to ensure that social, economic, natural and physical sustainability brings urban sustainability that can embraces ever changing global pressures that impact sustainable development.

The relationships among the above sustainability frameworks provide the basic of policy formulation and urban planning strategies that can deal with external factors that are brought by the pressures of globalisation (Allen, 2001; Pieterse, 2010). It appears that political sustainability plays a pivotal role as binding framework in the urban sustainability process with regards to performance and ecological capacity (Allen, 2001). Moreover, Pieterse (2010) argues that a fundamental shift from a linear system to a circular system would achieve a holistic approach to urban sustainability. A linear system being the consumption of energy, water, food and other environmental

resources that result in deposited waste and a circular system entails for a single by-product to be recycled and re-used. The achievement of urban sustainability therefore, appears to bring an overarching drive for sustainable development. However, the challenges with urban sustainability include that of formulating an investment framework that can be supported by the public from an aspect of economic and social priorities; and a paradigm shift on environmental and ecological initiatives (Pieterse, 2010). It is the concept of sustainability that sustainable development becomes an economic, social and ecological subset that can further be dealt with by increasing efficiency, equity and liveability (Allen, 2001).

The concept of sustainable development is an on-going agenda and its propagation from the Stockholm 1972, Rio 1992 and Johannesburg 2002 summits has not produced a definitive solution that can be implemented to resolve the issue of sustainability. Gallo (1998) argues that the reasons for the lack of the achievability of sustainable development definitively are due to the lack of bench-making parameters that can deal with a number of challenging issues that include the following:

- a) Challenges in providing quantitative estimates of savings that are actually gained by the implementation of the policies;
- b) Problems in the aligning of accurate economic cost to the concept; and
- c) Issues with the identification of universal regulation which provides suitable guidelines to new and refurbishment of buildings.

The drive for the sustainability agenda requires the use of capital resources to yield the benefits. Capital is predominantly classified into five major categories according to Parkin *et al.* (2003:20):

*Natural Capital* - the stock for this can be soil, sea, air and ecological systems. The benefits that can be realised are energy, food, water, climate, waste disposal etc.

*Human Capital* - the stock for this can be health, knowledge, motivation and spiritual ease yielding benefits such as energy, employment, love, happiness, innovation etc.

*Social Capital* - the stock can be government systems, families, communities and organisations, providing security, shared goods, culture, leisure, recreation, inclusion etc.

*Manufactured Capital* - the stock being tools, equipment, infrastructure and building. This will provide employment, leisure, places, access, materials, resources etc.

*Financial Capital* - the stock can be money, inventory and bonds. This provides tenure, value, trade etc.

Sustainable development must be driven by being innovative to drive efficiency in organisations in order to provide a sound commercial footing (Shah, 2007). Wheeler (1996) believes that sustainable development can be achieved by applying stricter environmental protection regulations derived from economic and political frameworks that prioritise long term ecological and human needs.

In the context of Qatar, a working definition of sustainable development can be derived from The Brundtland Report of 1987 concept as *the necessity of providing needs to the Qataris underpinned by the efficient utilisation of natural resources and employment of technological tools to achieve future self-reliance.*

Construction activities play a crucial role in both protecting the environment and the requirement of energy use. The construction process becomes an integral element in the consideration of sustainable development. The exploration of sustainable construction is discussed in the next section.

### **2.4 Sustainable construction**

There are various versions of the definition of sustainable construction. Chaharbaghi and Willis (1999) define sustainable construction as a construction process that incorporates the basic themes of sustainable development. The construction process should form the basis of the allocation of assignment to the construction team, the responsibilities of social and environmental awareness, economic profitability objectives, sustainable FM and the overall improvement of the quality of life of the communities within the cities or countryside in which they live (Miyatake, 1996). The construction industry therefore plays an important role in providing a significant dimension to the quality of life by altering the nature, function and appearance of the communities in which people live whether it is urban or rural (Shelbourn *et al.*, 2006).

The construction industry is regarded in many economic analyses and circles as the first impacted on or affected industry by economic changes in boom times or recession periods and is referred to as a barometer for economic conditions (Sun *et al.*, 2013). The construction activities of an economy provide a general guide of how that economy is performing (Raynsford, 2000). Construction encompasses producing, developing, planning, designing, building, altering, refurbishing and maintaining the built environment. Sustainable construction becomes a term that is used to describe the application of the concept of sustainable development to the construction industry. Langston and Ding (2001) suggested that sustainable construction can be described as a subset of sustainable development. The main activities for construction include design, tendering, site planning and organisation, material selection, recycling and waste management.

According to Kibert (1998), sustainable construction is driven by the following key principles:

- Protection of the environment;
- Maximisation of resource re-use;
- Minimisation of resource consumption;
- Use of renewable / recyclable resources;
- Creation of a healthy and non-toxic environment; and
- Creation of a quality built environment.

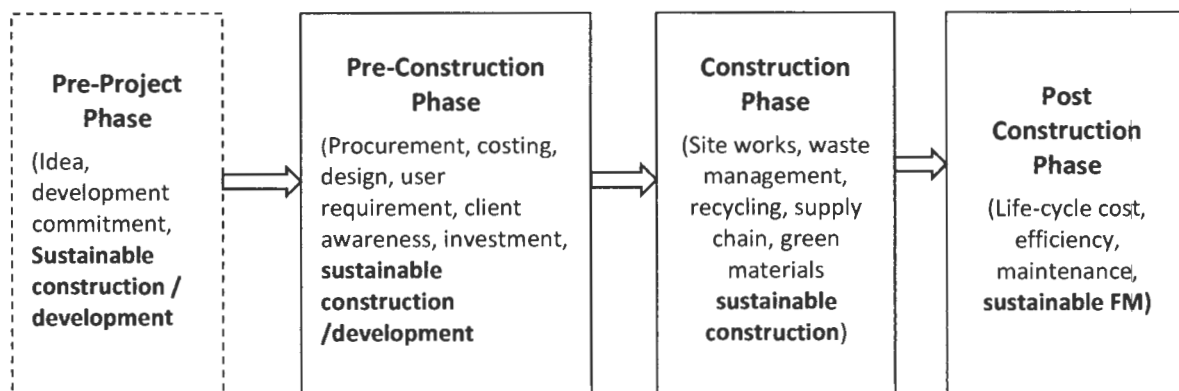
The concept of sustainable development requires the consideration of a wide range of developmental scenarios. In order to create a quality environment, which is one of the key objectives of sustainable development, some of the fundamental actions required could be the development of arid environment, the refurbishment and repairs of existing infrastructure stock and restoration of polluted/contaminated environment (Sage, 1998).

The construction industry is also regarded as the leader in unsustainable practices that negatively impact the environment due to its high levels of abundant consumption of resources. High volumes or quantities of materials and equipment are required for construction and operation and maintenance of buildings. It is therefore imperative that the process of practicing sustainable construction goes beyond the design stage. In other words, when decisions of commitment are made on the need for a building or

infrastructure development, considerations must include regulations, zoning, location identification and sustainability issues. Kibert (1998) argues that the concept of sustainable construction is to be considered prior to design concept.

As common with the sustainability agenda, the consideration and implementation of sustainable construction becomes aligned and governed by the policies of individual countries and thus presents enormous challenges in establishing a universal guiding framework (Bon and Hutchinson, 2000). The varying trend of construction activities as dictated by prevailing economic conditions influences sustainable construction considerations. During economic boom times in which the demand for building stock is high and increased volumes of construction activities, the assessment and the implementation of sustainable construction becomes complex and the impact of different construction methods therefore presents a challenge with regards to sustainable development assessment criteria.

Figure 2.4 provides an overview of the construction process as adapted from Shelbourn *et al.* (2006). The sustainability agenda is to be considered at every stage of the process as shown. The process is required to consider and recognise the sustainability agenda under sustainable development, sustainable construction and sustainable FM.



**Figure 2.4 Construction process: Developed from Shelbourn *et al.* (2006); Parkin *et al.* (2003) and DETR (2000). Researcher added Pre-Project Phase**

The awareness of sustainable development begins with clients or developer when an idea or commitment of development proposal is decided. This stage can be referred to as pre-project phase and sets the sustainability agenda in motion for the subsequent phases. Communication throughout the construction process is essential to maintain consistency with client requirements (Shen *et al.*, 2012). Royal Institution of British

Architects (RIBA) encourages that this communication should consider changes in line with budget provision and availability.

Shelbourn *et al.* (2006) presents a different scenario in which he suggests that one of the keys to make the construction process more sustainable is overcoming the challenges of capturing and managing the knowledge contained within the project team tasked in delivering the development. The project team is often presented with the task of bringing together the diversified 'bank of knowledge' from individual team members so that there is incorporation of past experiences and new ideas in delivering a project on time, within budget and the desired quality levels. It is therefore fundamental that the construction process (Figure 2.3) captures the knowledge bank at each stage to enable improvements in dealing with the sustainability agenda. Many academics argue that the solution needed to improve the knowledge required for sustainable construction lies in the undertaking of research and providing the resultant information through publications and research papers.

However, on a construction project, the day-to-day capturing of good practices and standards including well integrated and managed briefing processes can enhance a process model that can support the sustainable construction spectrum in the construction process (Shelbourn *et al.*, 2006). It can be suggested that the key to make the construction process more sustainable is in answering the challenges of capturing and managing the lessons and knowledge gained from project to project.

In Qatar, the 'blue print' economic papers, Qatar National Vision 2030 and the National Development Strategy aim at presenting opportunities for sustainability pioneering in innovation and learning of a functional integration at all levels to deliver sustainable development and leave an exemplary sustainable legacy beyond 2030. It is hoped that all development projects incorporate this vision and commitment throughout every stage of the construction process. In the United Kingdom, the government enshrined the sustainable construction agenda (DETR, 2000) which broadens the sustainable development themes to include designs that drive minimisation of waste, provision of lean construction, minimisation of energy consumption within the construction industry, conservation of water resources, enhancement of biodiversity, respect of people and local environment, setting of targets and monitoring implementation.

### 2.4.1 Sustainable design

The principle of sustainability as presented by the definitions provided earlier is to balance the human needs with the maintenance of the ecological systems that help in providing for the future needs of generations to come. In the context of the built environment, building and infrastructure uses are expected to reflect efficiencies from conceptual stage through to operational utilisation. Designs provide innovative solutions at the initiation of the construction process while considering the impact to the environment (Sage, 1998). Sustainable design is therefore a concept that initiates the efficient use of resources on a project through considering the construction process, cost premium, manufacturing process, technologies, operational use and FM. Park (1998) defines sustainable design as a process that incorporates the following principles:

- Selection of 'green' building technologies and materials;
- Selection of biodegradable and recycled materials made from renewable resources;
- Usage of long lasting low-energy consumption materials; and
- Provision of a healthy environment for the workplace.

Sustainable design is fundamentally concerned with the implementing of sustainable development during the construction process. Designers and engineers have traditionally relied on past practices and experiences when making design and engineering decisions during project design configuration (Shelbourn *et al.*, 2006). Due to the changing environmental conditions, technological demand and the need to address and mitigate the impact of construction on the environment, the design approach has been taking a shifted position from the traditional approach to a level of integration and interaction that meets sustainable design parameters.

Sustainable design aspects are considered at the earliest stages during the construction process to present an opportunity for a well-designed and cost effective sustainable building (Barrett and Stanley, 1999). One of the most important approaches to achieve sustainable design is to adapt an integrated arrangement in order to provide a cost effective solution that maximises the synergies between building, infrastructure, natural systems, technologies and human systems that make up the community environment.

Sustainable design aims to achieve some of the following:

- Consideration of energy and carbon emission and the impact to the environment;
- Minimising the use of resources;
- Ensuring that the built environment mitigates the impact of climate changes;
- Protection and enhancement of biodiversity and green building/infrastructure practices;
- Provision of healthy and pleasant building spaces to users or occupiers;
- Minimisation of waste; and
- Provision of sustainable material saving and recycling.

Economic implications are considered during the design stage taking into account the cost premium on materials and methods that provide greater efficient energy saving technologies. The initial costs are offset by operational low costs and energy savings during the life span of the building. To aid the decision making process during design, tools such as Life Cycle Costing (LCC) techniques are used to evaluate the performance during the construction process. This assessment includes cost benefit analysis of deconstruction and waste management in line with the evaluation of environmental impact of the construction process using a technique termed Life Cycle Analysis (LCA). This considers concepts such as clean technology, identification of opportunities for improved performance of existing buildings, FM arrangement and the encouragement of innovative new ways.

### **2.4.2 Sustainable construction strategy**

There have been clear indications that the construction industry is adopting and embracing the policies of sustainable development during construction process from project to project (Shelbourn *et al.*, 2006). As a result there are a number of evolving sustainable construction strategies that are aimed at developing a common framework to understand and effectively adopt an integrated approach by every stakeholder who is responsible for positively contributing to the achievement of sustainable construction. For example, in the United Kingdom, the supply chain sector stakeholders such as members of the construction team and materials manufacturers or suppliers are becoming heavily involved in advancing the sustainable construction agenda. WS Atkins Consultant (2001) argues that most leading construction companies are

benefiting from the profitability generated by adapting to sustainable construction strategies. This is supported by BRE Report (2002) which concluded that being sustainable is much about efficient profit-oriented and value for money realisation while helping improving the environment.

Some of the strategies that can be put in place are:

- Introducing the sustainability agenda at each stage of the construction process identified in Figure 2.4;
- Identifying the sustainability process to be adapted throughout the construction process in order for businesses to benefit in terms of time, cost and quality of the development;
- Using sustainability criteria for selection of contractors, sub-contractors, materials and plant suppliers;
- Assessing client requirements against budget and sustainable construction methods;
- Managing waste on site including consideration of off-site construction and fabrications;
- Keeping clients aware of sustainable construction and encouraging their participation in the construction process;
- Ensuring that regulations and legislations that drive the sustainability agenda are communicated to the clients and incorporated in the construction process;
- Ensuring that there are set Key Performance Indicators (KPI) and Environmental Performance Indicators (EPI) on each development project;
- Capturing and collating data for projects and ensuring that the data is available for use on future projects and not archiving and forgetting about the information;
- Using Private Finance Initiatives (PFI), Build-operate-transfer (BOT) and Build-own-operate-transfer (BOOT) etc. This is when the developer maintains the facility for a longer period and therefore is motivated to ensure the implementation of sustainable development to benefit from lower construction costs (sustainable construction) and lower operational costs (sustainable FM); and
- Incentivising stakeholders for advertising and driving the sustainability behaviour among the project team and the entire construction industry.

In the context of Qatar, sustainable design or sustainable construction initiatives appear to be non-agenda items during the design and construction processes. Through the acknowledgement of sustainability drive, it was inevitable that Qatar had to look at ways of dealing with sustainable development from an infrastructure development perspective.

### **2.5 Qatar sustainability approach**

Qatar's leading research organisation, the Gulf Organisation for Research and Development (GORD), launched and developed the Qatar Sustainability Assessment System (QSAS). QSAS's main objective is to provide a platform that effectively contributes to the reduction of energy consumption and advances sustainable development without eroding the local culture and identity of communities and cities. This is aimed at creating a sustainable built environment taking into account local and global climatic, geological impact by developing a sustainability rating system that addresses specific needs and environment of Qatar and the gulf region ([www.gsas.org](http://www.gsas.org); [www.gord.qa](http://www.gord.qa)).

GORD is a Qatar governmental research organisation and subsidiary of Qatari Diar Real Estate Investment Company. GORD is tasked with providing research information that is required to promote sustainable construction through being guided by sustainable building or construction standards and eco-efficiency practices. The vision for this research organisation is to position Qatar, under the unique Middle East climatic conditions, as the world leader in the development, design and construction of sustainable buildings. Some of GORD's aims include the development of QSAS to guarantee adaptability and flexibility in incorporating future legislative and environmental amendments to balance with ever changing development requirements and sustainability objectives. QSAS initially dealt with Qatar and the gulf region. There has been a shift as QSAS now deals with the issues of addressing the global sustainability agenda. As a result QSAS is now referred to as the Global Sustainability Assessment System (GSAS) and during these times of transition, the terms are often referred to together as GSAS/QSAS in many papers, articles and journals to avoid misunderstandings. This same protocol will be adopted in the research.

GORD sees the Middle East and North Africa (MENA) as unique places with extreme high temperatures, desert conditions and with strict religious traditions and cultures. In

order for developmental projects to fulfil the requirements related to their functions under the circumstances, there has been the need for the requirements to be modelled to help create a sustainable built environment that preserves the values, traditions, religion and identity of the region while minimising the ecological impact. With these regional dynamics in perspective, GSAS/QSAS intends to bring awareness to professionals to recognise the importance of incorporating sustainability concepts and strategies by adopting a systematic assessment of priorities and outcomes suitable for the region. It must be stressed that GSAS/QSAS was first developed primarily to provide technical guidelines to the customisation of the unique climatic and traditional conditions of Qatar, but now the rating schemes have been evaluated for the transition from a local to a global platform.

The technical guidelines are targeted at the construction team comprising the consultants, contractors, sub-contractors, project managers and clients who are expected to consider, apply and implement these guidelines throughout the construction process. The operational teams comprising service providers, assessors, facilities managers also benefit from these guidelines by applying the measurement principles during the lifetime of the building operational function. It would be beneficial to local authorities and commissioning authorities to draw their approval, monitoring and commissioning plan at every stage of the construction process to meet the sustainable objectives of the development. Suppliers and manufacturers are required to acquaint themselves with these guidelines to ensure that their products conform to sustainable construction requirements and that they are not subjected to approval challenges necessary to mitigate environmental impact that arises from material usage. Other stakeholders and organisations that are involved in training and advancing sustainable development solutions and training, are expected to incorporate these technical guidelines within their training material and information pack.

GSAS/QSAS guidelines cover most development projects such as neighbourhoods, parks, commercial, core and shell, residential (single or group), schools, hotels, mosques, sports, mixed development, bespoke and infrastructure development. For example, on commercial developments, GSAS/QSAS intends to evaluate design of building types, space allocation and the functions such as offices, conference rooms, dining and kitchen areas, retail and ancillary areas. From a construction perspective,

GSAS/QSAS intends to evaluate the environmental impact of the construction process and the aspects that have lasting environmental impact, performance measurement related to normative standards and acceptable practices and considers the mitigation measures to achieve sustainable construction. From an operational and FM angle, GSAS/QSAS intends to evaluate the following:

- Environmental impact of newly built, occupied or existing building in operation;
- Original design requirements, changes made as a result of alterations, additions or refurbishment and how sustainability mitigation can be applied to contain the impact;
- Existing buildings rating assessment regardless of whether the buildings underwent GSAS/QSAS design assessment or not and those subjected to renovations affecting less than 50% of the building area; and
- Renovations affecting greater than 50% of building area would be assessed based on a full GSAS/QSAS design assessment criteria.

GSAS/QSAS sustainability policy is available in the form of a manual, tools and project management system suites. These suites provide general guidelines (manual suite), calculation toolkits (tools suite) and online project management system to facilitate submission, assessment and certifications. The sustainability assessment process for various project types is provided in various suites to help stakeholders in pursuing sustainability practices beyond the current sustainability remit. This is intended to make GSAS/QSAS guidelines a high priority concern in the design, construction and operation of the built environment.

### **2.5.1 GSAS/QSAS certification process**

The assessment and certification of GSAS/QSAS looks at three dimensional elements which are:

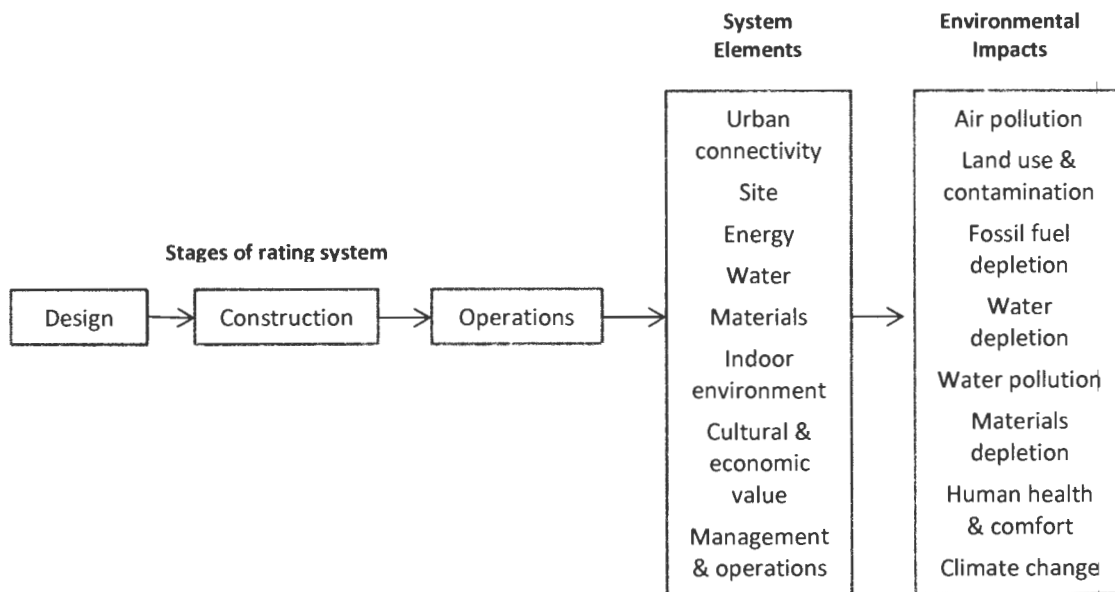
*Design* – assessment is carried out at every design deliverable stage throughout the design process, thus from conceptual phase to project handover and close-out.

*Construction* – the construction certification assesses the environmental impact of the construction process by evaluating the aspects of construction activities that help to mitigate environmental impact and promote sustainable development.

*Operation* – this certification assesses the environmental impact of new or existing buildings in operation to verify the original design requirements, changes made by refurbishment, additions or alterations in order to mitigate environmental impact.

The GSAS/QSAS certification tends to put greater emphasis on the achievement of the minimum set ratings without providing a prescription stage process and requirements to be followed or adhered in order to achieve the ratings. The measurement for the rating is developed to align with performance based rating that is accustomed to the unique conditions and requirements of Qatar and the gulf region. This begs the question whether GSAS/QSAS can be relied upon to deal with global measurement ratings and environmental assessment certification.

The rating is split into different categories to deal with specific measurement criteria. The objective of this is to ensure that all aspects such as urban considerations, site conditions, depletion of energy resources, water, building materials, the environment, culture, economic values and FM; are effectively assessed and scored. Figure 2.5 provides a guide to the main elements of the rating stages of GSAS/QSAS and some of the environmental impact that can be mitigated.



**Figure 2.5 QSAS categories and environmental impacts: Source QSAS v1.0 - 2010**

The measurement scoring is based on consideration of predicted outcome that the design proposes and the loading of the environmental impact from the list in Figure 2.5.

A scale of 1 to 3 is used to determine the level of acceptability with a scoring of less than zero denoting failure and zero or more being used as the threshold of acceptance. The certification is carried out by registered and GSAS/QSAS certified 'green professionals' and professional consultant and the process is managed by an appointed certifying body.

### **2.5.2 GSAS/QSAS compliance**

The compliance to GSAS/QSAS presents a challenging scenario to construction professionals and stakeholders. As stated earlier the technical guidelines intend to address specific environmental and cultural aspects of the regions and therefore should contribute in the formulation of binding parameters for adherence throughout the regions. However, for example, design guidelines provide recommendations and directions for implementation of sustainable goals and facilitation of achieving a sustainable built environment that minimises ecological impact. These technical guidelines are in fact 'proposed' strategies and suggestions to designers for their consideration in the design process. Designers are therefore expected to consider the potential benefits from these recommended parameters to their specific design requirements resulting in subjective interpretation, and incorporation of these guidelines.

Whilst the current or new built developments are subject to GSAS/QSAS design assessment criteria, GSAS/QSAS fails to provide clear directions on how the existing building and infrastructure stock should be assessed in situations where there are no renovations or additions made to the developments. Another challenging factor is that GSAS/QSAS guidelines and assessment criteria are constantly evolving to include the latest relevant local, regional and global sustainability strategies that are required to address sustainable development issues. As a result, the implementation of these guidelines requires constantly referring to and checking against the latest GSAS/QSAS versions available.

There are pre-requisite parameters for assessment, approval and certification for GSAS/QSAS compliance and yet there appears to be no mandatory requirements for small scale or individual private funded developments. Moreover, GSAS/QSAS appears to be mandatory only for the star rating requirements. However, it does not deal with the planning policy issues that are fundamental to achieving sustainable development, sustainable construction and sustainable FM.

From a property management perspective, Coalson (2005) believes that there is a generally overlooked aspect of the sustainability of buildings and argues that sustainable development and FM practices provide an enhancement of building performance and addresses health and safety concerns of occupants. It is therefore important to look at FM from an overview perspective, of definition, models and systems, strategic planning, positioning and performance, project briefing, environmental and sustainability; in order to provide a platform for GSAS/QSAS to play an important role in sustainable urban development in the context of Doha, Qatar.

### 2.6 FM in use

The definition of FM has been evolving rapidly and has been presenting mixed sentiments amongst researchers whose intentions are to provide a definitive perspective of FM (Steele, 1983; BIFM, 2003). Price (2003a) tracks the FM concept back to the 1970s but it is believed that FM started in the Roman ancient times when it was applied in agricultural sector, housing and cleaning.

FM is defined in many ways and Barrett and Baldry (2003:xi) define FM as *an 'integrated approach to maintaining, improving and adapting the buildings of an organisation in order to create an environment that strongly supports the primary objectives of that organisation'*. Alexander (1994:1) refers to FM as *'the process by which an organisation delivers and sustains support services in a quality environment to meet strategic needs'*. Alexander (1999) regards FM as a discipline that covers all aspects of space, environmental control, health and safety, and support services to achieve core business objectives.

The management of infrastructure resources through service delivery and support for the sustainability of an operational strategy can be interpreted as the definition of FM (Nutt, 2004). This definition focuses on supporting sustainability and the management of the environment. FM can also be conceptualised for bringing together efforts related to the planning, designing and management of buildings and their systems, equipment and furniture to improve the FM organisation's competitiveness (Becker, 1990).

Then (1999) argues that FM is confined to the delivery of a conducive workplace environment to optimise functional space that can support a business process and

human resources. The remit for FM encompasses maintenance management, space management and standards, project management, general premises management of building stock and support services (Hinks and McNay, 1999). Nutt (2000) identifies the primary function of FM as resource management. The resources fundamental to the FM function include financial, physical, human and the management of resource information and knowledge.

While the definition of FM is varied, FM can be aligned to a specific organisational function that is derived from real core business needs (Owen, 1999). This supports Alexander (1994) earlier suggestion that FM is defined by the relationship of facilities to the core business of an organisation in which success is measured by the level of the quality of support they provide towards achieving business objectives.

There is much debate on whether the initial concept of FM was cost saving driven or it was a mere good practice to facilities maintenance to maximise the life span of buildings (Alexander, 1996; McLennan, 2000). The latter could be a fair evaluation as argued by IFMA (2003) in that the cost saving concept only became paramount during economic down turns as organisations adopted cost reducing practices to keep their businesses afloat. This concept has been trusted in presenting a platform on which FM stands as an enabler to organisations to reduce costs and help towards business success (Alexander, 1996).

As circumstances differ from organisation to organisation, it has been proven as daunting for all organisations to achieve a universally FM set parameters (Chotipanich, 2004). Some organisations are multi-disciplinary in the business they do and as such the role that is played by FM differs in response to the diversity of activities therein (Chotipanich, 2008).

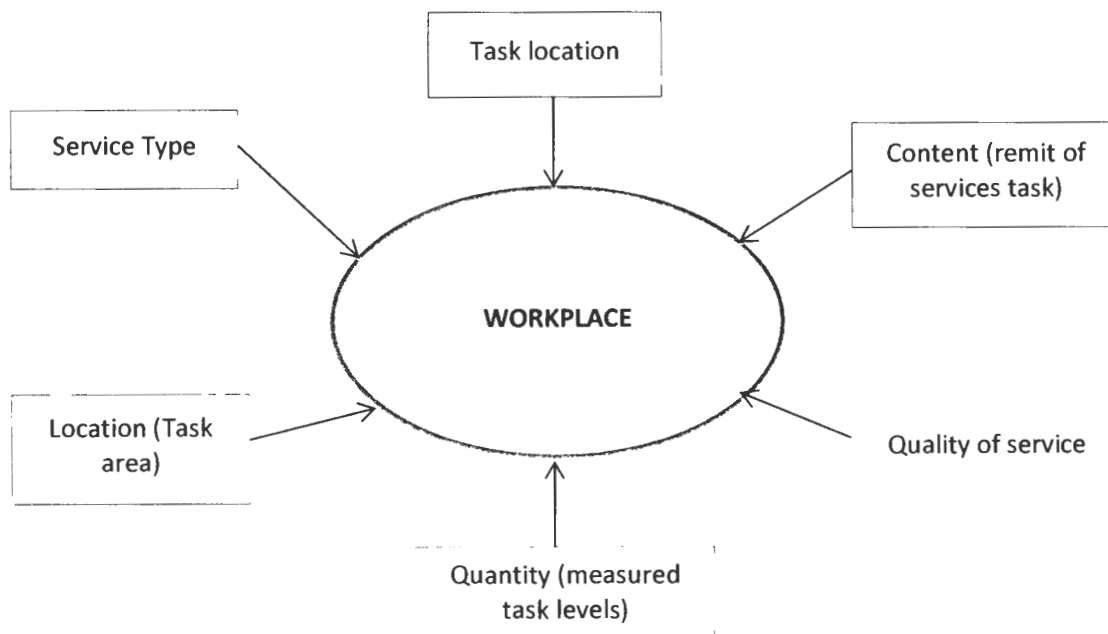
The most common factor in the varied definitions of FM is regarded by Tay and Ooi (2001:358) as the 'workplace'. The *workplace* refers to the place where services are delivered from, or to, and is not limited to office buildings. BIFM defines FM by highlighting the diversity of the activities with people managing the impact of the activities as:

“...the integration of multi-disciplinary activities within the built environment and the management of their impact upon people and the workplace” (RICS Guidance Note, 2013:48).

The focus on workplace (Figure 2.6) helps in defining the roles of a professional facilities manager as summarised by Tay and Ooi (2001). This includes, but is not limited to:

- Reporting to top management on *workplace* issues;
- Managing the *workplace* for the purpose of improving corporate goals;
- Leading and managing the FM team and assist in the daily operations of the *workplace*; and
- Focusing on the strategic *workplace* planning and organisation to achieve desired results.

FM covers a wide range of property and user related functions that an organisation can amalgamate for the benefit of the organisation achieving its core business objectives and satisfying its employees by creating an enabling and conducive *workplace* (Amaratunga *et al.*, 2000). This supported Then’s (1999) definition of FM practice as being concerned with the delivery of the enabling workplace environment that optimises functional space to support the business process and human resources.



**Figure 2.6 Workplace as the centre of activities. Source: Adapted from Tay and Ooi (2001:359)**

To aid the understanding of FM in use, an overview of FM models and systems is explored in the next section.

### **2.7 FM models and systems**

Every FM organisation is different and is dependent on its core business objectives in response to identified needs of the organisation (Barrett and Baldry, 2003). Across the wide spectrum Barrett and Baldry (2003) further argue that the FM models can be categorised into five main groups namely:

*Office Management* - This model entails an internal regular assignment of FM to a person(s) within the organisation to carry out the general facilities services in instances where the company is small. This may require the creation of different departments especially where the organisation credentials and documents are located in a single building. The facilities services are mainly provided by consultancy or contractors who are managed by the assigned internal facilities manager.

*Single Site* - This relates to large organisations that can afford to split the facilities services into various departments even though the organisation is located on one site mainly in its owned building. Services are normally carried out in-house, out-sourced or a combination of the two.

*Localised Site* - This model follows the same principle as the *Single Site* in terms of services delivery of employing the in-house or out-sourced use of consultants or contractors. However, this model suits organisations that have more locations albeit the same legislative council. Operational decisions of lesser impact can be made at individual sites while the headquarters make the major decisions.

*Multiple Site* - This model is applicable to large organisations that have their presence in separate metropolitans within the same country. Decisions are made at regional levels and issues are dealt with at the same level. There is often the overall headquarters which deals with policy formulation and providing the necessary guidance on achieving the company's core business objectives.

*International* - This model suits an organisation that practises internationally. The regional or national offices self-manage their services while the headquarters will be responsible for policy making.

The FM models and their implementation are aligned to the organisation's strategic policies in so far as meeting the client's requirements. The need for strategic FM is discussed in the next section.

### **2.8 Strategic FM**

Strategic FM is fundamental to achieving FM through adhering to corporate strategic planning (Barrett and Baldry, 2003). The planning strategy according to Barrett and Baldry (2003) can be categorised into the following:

*Administrative Linkage* – this is concerned with the day-to-day operational support required to achieve the FM delivery services. Although this does reflect on significance in the planning process, it is fundamental in enhancing the implementation process.

*One Way Linkage* – this encompasses a reactionary approach to corporate strategic initiative and is widely preferred to by many facilities managers.

*Two Way Linkage* – this assumes a reciprocal and independent relationship between FM process and corporate strategic planning. In this case, FM becomes credible, helpful and can contribute to developing strategic plans.

*Integrative* – this depicts a dynamic, formal or informal and on-going dialogue between FM planner and corporate planners. This is where facilities managers are involved in the strategic business decision making process.

The generic model of strategic FM is that it should create conducive environment for achieving core business objectives (Barrett, 2000). A successful strategic model is one that is a resultant of conceptual and theoretical modelling and supported by case studies researches and computer analysis (Wilson, 1984). Refining of strategic model is dependent on an individual organisation's ability to balance the flow of information necessary to address time, cost, quality and interactions with environmental parameters (Beer, 1985). The organisation's environment and the interaction between the organisation and its environment, form the basis of a strategy that needs to be continuously adopted to achieve the business objectives. FM strategies have moved on from the ancient reactive approach strategy to a more technically oriented management strategy (Barrett, 2000). It is therefore a critical and important aspect that a FM strategy should resemble a policy framework that provides a platform for decision making within

the FM organisation while being fully informed by external factors that affect the achievement of business objectives (Barrett, 1995).

The FM strategy should strive to create an efficient and effective performance management system to:

- Translate the FM vision into measurable outcomes that denote success being shared within the FM organisation, clients or customers and stakeholders;
- Provide measurement tools for assessing, managing and improving FM systems;
- Continue to shift from perspective, audit and compliance based oversight to on-going forward looking strategic partnership;
- Include measurement of quality, cost, time, employee and client expectations and demand to enhance skills that are needed to provide and predict an in-depth performance management system; and
- Review current assessment techniques and adopt a consistent approach to performance.

The challenges of strategic FM include amongst others, understanding the factors that affect strategic planning. In most organisations, the facilities manager is not a top decision maker and does not influence corporate decision making. The FM function is ignored and becomes non influential in corporate decision making. This results in FM becoming misaligned with corporate objectives. This provides a lack of synergy and understanding of core business objectives and yet facilities managers are responsible for planning delivery services, maintenance of budgets, managing staff levels and other resources.



Figure 2.7 Strategic planning process. Source: Barrett and Baldry (2003:72)

It therefore becomes fundamental that the strategic planning processes consider the core business objectives, the organisation's strengths or weaknesses, opportunities and threats; to enable the organisation to provide a service delivery process that meets client expectations. Figure 2.7 shows the *objectives* to be considered to include setting core business goals, liaison between facilities managers and corporate managers for a strategic plan for the medium to long term usually five to ten years analysis time line. The *strengths, weaknesses, opportunities and threats (SWOT)* analysis considers the internal organisation's strength and weaknesses taking into account personnel, financial position, business structure and information and technological position.

External opportunities and threats consider core business, economic conditions and market influence, technology, politics, legislation, social and environmental regulations. The *Strategy* considers SWOT at the departmental level, identifies necessary changes to be implemented, space, structure and deployment of resources, technology, finance and contracting to deliver services. This SWOT analysis also considers risk management, organisational culture and preparedness to respond, react and recover from setbacks. The *Review* reconciles the business objectives so as to establish a monitoring system that can enable performance evaluations to provide information or feedback necessary to make corrective measures to in the strategic plan. Periodic and systematic monitoring and tracking of targets is required to provide checks on efficiency and effectiveness.

While the evaluation of the performance of FM is fundamental to providing the basis of monitoring towards achieving efficiency, it is also a powerful for competitiveness and positioning the organisation as a preferred FM services provider. Positioning of FM is discussed in the next section.

### **2.9 Positioning of FM**

During the past 30 or 40 years, FM has emerged as a key service sector that has been promoting competitiveness amongst service providers (Nutt, 1999; Tay and Ooi, 2001). The solution through FM practices during economic down turns tends to elevate FM as a sector of '*service innovation*' (Cardellino and Finch, 2006). In light of FM being a service sector, the fundamental principles of performance and client satisfaction lean heavily on strategic positioning as opposed to simply a physical operational approach (Price and Akhlaghi, 1999; Barrett, 2002).

The positioning of FM is an important aspect in the provision of FM services by an organisation. The positioning of FM needs to take into account the environmental issues that practically affect the delivery regime conformance to both internal and external regulations (Chotipanich, 2004). The core business of any organisation needs to be supported by functional FM techniques requiring operational processes that can achieve the organisation's objectives. It must therefore be understood that FM is a key function in resource management to enhance an operational environment to support the core business of an organisation from both a short and long term perspective (Chotipanich, 2004). It is widely accepted that many FM organisations adopt different core business objectives. The emphasis on the organisation's operational process, reliance on facilities and support services, function, role, scope and priorities as functions of FM is designed differently to meet each organisation's objectives (Atkin and Brooks, 2000).

The importance of fitting FM functions in a manner that supports a particular organisation's objectives is influenced by the environment in which the organisation operates (Chotipanich, 2004). The positioning of FM to realise and understand the organisational needs is also key to effective FM as measured by the concept of 'value for money' (Atkins and Brooks, 2000). FM managers could improve their organisations' achievements if positioning of their FM activities is more aligned to the core business objectives.

The FM positioning and its framework is still subject to research. Schindler (1998), Cotts (1999) and Chotipanich (2004) identify some of the factors that affect the positioning of FM. These factors include culture and organisational objectives, physical size of organisation, core business activities and management hierarchy was identified by Schindler (1998). Factors such as size and location of facility, ownership rights and control that affect the FM practice as well as the position of the FM manager are identified by Cotts (1999) as other factors. Chotipanich (2004) summarised and categorised these factors as:

*Internal factors* - these are organisational characteristics, facilities features and business sector.

*External factors* - these are economic, social, environment, legislation / regulation, market conditions, local culture and context.

It is clear from the literature that both strategic FM and the positioning of FM within the organisation lead to the need to achieve the resultant performance of FM. Hence, the performance of FM is outlined below.

### **2.10 Performance of FM**

Barrett and Baldry (2003) argue that a generic FM model should consider and have the following to guarantee success:

*Structure* - should a have a board or corporate at regional or international level depending on the specialist nature and demand for the service.

*Management of services* - this needs to be clearly identified as ether to be out-sourced or to be carried out in-house.

*Core business needs* - the core business objectives should continuously be reviewed in order to meet the ever changing business climate, client preferences or demands as well as stakeholders needs.

*External influence* - services provision can be influenced by prevailing legislative regulations, technological changes or needs and the overall completion which the organisation is required strategize to remain in business.

*Strategy* - continuously reviewing operational function policy, business vision and providing a daily service that ensures the smooth running of a facility. It is therefore important to make sure that 'strategy' becomes a policy framework that can provide a platform or context for decision making within departments or offices.

*Best value* - the core business of an organisation is to provide operational services that bring the best return on investment. Factors such as planning and risk management are core to achieve best value for money.

The performance of FM is heavily dependent on the feedback from clients. As this is perceived as hugely subjective, it is paramount that an organisation puts in place a framework that collects client feedback and uses the information to improve the

services. It is fundamental that as a starting point the current services are reviewed to establish fragmentation, gaps or overlaps that need to be addressed. It is key that past and current performance feedback is used to align individual action with core business strategy while recognising the capability of staff. Even the identification of opportunities to do things in a better way is a result of a sequential development from sound base of integrated feedback data. A successful performance in FM through a proactive approach can result in immense contribution to business (Nutt, 1999).

The information collected as feedback and the corrective or improvement measures should be implemented to help improve and make the FM function more effective and efficient service delivery operation. The success of business performance is measured by the ability to assess performance in order to provide vital information for improvement. If something cannot be measured, it is questionable whether it can be improved (Hayward, 1998). Performance measurement is an important aspect in determining an effective implementation of a FM strategy (Alexander, 1996). The environment in which a business can be conducted is fundamental and FM services provision is no different. Amaratunga *et al.* (2000) argues that the efficiency of a FM organisation is linked to the physical environment in which it operates and therefore an improvement in the physical environment can lead to increased efficiency of FM.

There are various identified methods of measuring business performance. The general norm is that financial indicators are used to measure business performance. There has however, been growing concerns and awareness that financial indicators on their own cannot be a reliable and adequate measure of competitiveness and therefore cannot be solely used as a guide for future FM performance (Amaratunga *et al.*, 2000). The modern measurement of performance includes the consideration of employee behaviour and expectations, ever changing work processes and technological advancement. Information technology has dominated the business environment and many businesses are becoming increasingly dependent on the information exchange and knowledge sharing (Reeves, 1999).

The Procurement Executives Association (1998) identifies technological advancement, scarce resources, higher efficiency demand, discretion rather than rules and results-oriented management as the unique challenges that compel organisations to explore new ways to meet client demands and achieve core business objectives. While

optimising running cost is an element of performance measurement, it is efficiency and sustainability that bring a holistic approach to achieving business objectives (Amaratunga *et al.*, 2000; Oseland and Wills, 1999).

The overall achievement of the performance of FM, through implementing strategic FM, is that which enables one to highly position an organisation amongst its competitors and requires the organisation to understand the facilities portfolio. The knowledge invested in the strategic planning, evaluation of performance and the feedback from clients becomes invaluable information that is required in the construction process. As supported by Hinks *et al.* (1999), relevant stakeholders play a fundamental role at the initiation of project and FM information also becomes relevant at the briefing stages of the construction process.

### **2.11 FM and project briefing**

Briefing is a process in which the client's requirements are conveyed to the services provider to generate unambiguous parameter for a solution to be determined to deliver the requirements. The briefing process should be conducted in a neutral environment in which the client is free to introduce changes in order to consolidate his requirements (Kelly *et al.*, 2003a). FM has been increasingly becoming an important integral element of the briefing process. It also confirms that infrastructure and building development briefing has moved away from being a simple process in which a client and architect meet up and formulate the brief. Green (1996) argues that the building design process has become sophisticated such that it now requires both technical and social processes based on interaction and learning. This interactive briefing process of building promotes the input of FM to enable consideration of FM throughout the construction process, future refurbishment and post occupancy evaluation.

In the briefing process, FM input plays an important role in the coordinating, planning, designing and management of building systems and contents thereby supporting the argument that FM meets the criteria of an integrating profession that should be embedded in the construction process (Hinks *et al.*, 1999).

**Table 2.1 Briefing and considerations: Adapted from Kelly et al. (2005:361)**

<b>Briefing Issue</b>	<b>Examples for consideration</b>
Client	Core business, organisation structure, corporate strategy and business objectives
Physical	Space, structure, services, construction and maintenance
User	Purpose, efficiency, comfort, safety, well-being and environment
Financial	Capital cost, development value, cost-in use and equity value
Operational	Post occupancy management of facilities and support services
Contextual	Site, location and accessibility

Hinks *et al.* (1999) further argues that the consideration and inclusion of FM at briefing stage provides the opportunity of dealing with the social and strategic element of the briefing process including the utilisation of FM knowledge very early at the strategic stage of the project.

The integration of FM provides a fundamentally important dimension that result in a briefing process that considers business operational objectives (McLennan, 2000). According to Nutt (1993), the briefing team ought to include and require facilities client, facilities designer, facilities manager and end user to have input to the briefing process. In the briefing process, the role of the facilities manager is to ensure that the process has considered the examples in Table 2.1 and addressing the briefing issues from clients and end user, physical, financial and operational challenges to ensure future sustainable FM.

For organisation that base their achievement of business objectives on financial, designing, construction, operating and maintenance of physical resources; the consideration of these at the early stage of the project development becomes important (McLennan, 2000). The feedback and knowledge that the facilities manager can bring at the briefing stage enables for early planning and pre-designing phases to identify issues that often affect the operation and performance of the building.

The facilities manager brings to the briefing meeting information such as post-occupancy and post project evaluation data, the FM process, strategy, planning and performance; all of which should be considered during the briefing process. This is supported by Prieser (1995) who suggests that facilities managers are the custodian of the databases and information systems that provide operational information on buildings and their performance that can be used as mutual benefit to areas of facilities planning. Kelly *et al.* (2005) argues that the facilities manager occupies a similar role as the project manager or architect in leading a briefing process in which the focus is on both core business and technical specification of the project.

The literature on FM briefing reflects that briefing is an interactive process in which an adequate representation of the briefing team gets together to obtain information and feedback that is necessary for design and specifications conclusions. This support the definition of FM as an integrated profession in which the facilities manager ensures that services are tailored to suit the core business they operate (Hinks *et al.*, 1999).

The briefing process also incorporates environmental considerations and any mitigation on the impact of the development to the environment. Hence, FM and its relationship to environmental management is discussed below.

### **2.12 FM and environmental management**

Alexander (1996) defines environmental management as the effective management of an organisation's operations to conform to the defined environmental goals on sustainability, health, safety and ecological environment that are required to meet the overall strategic business objectives. The achievement of environmental quality is when an organisation can successfully formulate and implement a process that addresses the reduction or elimination of the negative impact of the activities it operates in conducting its business. The fundamental element of environmental management is the identification of health and safety threats, adverse environmental effect, implementation strategy and monitoring regime against legislations applicable to the environmental and ecological standards.

The facilities manager has to be aware of environmental issues both from an individual and corporate level including the understanding of environmental systems and

techniques that are necessary for the implementation of mitigating measures to the environmental impact (Alexander, 1996). This requires a need to explore sustainable FM awareness within organisations.

### **2.13 Sustainable FM**

The concept of sustainable FM is presented by Nielsen *et al.* (2009) as an umbrella for various ways of reducing flows of energy, water and waste in daily operation of buildings by a process of regular monitoring of consumption using 'green accounting' and the application of sustainability policies that the end-user must be aware of. Facilities managers get involved in the day to day operational activities of buildings and therefore become better positioned at the forefront of ensuring that the asset management regimes incorporates sustainability and or mitigate measures that can eliminate/reduce the effect of climate change (Elmualim *et al.*, 2010).

Sustainable FM should be developed and strategised at the corporate level so as to ensure that the business objectives which often consider financial management have accounted for resource investment for the sustainability of operational activities. There is a need to consider FM operations, which often requires the utilisation of maintenance resources including energy consumption, against sustainability and environmental benefits. This helps to reduce the gap which often exists between operational activities and sustainability agenda achievement. A sustainable FM monitoring regime should present a mechanism of combating the process of environmental management to reduce the gap between FM and environmental benefits (Alexander, 1996). It is mostly regarded that building owners' lack of environmental knowledge coupled with the facilities managers' inadequate understanding of the owners' demand levels for FM services, often present an overwhelming barrier to reduce this gap (Nielsen *et al.*, 2009). The need to encourage information sharing and the interaction between demand for primary activities in an organisation and the supply of facilities services goes a long way as mitigating factors in the reduction of this gap and requires the employment of both strategic and tactical methods.

There has been greater awareness of sustainable development leading to the need for sustainability to be considered and reflected in new designs through the interactive briefing methods in which facilities managers are invited to participate (Kelly *et al.*,

2005). However, it appears that there is not adequate consideration to address the tendency of overlooking the status of existing building stock from a sustainability or sustainable FM and environmental perspective. This notion is confirmed by Nielsen *et al.* (2009:1) who argue that “*sustainable management of existing buildings is one of the most important strategies in the transformation towards a sustainable society due to the huge quantum of square metres compared to new buildings, where sustainable design has been applied*”. It becomes fundamental that the information and data of existing buildings (as-built drawings, operational manuals and serviceability levels) is available and understood to enable effective sustainable FM planning to be adapted to meet the environmental policies and legislations.

Whilst the lack of consensual understanding of sustainability by individuals and organisations has been the compelling factor for implementing sustainable FM (Elmualim *et al.*, 2010), there has been a paradigm shift and growing interest in the integration of sustainable measures in operational activities by facilities managers and building owners (Hodges, 2006). The integrating process of FM with the aim of delivering facilities services while creating an environment that advances the sustainability agenda should be a strategic decision at corporate level.

**Table 2.2 FM functional levels. Adapted from Nielsen *et al.* (2009:11)**

Support Function	Activities
Strategic Level	Policies, defining service level, portfolio planning, negotiating agreements, monitoring performance
Tactical Level	Specifications on services, tendering, delivery timescales, project and environmental management and maintenance planning
Operational Level	Building operation and maintenance, cleaning, gardening, security, rent administration and bookkeeping

The support functions mentioned in Table 2.2 can only successfully deliver the desired activities through the synergy of information at all levels rather than through a cascading approach. Organisations, and not limited to FM businesses, are therefore encouraged to ensure that facilities managers are involved at all functional levels to deliver the activities to contribute fully to the reduction of the built environment impact on the

environment in a way that combat the sustainability agenda in line with a strategic and tactical approach that is translated into measurable operational targets (Elmualim *et al.*, 2010). The achievement of functional involvement of FM at all levels to achieve strategic and sustainable business operations can be affected by various factors. The next section discusses the factors that affect sustainable FM.

### **2.14 Factors that affect sustainable FM**

According to Elmualim *et al.* (2010), the following are some of the many factors that affect sustainable FM in one way or the other, positively or negatively:

*Complexity of buildings* - the level of complexity in building design has escalated with many of the designs having to be self-actualised on the basis of aesthetics and iconicity rather than need and purpose. This often presents an element of competition among designers or developers to achieve the most attractive buildings or structures leading to the diversion of focus on sustainable development, environmental awareness and energy consumptions that are highly demanded by high rise glass buildings for example. In addition this demands high level FM training in order for facilities managers to understand complex intelligent buildings in order to provide an adequate level of sustainable FM.

*Leadership attitude* - volumes of significant literature suggest that the success of sustainable FM is driven from a corporate level and as a result of the attitude of top management to dictate the level of organisational advances in tackling the sustainability challenges. The size of the organisation, consideration of financial constraints and climate changes, all influence the approach the organisation takes in dealing with environmental management. It is widely suggested that large and well established companies deal with sustainability better than small businesses due to the affordability of high level skilled facilities managers who understand the issues of environment and sustainable FM.

*Perception* - one of the most challenging aspects hampering the uptake of sustainability is perception. Many players misguidedly believe that their efforts are insignificant or futile when compared to the large scale of activities in industries, world carbon emissions and climatic changes around the globe. This coupled with the belief that global warming is a natural and scientific process has led to the conclusion by some

that advancing the sustainability agenda is a costly commitment that does not yield positive financial returns. This has led to the conclusion and perception that FM is a cost management tool and conservative profession that helps to maintain facilities effectively resulting in good financial returns.

*Call for change* - the call to invest more in sustainable management is not only limited to FM organisation. Facilities managers in the past were restricted to the operational activities. There have been calls for a paradigm shift in which facilities managers are required to be involved and integrated within the strategic, tactical and operational functions to achieve sustainable FM through the implementation of this culture change.

*Knowledge gap* - the demand for FM services has been sky-rocketing but there has been a lack of knowledge and skills within the profession to effectively manage facilities from a sustainability perspective (Shah, 2007). The diversification of FM remits presents inconsistent approaches by facilities managers across the FM spectrum. Larger firms tend to operate a more strategic and tactical FM function than small organisations that tend to prioritise on financial returns and are not geared to invest in training as can be done by their counterparts in large firms. This results in the gap of knowledge widening rather than being closed. Pitt and Hinks (2001) also argue that FM services are predominantly out-sourced and this results in the lack of control over training, skill set and operational culture.

*Financial* - FM as is with other businesses, traditional practices and prioritises financial returns, business efficiency, innovative change and creative thinking (Elmualim *et al.*, 2010). Sustainability targets are less focused upon and there is little incentive to facilities managers to tackle sustainability and environmental management even at individual level. Shah (2007) believes that sustainability targets such as resource acquisition, usage, disposal and waste management are to be tackled to conform to performance management levels of skilled facilities managers and are still expected to achieve financial targets. The wider global drive is to invest in advancing sustainability through providing organisations and facilities managers with a platform to integrate sustainable FM practices at all functional business levels and thereby positively contributing to sound business processes, good financial returns and sustainable FM.

*Motivation* - the lack of incentivisation and motivation in advancing the agenda of sustainability adds an additional dimension to the sustainable FM challenges. Many organisations have taken it upon themselves to include and consider the subject of sustainability at mission formulation in order to provide a progressive image to attract their targeted client base. Motivation and training provide a platform to mould the attitude and competences of technical staff so that they are equipped to deal with clients' staff that is sometimes highly technical and enthusiastic about the role they play in their respective organisations.

It is paramount that the above factors are considered to achieve integrated FM strategies that result in providing sustainable FM.

### **2.15 Concluding remarks**

This chapter has provided an overview of sustainable urban development and the ultimate goal of creating a city with high level of liveability through allowing the principle of *emergence* and *self-organisation* of city growth to sustain resilience. The ability to generate resilience which is greater than its vulnerability is confirmed as the cornerstone of a city to achieve sustainable urban development. It turns out that cities go through different processes in their growth while addressing and dealing with threats that can negatively affect their growths by adopting sustainable development principles.

Sustainable development definitions encouraged a need for open-mindedness and responsibility in dealing with behaviour and culture when implementing the solutions to the themes of sustainable development. In contextualising the sustainability agenda to Qatar, a working definition of sustainable development was derived from The Brundtland Report of 1987 concept *as the necessity of providing needs to the Qataris underpinned by the efficient utilisation of natural resources and employment of technological tools to achieve future self-reliance*. Consideration on sustainable construction was introduced and its success is underpinned by a sustainable design that responsibly embraces the discussed wide range of sustainable construction strategies.

FM was discussed with specific reference to the need for a strategic workplace that helps in providing a platform of identifying the roles of FM managers. The FM strategic planning process was uncovered with the requirement of FM managers to understand

SWOT and implement changes or corrective measures that are established from robust reviewing processes. The literature revealed the importance of strategic FM as a model that organisations are compelled to consider and implement to competitively position themselves as a 'service provider of choice'. FM positioning that is based upon functional FM techniques enhances the organisation's performance that achieves the best value for money to its clients and itself. In summary FM is required to be tackled with an integrated approach, to ensure that the objectives of the organisation are achieved in a manner that strategically enhances performance and positioning in pursuing the sustainability agenda.

In terms of the contextualisation of FM to Qatar, there has been lack of literature on FM in Qatar. This could be supported by the limited consideration of FM in the QSAS/GSAS as an environmental policy that can be employed to ensure sustainability in the construction process.

The following chapter will provide the research theory, methodology and the data collection techniques that are used to obtain information on Qatar's rapid urban development.

## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1 Introduction

The preceding chapter provided a critique of the literature on the elements of sustainable development, FM, and their sustainability from a theoretical perspective. It provided an overview of urban sustainability and how it is underpinned by pursuing and advancing the fundamentals of social, economic and environmental themes. Sustainable construction principles and strategies provide a framework and the support for sustainable development thereby creating the theoretic framework for sustainable FM. It is also important to note that sustainability initiatives by Qatar's national development 'blue print' (Qatar National Vision 2030) help the cause for sustainable development and FM.

This chapter provides the research's philosophical stance, the paradigm that underpins the research; and the justification for the methodology and type of research undertaken.

### 3.2 Research philosophy

Research is a systematic inquiry or investigation to a study of sources of information to establish facts and provide conclusions to the investigation (Martin and Guerin, 2006). It is possible that research provides a stock of knowledge on the subject being studied. The structure and methodology of research is underpinned by the philosophical paradigm (Green, 2008). A paradigm is defined as:

*...“ a philosophical and theoretical framework of a scientific school or discipline within which theories, laws, generalizations and experiments that are performed in support of these theories are formulated” (www.merriam-webster.com/dictionary/paradigm).*

A research paradigm is based on common assumptions, values, concepts and practices that can be shared amongst researchers (Johnson and Christensen, 2005). A paradigm is therefore influenced by how an individual researcher understands the knowledge about the research question. In other words, paradigm provides researchers the opportunity to make assumptions about the real world in order to select a research methodology that is suitable to investigate the research question (Somekh and Lewin, 2011).

The research is conducted on the basis of a methodology that provides guidelines to achieve the research objectives. Methodology is the theory of the practical process of how a researcher can capture information or data that can be analysed to obtain knowledge on the subject of the research (Scott and Morrison, 2006; Yin, 2003). This methodology is influenced by the critical thinking about the nature of reality of the subject matter and how the researcher can understand the process (Scott and Morrison, 2006). It is therefore imperative that the methodology becomes a key technique or tool to rationalise the underlying reasons for conducting and selecting plans and techniques for obtaining the data for the research.

The understanding of theories of knowledge is termed *epistemology* and is fundamental to any research study (Denzin and Lincoln, 2005). Briggs *et al.* (2012) argues that as much as epistemological and methodological concepts are embedded in every stage of the research process, the information that is transformed into data through the process of analysis, either quantitatively or qualitatively, is not automatically transformed into knowledge. When research is undertaken as a structured approach enquiry employing a scientific methodology to analyse and provide a solution to the problem, it provides new information that can be added to the body of knowledge (Kumar, 2005). There should be an underlying philosophical drive that seeks to contextualise the research question to warrant a research to take place (Guba and Lincoln, 1994). Research information is transformed into data that is meaningful by applying certain epistemological assumptions called paradigms. Scott and Morrison (2006) highlight the following paradigms:

*Positivism* - seeks to predict events in the social world by searching for regularities and presents the facts on what can be observed and measured to develop a relationship between the constituent elements. Bryman (1984) presents the theory of *positivism* as a phenomenon that is inclined to the quantitative approach for research of an empirical nature because of its lower sensitivity to perceptions. Research of a quantitative nature entails the need for a measurement mechanism that is followed by hypothesis testing on well determined results (Bryman, 1984; Stake, 1995; Yin, 2003).

*Phenomenology* - accepts the way human beings give meaning to their lives and legitimises causes of human behaviour as a priority of fact. This favours a qualitative

approach to research as it tends to promote the extraction of conceptual phenomena that brings out the meaningfulness of the subject matter (Morgan and Smircich, 1980; Bryman, 1984; Mason, 1996; Denzin and Lincoln, 2005; Silverman, 2005).

*Critical theory* - accepts that values are based on research activities and that researchers are neutral witnesses. This concept is contradicted by Morgan and Smircich (1980) who argue that the level of knowledge and assumptions determine the research activities and therefore the outcome.

*Postmodernism* - disregards the universal legitimacy of knowledge on notions, modes and global narrative and accepts knowledge as a localised body of data (Silverman, 2005).

*Realism philosophy* - deals with the interdependency of human social interpretations and behaviors as they react to the real world (Johnson and Christensen 2010).

*Interpretivism* - deals with in-depth phenomenological study by the researcher to understand the participants' relationships with reality of the subject matter (Lee, 1989). This entails the understanding of the relationship and establishing a problem that requires research study to solve it. This approach is called *constructivism*.

The research philosophy provides the basis of the research methodology that leads to the research method adopted to address the research question. The need to establish the relationships among urban development, sustainability and FM techniques, that can provide solutions on 'how' urbanisation can be controlled, requires the understanding of perception of participants. Therefore to obtain an in-depth understanding of the participants' perceptions on the subject matter, the research adopts an *interpretivist philosophy*.

### **3.2.1 Qualitative versus Quantitative research**

In order to achieve and fulfil the aims of a research study, the researcher is required to select an appropriate strategy of collecting and analysing data (Stake, 1995; Yin, 2003). The commonly used approaches are qualitative and quantitative researches. Qualitative research is conducted to understand and interpret social and behavioural interaction while quantitative research is employed to test hypothesis based on cause and effect and making prediction (Johnson and Christensen, 2008; Lichtman, 2006).

The volume of data associated with qualitative research may call for the aid of information technology to provide software models that help in the data analysis (Denzin and Lincoln, 2005a). This is supported by Punch (2005) who argues that many institutions now prefer the use of computer software to assist the researcher with the analysis of data.

**Table 3.1 Comparison of Quantitative and Qualitative research. Adapted from Johnson and Christensen (2008) and Lichtman (2006)**

Criteria	Qualitative Research	Quantitative Research
Purpose	Understanding and interpreting of social interactions.	To test hypotheses, look at cause & effect, & make predictions.
	Smaller and targeted selection.	Larger and randomly selected.
Variables	Study of the whole.	Specific variables.
Type of data	Words, image or objects.	Numbers and statistics.
Form of data collected	Open-ended, interviews, observations, field notes and perceptions.	Precise measurements, data obtain by instruments.
Type of data analysis	Patterns, features and themes.	Statistical relationships.
Objectivity and subjectivity	Subjectivity is expected.	Objectivity is critical.
Role of researcher	Interest in the study that participants are aware of, participants selected, targeted and known to researcher.	Participants not known, researcher's bias not known, participants characteristics are deliberately hidden from the researcher.
Results	Particular, specific, and less generalised.	Generalised findings for application to other populations.
Scientific	Explanatory generates new theory from collected data.	Confirmation, testing hypothesis and theory with collected data.
View of human behaviour	Dynamic, situational, social and personal.	Regular and predictable.
Research objectives	Explore, discover and construct.	Describe, explain and predict.
Focus	Wide angle lens, examine breadth and depth of phenomena.	Narrow angle lens, tests a specific hypothesis.
Nature of observation	Behaviour in natural environment.	Behaviour under controlled conditions, isolate causal effects.
Nature of reality	Multiple subjective realities.	Single objective reality.
Report	Narrative, contextual description and direct quotations from participants.	Statistical, correlation, comparisons of means and significance of findings.

Table 3.1 provides a comparison between quantitative and qualitative research. It is common that some research studies require both approaches. For example, interviews can be conducted to obtain participants perceptions on the problem as a follow-up to questionnaires for empirical enquiries (Yin, 2003). Qualitative research allows researchers' bias and interests to be acknowledged in the reporting process (Creswell, 2003; Merriam, 1988). Qualitative research is about hypothesis generation and quantitative research is about hypothesis testing (Merriam, 1988). Therefore, in order to interpret the perception and the understanding of FM in terms of urban development for Doha, a qualitative research has been adopted.

### 3.2.2 Theory development

Theory development is essential for the success of a study and must be formulated before the collection of data (Lincoln and Guba, 1985). This is not only limited to case study research but also to other research methods. Sutton and Staw (1995) argue that there should be a defined 'blueprint' for the study to help in determining an appropriate theoretical proposition. Eisenhardt (1989) argues that theory development may take a long time. This may be undesirable if the case has many variables that are time-related. It is important for a researcher to gain valuable knowledge of the appropriate theory to be used for the research by reviewing and analysing previously completed studies (Yin, 2003). Table 3.2 below shows theories and examples. These theories will be used to explore and justify selection of methods and approaches necessary to undertake this research.

**Table 3.2 Theory and example. Derived from Creswell (2003)**

<b>Theory</b>	<b>Example</b>
Individual Theory	Individually developed, cognitive behaviour, personality, learning and disability, individual perception, interpersonal interactions.
Group Theory	Family functioning, informal groups / teams, supervisory-employee relations, interpersonal networks.
Social Theory	Economic development, urban development, international behaviour, cultural institutions, technological development, market functions.

### 3.2.3 Research design

A *research design* is a plan and procedure for research that spans the decisions from broad assumptions to a detailed method of data collection and analysis (Creswell,

2009). The research is designed to achieve the *objectives* of answering the *research questions* supported by information obtained through literature, the *research method* and local and global policies on sustainable development and FM techniques and processes. McNeil and Chapman (2005) recommend that the researcher decides the research process after understanding and establishing the research problem and before embarking on the methodology and data collection exercise. Yin (1994) suggests that the research design is dependent on:

- a) Type of research question;
- b) The level of control the researcher has over behavioural events; and
- c) Level of focus on contemporary events.

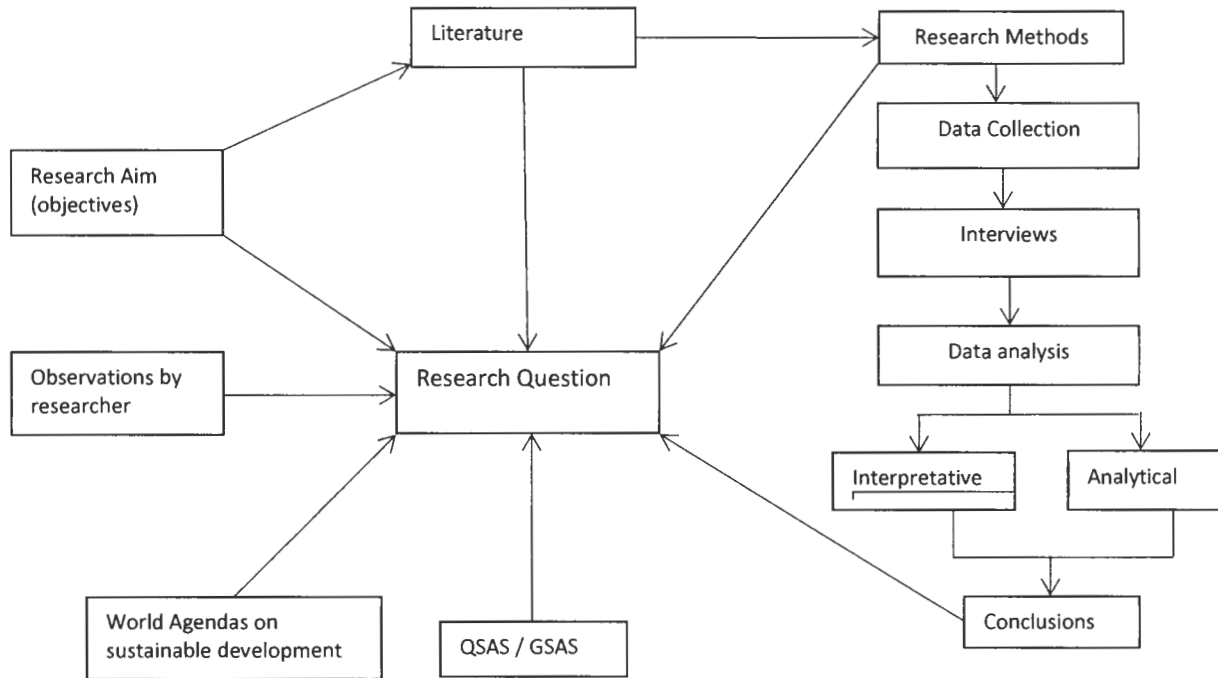
It is common that the researcher may not have any control over behavioural events and scenarios associated with case studies (Tellis, 1997). However, carrying out research entails following a plan and steps that guide the process from formulating the research question to conclusions on findings or results (Yin, 2003). Basic steps of undertaking research include the following:

- 1) Establishing the research problem;
- 2) Selecting an appropriate research method;
- 3) Identifying and choosing the technique for collecting data;
- 4) Determining research sample and size;
- 5) Consideration of validity, reliability and ethical concerns;
- 6) Choosing data analysis methods;
- 7) Reporting and presentation of results; and
- 8) Making concluding remarks.

Figure 3.1 shows a proposed model to guide the researcher on the steps and research methods for collecting the data required to answer the research question. The research question is the central and is addressed by a number steps. Yin (2009) refers to a 'research question' as the most important part of a research and that a researcher should explore the sources of information in order to ensure that sufficient data can be gathered to address the question. In this research literature and the contextualisation of the case and theoretical research philosophy provide the basis of the research

methodology that leads to the research method adopted to address the research question.

As depicted in Figure 3.1, the research aim, objectives, researcher's initial observation of the case and the linking of the researcher's observations to urban sustainable and FM in the context of Doha.



**Figure 3.1 Research design approach – Derived from Creswell (2003).**

Following the adoption of the research philosophy and methodology, the research method that leads to the collection of data can be selected. Data collected is analysed and conclusions made on whether the research question has been answered or the necessity of further research.

### 3.3 Revisiting the research question

The literature provided in Chapter Two encourages the need to understand that the tackling of the sustainability agenda is influenced by social behaviour and culture. This is also applied to FM in which the FM organisations have to align their vision and objectives with sustainability goals. The methodology is therefore structured to enable the extraction of information on the understanding and levels of awareness of potential FM challenges posed by the rapid urban development in Doha, Qatar.

The research objectives are to explore an in-depth understanding of whether urban development is underpinned by the principles and requirements of sustainable FM. The sustainability challenges of achieving social, environmental and economic development due to rapid and urban growth is also investigated. Michell (2013) argues that urban development is a reflection of strategic micro propagation of sustainable development principles that should incorporate FM. The rapid development in Qatar presents sustainability challenges and unique FM challenges that can reverse the gains of the sustainable development practices.

The built environment has witnessed the common use of quantitative approaches on FM related research (Price and Akhlaghi, 2009; Michell, 2010). Lee (1991) presents that the objectivity nature of collecting and analysing data, using natural scientific methods, influences the dominance of quantitative methods. Research in FM is normally driven by the deterministic approach in establishing FM objectives, visions, strategies and performance through relying on measured outputs (Ratcliffe, 2000). FM techniques have moved away from only addressing the maintenance of facilities to the need to understand the behaviours of both the occupants and or clients by evaluating the level of their satisfaction with services provided (Vischer, 2008). The study of human behaviour towards FM cannot be best studied by quantitative methods (Vischer, 2008).

The other element of the research is to establish the awareness of sustainable development and impact on future FM that is required to be considered in line with the large infrastructure development. The study of human behaviour towards the environment, which plays a pivotal role in addressing the urbanisation and the sustainability agenda, cannot be assessed by quantitative study alone (Hillier, 2008). Michell (2010) adds to this in saying that the drawback of quantitative methods is the inability to consider and address the social attitudes that influence everyday real life. Research of a quantitative nature entails the need for a measurement mechanism that is followed by hypothesis testing on well determined results (Bryman, 1984; Stake, 1995; Yin, 2003).

In contrast, qualitative research techniques seek to obtain information of participants' interests, experiences and perceptions in a real life context (Creswell, 2003; Merriam, 1988). Therefore qualitative approach is inclined to the extraction of the viewpoint of in-depth phenomena instead of determining statistical arrangement. Bryman (1984) stated

that the participants' understanding and perception of the research context could be best obtained by providing a platform to the participants on which they can express their behaviour towards the subject matter.

Urban development that is sustainable is dependent on understanding the sustainability and physical environment that is largely influenced by behaviours and culture. FM principles and strategies are influenced by occupants whose levels of satisfaction are varied. The study of urban development and FM can be best conducted by the social interpretative paradigm. Denzin and Lincoln (2005) stated that qualitative paradigm looks at the establishment of relationships to provoke intervention for improvement. It is one of the aims of this research to establish the relationships among urban development, sustainability and FM to provide solutions on 'how' urbanisation can be controlled, and 'what' FM strategies can be adopted to cope with the demand for FM.

It is often that one of the research approaches (quantitative or qualitative) is preferred although some instances employ a combination of the two (Flyvberg, 2006; Stake, 1995; Yin, 2003). From the above overview of the two research approaches, qualitative research stands best to address the behavioural and cultural objectives while quantitative looks at the determinist approach to the problem. Hence, this research adopts an interpretivist philosophy.

### **3.4 Methodology**

By incorporating the literature review, research philosophy and the research design to guide the researcher throughout the study, the methodology of the research can be selected. The researcher decides on the methodology after carefully considering the aspects of the research question to ensure the quality of the study (McNeill and Chapman, 2005).

The quality of a research study is dependent on not only its methodological structure but also the collection of information/data during the research process and the generating, processing and analysing of the data that can be transformed into knowledge (Scott and Morrison, 2006; Stake, 1995; Yin, 2003). The concept of *interpretivism* presents a strategy which is based on perception, philosophy, subjectivity, humanity and environment, thereby confirming the analysis to be fundamentally qualitative in approach (Lee, 1991). *Interpretivism* is therefore central to qualitative research. It

proves its qualitative nature by encompassing the process of learning, adaptation, innovation, change, and professional development based on a longitudinal approach to the research (Miles and Huberman, 1994).

However, the subjective nature of interpretivist research has been changing the mind-sets of researchers as they are concerned that the adoption of this approach on its own does not present the highest quality of research results. Briggs and Coleman (2009) highlight the concern with interpretivism by presenting the following arguments:

- a) Narrative accounts can never be presented as reality;
- b) Human behaviour cannot be presented in a structured format that can be factual;  
and
- c) Information gathered by people's accounts depends on the researcher's ability to make the respondents realise and become aware of the broader structures that govern the interpretation of the information they give.

The flaws and concerns with *interpretivism* are influencing many researchers to consider a 'mixed' research approach predominantly through the nature and structure of how the information can be obtained from questionnaires and interview questions. The challenge is to establish the best fit method that can be employed to address the research topic. This requires careful structuring of the questions that can suit the qualitative, quantitative or a combination of both approaches in order address the research problem (Fraenkel and Wallen, 2003).

There are a number of qualitative research strategies. Walcott (2001) identifies nineteen (19) qualitative inquiry approach research types, giving reasons to justify why researchers present that the epistemological proposition dictates individual choices. The qualitative approach strategies are rooted in a variety of the philosophical strategies (Creswell, 2009).

*Ethnography* – in which a natural setting of a cultural group is studied for a long time through observational and interview data (Creswell, 2007). This strategy poses a flexible process that propagates in response to the realities in a field setting (LeCompte and Schensal, 1999).

*Phenomenological strategy* – this is a study based on human experience on identifying phenomenon. The procedure involves studying a small sample through a prolonged engagement to develop patterns of relationships (Moustakas, 1994).

*Narrative strategy* – in which lives of individuals are studied to provide real life stories that can be chronologically narrated and re-told by the researcher.

*Grounded theory* – in which a general abstract of theories and actions are based on the views of participants or respondents. It involves a constant reconciliation of emerging data and theoretical sampling of different categories to maximise matching of the information.

*Case studies* – in which an in-depth exploration of information is conducted on events, activities and process that, are identified to provide the data.

By considering the various research methodologies mentioned in this section of the research, a qualitative evaluation is utilised for this research study. It reconciles with the overview and understanding of the concept of sustainable development and FM that has been presented through by literature review. In order to pursue the adopted *interpretivist philosophy* that seeks to provide the understanding of urban sustainability and FM challenges, a case study methodology is considered appropriate for this research.

### **3.5 Case study**

This section provides the definition of case study, the advantages and disadvantages or challenges that can be encountered in adopting a case study and the reasons that influence the choice of a case study research.

#### **3.5.1 Case study definition**

Stake (1995) presents case studies as processes that are bound by time and activities in which information is collected through many data collection procedures for a sustained period of time. Merriam (1998) defines a case study as a process, an element of the study or an end product. Yin (1994), Stake (1995), Gillham (2001) and Scholz and Tietje (2002) all complement one another in pointing out that a case study involves studying a 'case' that is a complex functioning element, contemporary and that is to be empirically investigated in its real life context.

Punch (1998) gives further enlightenment of a case study as:

- That which has boundaries identified at an early stage of the research;
- That in which the researcher is interested;
- That in which the analysis is identified at the outset in order to clarify the research strategy; and
- That which seeks to preserve and improve the wholeness and integrity of the case.

Silverman (2005) believes that case studies are preferred research studies where there is access to providers of information that is fundamental to the case. The access to information provides a platform for the researcher to increase the sample sizes in order to preclude the intensity of the analysis (Mason, 1996). Bryman (1988) argues that a case study answers the 'how' element of a research through qualitative analysis.

Stake (2000) identifies three types of case studies that are:

*Intrinsic case study* - in which there is an interest in the case by the researcher and information can be gathered without building theories to justify it. Silverman (2005) argues that this type of research does not provide the qualitative analysis of the case due to its descriptive nature. This type of study is also criticized by Mason (1996) who argues that research that is not underpinned by defined and justified concepts, presents an element of bias and thereby providing a weak presentation.

*Instrumental case study* - information is examined to provide insight and an understanding of the case.

*Collective case study* - various cases are examined to investigate a phenomenon.

Yin (2003:13) defines case study in relation to the definition of a research as "an empirical inquiry that investigates a contemporary phenomenon or an event in real life context" for the following requirements:

- In-depth exploration of where intervention is required or has occurred;
- Explanation of complex influences of interventions;

- Presenting a particular event within a study; and
- Evaluation of many distinctive variables.

Case study is often interchanged in terminology with *field study* or *observational study* and is aligned to a specific research methodology. This is supported by Easterbrook *et al.* (2008) in regarding case studies as one of the five classes of research methods. A research method is chosen after carefully understanding the subject matter or research question and variables that bound the case (Proverbs and Gameson, 2008; Robson, 2002; Stake, 2005; Yin, 2003).

Robson (2002) presents an argument that a case study helps to influence behavioural changes after understanding the relationships of the variables inherent in the study. Flyvberg (2006) argues that the investigation of human behaviour based on perception cannot be achieved by theoretical reasoning. This encourages the need to understand sustainability issues as a means of changing behavioural culture to address issues of social, economic and environmental principles. Easterbrook *et al.* (2008) considers a case study as a specialised study of behavioural and cultural practices.

Feagin *et al.* (1991) recommends a case study as an ideal methodology for conducting a holistic in-depth investigation particularly in sociological studies. Flyvberg (2006) states that case studies enhance the researcher's learning skills and thereby influencing a high quality piece of research.

It must be noted that many authors have provided well developed methodological procedures that present researchers with baseline parameters to undertake researches. Stake (1995) pointed out that while these parameters provide research guidelines, experimental or quasi-experimental, the collection of data is pivotal to extract hidden data. Case studies are regarded by Tellis (1997) as ideal strategies to get this hidden data from various respondents.

As a result of this requirement to gather data from various sources, Stake (2005) suggests that it is inevitable that unnecessary information will also be collected and the quality of the results of the research depends on the researcher's ability to filter the most appropriate information about the study. On the other hand, Silverman (2005); Flyvbjerg (2006) and Yin (1994), all concur that gathering of information from multi-

sources justifies the multi-perspectival nature of case studies. This argument is supported by Feagin *et al.* (1991) who supports that the quality of results of sociological investigations depends on the research base (widened across many divides) regardless of social status.

Creswell and Miller (2000) re-affirm that the quality of results can be confidently confirmed when different sources of information provide the same outcomes. The non-reliance on authors encourages new information from participants/respondents to be added to the body of knowledge on the subject being studied (Creswell and Miller, 2000; Proverbs and Gameson, 2008; Yin, 1994). Merriam (1998) and Yin (2003) identified the following as some of the sources of the data that enhances the quality of a case study:

- Documentary evidence;
- Direct observations;
- Interviews;
- Participants' observations; and
- Physical artefacts.

The definitions of a case study presented are considered in the next section with emphasis placed on the challenges that can be encountered by using it as a research method.

### 3.5.2 Case study challenges

Yin (1984), Stake (2005) and Flyvbjerg (2006) all concur with the argument that case studies have short comings due to the generalisation concept associated with this type of study. It is fundamental that the case should dictate the research parameters and not the researcher's choice (Stake, 2005). Flyvbjerg (2006) also argues that the research should be driven by the subject matter.

Yin (1984) criticises the *generalisation issue* because he believes that literature fails to take into account the analysis that generalisation comes in different perspectives: *analytical* and *statistical*. It is taken for granted that case studies entail an *analytical* generalisation and yet qualitative research which is predominantly associated with case studies can also incorporate *statistical* representation of the case being studied.

Without the researcher's experience in the case itself, the quality of the research is not guaranteed. Stake (1995) affirms the argument that the harmonious relationship between the researcher's experience and the case study is what facilitates a greater understanding of the phenomenon.

This requires careful consideration by the researcher to identify a suitable technique that can ensure the accuracy and provision of alternative explanation to the information (Stake, 1995). Triangulation techniques are widely considered to be suitable for ensuring the accuracy of information (Cresswell, 2004).

Denzin (1984) identifies four types of triangulation techniques:

- 1) *Data source triangulation* - the researcher ensures that the information generated remains the same even though the contexts are different.
- 2) *Investigator triangulation* - the same phenomenon is investigated by different methodologies.
- 3) *Theory triangulation* - when investigators with different viewpoints get the same results.
- 4) *Methodological triangulation* - when one approach is repeated by another to increase confidence in the interpretation.

Yin (2003) goes on further to acknowledge the complexity surrounding a case study research in that it copes with the technically distinctive situation in which there will be many more variables of interest than the data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.

Neale *et al.* (2006) views case studies as less rigorous than most research methods on the basis that they are suitable for qualitative approach and are generally considered unscientific. This promotes a non-systematic collection of data and leads to bias towards the researcher's epistemological position. The variability of sources of data (interviews, documentary review, surveys, observation etc) could also present lengthy timescales for the collection of data and in the ever changing information technology, the data collected could be obsolete before it is analysed.

After considering the above, the next section provides the underlying reasons for selecting a case study methodology for this research.

### 3.5.3 Selection of a case study

The definition of a case study explained earlier in this chapter provides an underlying confirmation that case studies are more appropriate when there are unique scenarios that have generated interest in the researcher. The case study provides a broader comprehensive picture and context of the case. The researcher is based in Doha, Qatar. By witnessing the rapid growth of the city driven by the need to meet the challenges of preparing to host major sporting events, the researcher developed an interest in the need to understand how this development would impact FM and whether or not measures are in place to address the sustainability agenda.

In considering the ethnographical nature of the research in which the behavioural observation of the culture of sustainability and FM takes centre stage, case study research methodology is found appropriate. Due to the non-interventional and interpretative approach and having considered the *phenomenological*, *narrative* and *grounded theory* strategies, a case study approach is further justified.

The short-comings and complexities of case study research have been considered, include but are not limited to:

- Non-linear relationships;
- The need for simultaneous non-linear processes;
- Inter-connectedness of case boundaries;
- Social dimension and subjectivity of sources of data; and
- The challenges in the generalizability of the research method.

The need to understand the perspectives of various players in urban development and FM in the context of Qatar, justifies the need to extract opinions from various participants. According to Hammersley (1990), a qualitative study provides a distinctive paradigm that cannot always be generalised by conventional measures, validity and reliability. The cultural and social behaviours imbedded in the advancement of sustainability are considered to be explored through case study researches (Hamberg

*et al.*, 1994). Patton (2002) states that information extracted and analysed through case study research can be employed to speculate future trends. This supports the research question in which the impact of current urban development is to be studied to determine how future FM is influenced.

Yin (2003) identifies that case studies can also be adopted for research on various social phenomena that can include organisational changes, implementation of processes or programs. The fundamental drive and interest on the part of the researcher to address the 'how', 'what' and 'why' questions, from the research objectives, gives cause to undertake a case study research. Stake (1994) adds that case studies are adopted when the researcher develops interest in the case and the need to gain more insight into a particular issue.

Yin (1989) includes the requirement for multiple sources of evidence in his definition of a case study. However, Yin (2003) in his definition of a case study as an empirical enquiry that investigates contemporary phenomena in real life, does not place emphasis on the connectedness between the phenomenon and the context of the case study. Case study research therefore, can be centred on the subject matter (the case) against selected example of multiple sources of information and variables.

#### **3.5.4 Single case study**

The theory development enhances the collection of the most consistent data for a case study and is fundamental in justifying whether a single or multiple case studies is the most appropriate approach for the research (Eisenhardt, 1989). The interpretative technique influences the epistemological position that justifies a single case study when it is supported by the truthfulness, validity and reliability in the data available for the case (Hakim, 1987). Easton (1998) argues further that it is not enough to select a single case study on the basis of epistemological position (generalisability) alone.

If two events occur at the same time with a high degree of regularity, Burrell and Morgan (1979) suggest that one event can be relied upon as an explanation of the other and Yin (2003) adds that replication is claimable if two or more cases support the same theory. This can influence positivists into making casual assumptions for justifying a single case as a representative of many similar cases as long as a large number of variables are to be measured.

Eisenhardt (1989) argues that positivism does not provide an ideal number of cases to justify a case study. Ragin (2000) adopts a configurational approach based on combined logic where different parts of the case are analysed from a holistic perspective of the case.

The following rationale for a single case study influenced the decision to select this approach:

- The case presents a critical test of understanding how FM as an integral element of urban development and growth is impacted from a sustainability perspective in Doha;
- The case is considered extreme and unique in that the current rapid rate of infrastructure development and urban growth raises uncharacteristic concerns and challenges to manage these facilities post the hosting of major world events;
- The case is representative of typical development in Qatar since the 'case' is the major city;
- The case is likely to reveal the awareness of sustainable development and FM considerations (if any) at early stages in the development process; and
- The case is longitudinal in that it establishes sources of sustainable demand to fulfil the acceptable level of occupancy of the facilities and the adaptability of the facilities to other uses at different points in time.

The research question therefore merits the use of case study approach to establish the rationale behind the rapid urban development, the awareness of sustainable development and impact on future FM. Perception and prediction of this urbanisation is to be established in line with what will be the position of the large infrastructure development and growth beyond the hosting of the major sporting events. Cohen *et al.* (2000) supports the argument that quasi-experiments and single case studies are suitable where there is need for repeatedly assessing human behaviour, recording of findings and different instances over a period of time, continuously applying interpretative measures and evaluating the impact on the subject matter. The researcher is based in Doha and as a result, access to information was possible.

### 3.6 Research methods and data collection

A research method provides a specific guide to the researcher on the strategies and procedure for the research process. Careful consideration is required in deciding a research methodology that will enable the achievement of the research purpose and objectives. A researcher chooses a method based on the aspects of the research question (McNeil and Chapman, 2005). Punch (2005) emphasises that data collection and analysis are empirically key to a research study, but seemingly referring to only scientific method researches. Eisenhardt (1989) broadens this aspect by including interviews, questionnaires and observations as also key in choosing a case study research method. Denzin and Lincoln (2005) dismiss this view and argue that the research method is purely influenced by the researcher's interpretive paradigm.

#### 3.6.1 Data sampling

The following are the most predominantly used sampling methods:

*Convenience sampling* - this is when the researcher identifies prospective participants or respondents to provide key information required for the research based on availability, accessibility and proximity to the researcher (Marshall, 1996; Morse, 2007).

*Purposeful sampling* - this entails data collection from a provocative perspective as a result of an initial analysis of interviews responses that necessitate in-depth exploration to achieve the objectives of the research (Marshall, 1996; Morse, 2007).

*Theoretical Sampling* - this is when data is collected as it emerges during the course of the research in alignment to the epistemological position and generalisability adopted in the research theory (Glaser and Strauss, 1967; Miles and Huberman, 1994).

*Theoretical group sampling* - this is a strategy for data collection from small groups of participants/respondents as they provide views and information for a specific question or topic (Gibbs, 1997).

Literature suggests that the process of collecting data is influenced by the selection of participants and arrangement between the researcher and the participants thereof (Coyne, 1997; Miles and Huberman, 1994). It is not the method of research or enquiry that fundamentally influences the quality of the research, but the interest of the individual researcher in the 'case' or objectives of the research (Stake, 1998). In

characteristics, a case study can be bounded, embedded, multi-variate, multi-method, multi-site and multi-disciplinary (Stake 2005; Yin, 2003).

During the process of data analysis and data collection, there comes a point when '*no new information*' is forthcoming. At this point, the sampling repeatedly provides the same evidence. When no new information is collected, it can be concluded that a saturation point of data is achieved. Sampling therefore ceases at this point (Creswell, 1998; Charmaz, 2006; Corbin and Strauss, 2008). Stake (1998) and Punch (2005) concur that the personal experience of the researcher, the purpose and objectives of the research, the assumptions made thereof, all help in determining the research method and the data sampling technique. The data collection techniques employed in this study are interviews, documentary evidence, observations and photographic evidence. The sampling technique employed is a combination of convenience and purposeful sampling. This is because key interested participants were identified by the researcher as a small sample group of professionals with vested interests to provide in-depth information/data for the case.

The research methodology requires that data be collected to establish the principles underpinning the rapid urban development and the awareness of sustainable development and FM in Qatar. It gathers information that will be considered for sustainability based on an urban development process with emphasis placed on master planning, sustainable design, economic and environmental sustainability. The following information will be obtained but will not be limited to:

- Sustainable development awareness from development appraisal, through design and construction to life span of construction projects;
- Consideration of FM in times leading to hosting major events and post events;
- Economic, environmental and social sustainability considerations;
- Property development stock perspective in Qatar;
- Prediction of the rate of infrastructure development; and
- Perception on the employment of FM services.

The research considers the global sustainable development policies, QSAS/GSAS in the context of Qatar policy guidance, and monitoring from a human, environmental and ecological perspective. The research uses qualitative data collection methods and

adopts a qualitative non-intervention interpretation case study approach. Information is gathered on the perception of respondents on FM and culture in responsiveness to times of hosting major sporting events and after the games.

### 3.6.2 Interviews

Interviews are focused on obtaining the day-to-day conversation and understanding of players (respondents) in a more rigorous way that underpins reliability, credibility and validity (Yin, 1994; Kvale, 1996). Interviews are a widely trusted source of information in research studies (Yin, 1994). This is appropriate in the subject of urban development, sustainable development and FM, where there is need to obtain information of behavioural and cultural practices.

In qualitative research, interviews seek to obtain information on 'how' the research theme is understood in the real-life world from the interviewee's perception (Yin, 1994; Kvale, 1996). This is supported by Darke *et al.* (1998) who suggest that interviews are more suitable for case study researches of an interpretive phenomenology.

In many instances, interviews are used as a 'follow-up' on information obtained from questionnaires. Interviews seek to obtain information from the participant's experience through the interviewer pursuing in-depth information relevant to addressing the research question. Yin (1994) supports this by regarding interviews as a probing technique to authenticate facts. The interviewer is required to take control of the process and to ensure a comfortable interaction with respondents (Kvale, 1996). Face-to-face interviews are labour intensive even though they are regarded as one of the best way of high quality data collection for complex and sensitive researches (Mathers *et al.*, 2002).

Interviews present a *structured* or *unstructured* verbal communication between the researcher and the case or research question (Burns and Grove, 1999). *Structured* or 'fixed' response interviews require the researcher to prepare a set of questions prior to the interview (Kvale, 1996; Punch, 2005). The pre-prepared questions act as guide to ensure that each interviewee is presented with the same questions and thereby avoiding any influence by the interviewer (Punch, 2005). The results from structured interviews can be generalised for a sample of the population, thus the interviews become more appropriate for quantitative research (Haigh, 2008). Unstructured or

'open-ended' interviews provide flexibility and less rigid approach and therefore the responses are not standardised (Kvale, 1996; Haigh, 2008). The probing of the information that is provided encourages more themes to emerge and that can improve the quality of the information (Eisenhardt, 1989).

Another interviewing technique is the *semi-structured* interview. *Semi-structured* interviews allow interviewees to positively contribute in shaping the course of the conversation while treating each participant as unique individual respondent. Yin (1994) warns that extra skill and technique is required. This allows some of the questions to remain *open-ended* and others to adhere to pre-set questions generated from the research theory and case study phenomenology. Lindlof and Taylor (2002) prefer this technique as it provides the interviewer with the opportunity to explore and search for clarity on the responses that could be, in the interviewer's interpretation, inconclusive or misunderstood.

The following types of interviews were presented by LeCompte and Preissle (1993):

- In-depth interviews;
- Standardised interviews;
- Elite interviews;
- Life history interviews;
- Focus group; and
- Ethnographic interviews.

The choice of interview type is determined by the type of study, for example in-depth ethnographic interviews tend to gather information on the aspects of real-life (world) behaviours of interviewees (Ely *et al.*, 1991). In this research study, face to face interviews will be conducted to obtain information from targeted government, business, professionals and relevant participants pertinent to the subject of sustainable development and FM. A systematic, transparent and semi-structured approach (using topic guides) is preferred for this research and would help to 'ring fence' otherwise open ended questions relevant to the objectives of the research.

Information of a sensitive nature will be generalised and summarised depending on the level of confidentiality. Group interviews have not been considered due to time

limitations and cost involved in the arrangement thereof. Information obtained during informal discussions during other workshops and seminars will be considered accordingly. Questionnaires have not been considered since they are widely used to obtain information of a survey nature in order to find facts, views and opinions of sources to which they are intended. The survey technique method has also not been selected for this research.

### 3.6.3 Documentary evidence

Documents both published or unpublished such as letters, memos, notes, diaries, books, articles, to name a few, provide valuable information that can help the researcher. It is fundamental that the researcher must primarily have access to these documents. Potter (1996) argues that documentary evidence is the only source of data in situations where there is no human alive, who can provide the data. This source of data also provides a reconciliation mechanism to current data with past information (Yin, 2003) and can be used for cross-validating perspective information gathered through interviews (Denzin and Lincoln, 2005). This cross-checking of information can be revealed in the triangulation of data technique which is further discussed in the *data analysis* section.

### 3.6.4 Direct observations

Observation is a technique which entails a direct contact between the researcher and respondents, whereby the researcher observes or takes a neutral position. Ely *et al.* (1991) suggest that high level of concentration, focus, interest and anxiety is required from the researcher during the observation of participants. However, there are two extreme positions the observer can take, namely *passive* and *participant* observer. Potter (1996) identifies a position between the two extremes, the observer can be an *active* observer.

*Passive observer* - the researcher gathers information without getting involved although the researcher has full access to each participant and consent of the observed.

*Participant observer* - researcher participates in the activities of the study while carefully observing all information emanating from proceedings. Hammersley and Atkinson (1993) point out that the disadvantage of this technique is that the researcher gets acquainted with the observed thereby affecting the objectivity of the observations. Most

researchers prefer *participant observation* for qualitative data collection (Ely *et al.*, 1991).

*Active observer* - the researcher takes 'middle ground' by observing with limited participation. The researcher takes participatory initiatives to provoke debate and remains passive to influence natural behavioural interactions of participants (Potter, 1996).

In this research, a passive observation approach will be adopted to gather information on urban development and FM of buildings and sports facilities. The information will be gathered in the context of overall management and strategies for future demand as a result of the rapid urban development and sports facilities construction.

### **3.6.5 Photographic evidence**

Photographic evidence has been increasingly used in modern day-to-day life and provides valuable information and more importantly 'brings back' memories of events or stages of developments of many elements of a varied nature. Bryman and Bell (2007) suggest that photographic material can enable communication where there are language barriers and varying social phenomenological presentations. Donaldson (2001) argues that the use of photographs has become common in researches in the dissemination of results.

Photographic evidence according to Gibbs *et al.* (2002), is another technological tool which qualitative researchers use in the collection and presentation of data. The success of this method of data collection depends on how the researcher organises the data, and links it with information collected from other sources, to aid the richness in the contextualisation of the data thereof. Human objectivity, ethics and social interaction in the interpretation of photographic evidence is dependent on the epistemological knowledge and phenomenological position of the researcher. This presents a high level of concern in ensuring the quality of the data (Harper, 2005).

In this research past photographs obtained and new (current) photographs will be linked and verified by direct observations or information from interviews for the case.

### 3.6.6 Approach considerations

The research approach is guided by the consideration of the data collection techniques that is followed by analysing and interpretation referenced to the pre-established theories (Yin, 2003). The development of a conceptual framework will be based on data and pre-established propositions. Miles and Huberman (1994) believe that the development of a conceptual framework needs to meet the following:

- Expose the researcher to data that can be constructed into theory;
- Establish relationships between current data based on logic and experience; and
- Consider convenient and purposeful sampling as basis of the research.

A research approach is guided by creating a plan for the data collection techniques that enhances the development of a conceptual framework. A tentative rudimentary conceptual framework can be achieved when the researcher has interest in the subject of the research (Miles and Huberman, 1994). On this argument, qualitative approach can be viewed as confirmatory. Yin (1994) argues that the conceptual framework can be developed by identifying *pattern matching* and *explanatory building*. Explanatory building is achieved when the collection and analysis of data is constantly reviewed and matched with the existing theory. Pattern matching involves matching the results of the research with the theory and an appropriate technique is used to analyse the interviews, observations, photographic and documentary evidence.

### 3.7 Sources of data

The most widely used sources of data according to Yin (2003) are direct observations, interviews, documentary evidence, journals, media, archival data and physical artefacts. The information on urban development and FM within the context of Qatar was required for this research.

The data sources included but not be limited to interviews, documentary materials, archival records, direct observation and participant observation. Each piece of data gathered was one 'brick of the many bricks' that were required to build the researcher's understanding of the research topic. Interviews provided information for the research from a practical perspective considering rapid urban development, the awareness of sustainable development and FM in Qatar.

**Table 3.3 Types of evidence and their strengths and weaknesses (Adapted from Yin, 2009:102)**

Source of Evidence	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> <li>• Stable – repeated review</li> <li>• Unobtrusive – exist prior case study</li> <li>• Exact – names etc.</li> <li>• Broad coverage – extended time span</li> </ul>	<ul style="list-style-type: none"> <li>• Irretrievability</li> <li>• Biased selectivity</li> <li>• Reporting bias of author</li> <li>• Access may be blocked</li> </ul>
Archival Records	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• Precise and quantitative</li> </ul>	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• Privacy may inhibit access</li> </ul>
Interviews	<ul style="list-style-type: none"> <li>• Targeted – focusses on case study topic</li> <li>• Insightful – provides perceived causal inferences</li> </ul>	<ul style="list-style-type: none"> <li>• Bias if questions are poor</li> <li>• Response bias</li> <li>• Incomplete recollection</li> <li>• Reflexivity – interviewee expresses what interviewer wants to hear</li> </ul>
Direct Observation	<ul style="list-style-type: none"> <li>• Reality – covers events in real time</li> <li>• Contextual – covers event context</li> </ul>	<ul style="list-style-type: none"> <li>• Time consuming</li> <li>• Selectivity – might miss facts</li> <li>• Reflexivity – observer's presence may cause change</li> <li>• Cost – observer needs more time</li> </ul>
Participant Observation	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• Insightful into interpersonal behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• Bias due to investigator's actions</li> </ul>
Physical Artefacts	<ul style="list-style-type: none"> <li>• Insightful into cultural features</li> <li>• Insightful into technical operations</li> </ul>	<ul style="list-style-type: none"> <li>• Selectivity</li> <li>• Availability</li> </ul>

Table 3.3 provides the strengths and weaknesses of different sources of information. Yin (2009) argues that as a result of multi-sources of data associated with case studies, the researcher must not only have experience and interest in the case, but should also possess different skills to access different sources of evidence that can be a lot more relevant to address the research question.

The researcher is required to establish sources of data, the validity and reliability of the data to the case (Stake, 1995; Yin, 1994). Carefully reviewing the validity of data was paramount to ensure that incorrect data was excluded from the database. Table 3.4 provides a data source guide of the data required and how it could be obtained by the researcher. Data sources that have been targeted include FM firms, Government departments and a wide range of professionals associated with the built environment.

Table 3.4 Sources and method of obtaining the data

Source of data	Data required	Method of obtaining data
FM Firms	<ul style="list-style-type: none"> <li>• How core business and objectives are tailor-made to sustainable development and FM?</li> <li>• What role do managers / FM managers play towards the sustainability agenda?</li> <li>• How major Clients tackle SD and FM?</li> <li>• How the level of FM services cope with demand?</li> <li>• Why FM Contracts should be standardised or bespoke?</li> <li>• What awareness on rapid development?</li> <li>• What FM strategies are in place to cope with future demand?</li> <li>• Why the involvement of FM in construction process is helpful?</li> <li>• What level of awareness of upcoming major events and strategic positioning?</li> <li>• How FM in Qatar compares with Middle East and globally?</li> </ul>	Direct observations Interviews Documentary evidence Journals Media Archival data
<b>Government –</b> Departments, organizations, local authorities and committees	<ul style="list-style-type: none"> <li>• What roles and responsibilities are established in preparation of upcoming major events?</li> <li>• How the awareness of Qatar National Vision 2030 influence sustainability decision making?</li> <li>• What awareness on rapid development?</li> <li>• What level of understanding of Sustainable Development?</li> <li>• How awareness of GORD, GSAS or QSAS is pursued?</li> <li>• What level of understanding and procurement of FM services?</li> </ul>	Direct observations Interviews Documentary evidence Journals Media Archival data
<b>Construction professionals –</b> QS, architects, engineers, environmental agents, project managers, property developers, researchers etc.	<ul style="list-style-type: none"> <li>• Core business and objectives</li> <li>• How corporate organizational structures help to ensure SD and FM practices are pursued?</li> <li>• What sustainable design, sustainable construction and sustainable FM?</li> <li>• How major Clients are helped to tackle SD and FM?</li> <li>• What awareness on rapid development?</li> <li>• What types of Contracts used to address SD and FM?</li> <li>• How the awareness of Qatar National Vision 2030 incorporated in contracts?</li> <li>• Qatar preparation of major events – roles and responsibilities</li> <li>• What are the SD and sustainable FM strategies place?</li> <li>• What level of awareness of upcoming major events and strategic positioning?</li> </ul>	Direct observations Interviews Documentary evidence Journals Media Archival data

### 3.8 Data collection

Data collection for a case study can be undertaken in various ways. Merriam (1998) supports the notion that the researcher must be prepared to draw upon a wide range of data collection techniques. According to Yin (1994), it is required that the researcher:

- a) Explores multiple source of evidence to ensure much information about the case is gathered;

- b) Creates a database for the case study and that the data is linked to new information evidence; and
- c) Maintains a chain of evidences for data analysis.

The data for this research was collected through interviews, documentary evidence, observations, journals, media and photographic evidence. The selected and targeted interviewees were from government departments, property developers, architects, engineers, project managers, quantity surveyors, real estate firms, FM firms, Qatar Supreme Committee for Delivery and Legacy (Q22), Gulf Organisation for Research and Development (GORD) and Qatar Green Building Council (QGBC). Semi-structured interviews were conducted to enhance the quality of the information obtained as rooted in the literature on the subject of urban development, sustainable development and FM.

In qualitative research the sample size is predominantly purposive. Only those participants who were likely to provide credible data for the research were targeted. It was expected that different organisations operating on the similar core business objectives might have varying approaches in their operational strategies. The researcher attempted to address any systematic errors by increasing the sample size (number of interviews) until no new information comes from the interviewees or when a 'saturation' point has been reached (Eisenhardt, 1989; Charmaz, 2006; Morse, 2007; Creswell, 1998).

It was planned to conduct interviews to provide in-depth information on the awareness, consideration and implementation of urban development strategies, sustainable development and FM services in Qatar.

The planned interviews were also to gather information on FM consideration from project appraisal through design, construction and life span of the development. To cater for information sensitivity concerns from interviewees, the semi-structured interviews adopted a rhetorical approach rooted in informal discussions, evolving questions, personal opinion that would all be transformed into qualitative words. The goal was to interview the participants who are actively involved in urban development, sustainable development agenda particularly the following:

- Policy makers – Government, GORD;

- Policy consideration and implementation – designers, engineers, contractors, government infrastructure departments, municipalities and private businesses; and
- Policy monitoring – QSAS, GSAS, Qatar Olympic Committee, Q22, designers, engineers, contractors, government infrastructure departments, municipalities and private businesses.

The research interviews were aimed to deal with the following topics:

- 1) The impact of the QNV on urban development through the sub-visions sport, tourism, transport, education and real estate development;
- 2) The main driving factors of rapid urban development;
- 3) The role played by the urban development planning process;
- 4) Sustainable development policies;
- 5) The impact of hosting major sports events; and
- 6) The challenges of FM.

The questions were specifically aligned to provide information on the identified specific areas. However, interviewees who felt the need to provide general information on certain type of question were given the opportunity to discuss the areas. A copy of a random selected interview transcript is provided in Appendix C. Also to ensure that relevance was maintained, the researcher used an aide memoire for guidance and minimisation of deviation and scope creeping. A copy of the aide memoire is provided in Appendix B.

### **3.8.1 Aide memoire vs contextual framework**

The contextual framework (Chapter 2) reveals the government's initiatives through the QNV to promote development in Qatar. The promotion of development projects directly impacts the urban development fabric. It was important to establish an in-depth awareness of urban development and sprawl in response to Brueckner (2000) argument of excessive spatial city growth during times of economic boom. The QNV as an economic blue-print ought to be understood at implementation levels and how the ambitions to host major sports events affect the sustainable development goals. In order to gather in-depth perception from respondents, the QNV was split into sub-visions, namely: sports, transport, tourism, education and real estate. These sub-visions were

identified through initial contact with respondents during sampling as part of the convenience and purposeful sampling technique employed in this research.

The contextual framework provided the urban development, sustainable development and FM concepts that are required to be critiqued against the unfolding development characterised with Doha. All the identified sub-visions were evaluated against the contextual information and needed to be appraised with the perception of the respondents. Girard *et al.* (2011) argues that city development is underpinned by complimentary development systems. As a result it was paramount to establish through semi-structured interview whether the sub-visions' development implementation are linked and that the emergent themes could be clearly categorised.

Sustainable development awareness and its implementation strategies during the construction process are required to be established. Respondents needed to provide their understanding of how sustainable development aids to ensuring the success of QNV. It was important to gather information on FM. Qatar being a nation preparing to host major sports events, it was required to ensure that information of FM, as a delivery of conducive workplace environment, is gathered to assess the functional optimisation of space to support business processes and human resources (Then, 1999). The basic understand of FM needed to be established, followed by a more in-depth understanding of how FM can be aligned to strategic planning, positioning and performance to achieve sustainable operation and maintenance of facilities.

Therefore the aide guideline was designed to extract information on QNV, urban development, sustainable development and FM in relation to the contextual framework review and critique.

### **3.8.2 Ethical considerations**

Ethical considerations were employed and all interviewees consented to their participation in the research. However, this research study was regarded as sensitive due to (1) the QNV is a national vision that is mandated to beat competition from other regional neighbours particularly the GCC and any negative feedback would work against the aims; (2) the on-going investigations on the award of FIFA Football World Cup Finals to Qatar; (3) the regulations on media and information technology; (4) ongoing investigations on human rights and treatment of foreign labour force; (5)

Qatar's restriction on labour movement where workers are required to obtain 'exit permits' to leave the country. All this may have instilled an element of exercising extra caution by the respondents.

As a result of these overarching sensitive concerns, all interviewees were reluctant to agree to the recording of the interviews. To ensure that the information provided still resembles the interviewees' perception, detailed notes were taken as dictated by the respondents. None of the interviewees or individual respondents have been disclosed by name or other means as they could possibly be identified. The researcher's proposed coding to stakeholder groups was agreed by the participants. The table below lists the different stakeholder groups and their relevant anonymity code.

**Table 3.5 Interviewee codes**

Business Development Economist	BDECO
Construction Professional Contract Administration	CPCA
Construction Professional Design Consultant	CPDC
Construction Professional Project Manager	CPPM
Construction Professional Quantity Surveyor	CPQS
FM	FMF
Qatar Government Department Client	QGDC
Individuals NOT interviewed	X

It is shown in Table 3.5 that individuals that were referred to by name but not interviewed were coded 'X'. The 'X' category includes those who were identified but did not wish to be interviewed, those not available at the time of the interviews and those who were not interviewed due to theoretical saturation of data. The stakeholder groups that were interviewed were numbered in the order that they were interviewed.

The data collection took place in the period between July 2014 and August 2014. A total of 14 in-depth interviews were undertaken: 3 interviews from Qatar government departments; 3 interviews from FM firms; 2 interviews each from project managers, contract administrators, quantity surveyors; 1 interview each from a design consultant and a business economist. All interviews took place at the interviewees' offices. An outline and the consent form (Appendix C) for the purpose of the interview were

provided to the interviewees. An aide memoire was used for all the interviews, a copy which may be found in Appendix B.

The data collected from the interviews is primarily qualitative in nature. Table 3.6 depicts the number of each stakeholder group, the range of the interview length and average interview length.

**Table 3.6 Average length of interviews**

Interviewee stakeholder group	Number of interviews	Range of interview length	Average duration of interview
Business Development Economist	1	75 minutes	75 minutes
Construction Professional Contract Administration	2	60 to 80 minutes	65 minutes
Construction Professional Consultant	1	62 minutes	62 minutes
Construction Professional Project Manager	2	55 to 75 minutes	60 minutes
Construction Professional Quantity Surveyor	2	45 to 75 minutes	65 minutes
FM	3	30 to 55 minutes	40minutes
Qatar Government Department Client	3	50 to 80 minutes	65 minutes

The interview questions prompted the extraction of in-depth data for the study. Much of the information from the interview transcripts are found in Chapter 4. In order to reduce the size of this document, the complete set of interview transcripts are not included in this document. A randomly selected sample interview transcript may be found in Appendix C.

The research methodology aimed to address the issues of *reliability*, *validity* and *representativeness* of both the data collection and analysis techniques. Yin (2003) re-affirms that every researcher carrying out a case study should carefully consider the issues of validity and reliability.

*Reliability* is when it can be demonstrated repeatedly that the study provides the same results from a developed database (Yin, 2003). McNeill and Chapman (2005) believe

that reliability is achieved when other researchers use the same method and obtain same results. Reliability therefore is achieved when there is consistency of results obtained in the research and giving confidence in the method of collecting evidence.

Validity is when the data collected resembles truthfulness. Yin (2003) presents that validity is achieved by:

- Establishing operational measures for the concepts of the case which is termed *construct validity*. This can employ the use of multiple sources of evidence and the establishment of chain of evidence.
- Establishing relationships amongst conditions using pattern-matching or logic explanations. This test is termed *internal validity*. The identified inputs within their tributes must produce the expected output.
- Establishing the root/domain to which results can be generalised using theory for single case studies or replication of multiple case studies. This is termed *external validity*.

*Representativeness* is when the results relating to a group resemble those of samples outside the group to give confidence in generalising the sample (McNeill and Chapman, 2005).

Miles and Huberman (1994) argue that qualitative research is open to multiple sources of analytical bias that can affect the validity and reliability of the findings. The following are identified by Miles and Huberman (1994) as influential to the invalidity and unreliability of a research finding:

- *The holistic fallacy* - when the researcher interprets even to be more patterned and similar than what they represent.
- *Elite bias* - overweighting of data from perceived highly status respondents and marginalising data provided by perceived lower status respondents.
- *Personal bias* - when the researcher leans towards his/her preferred phenomenon and perception on the research and fails to present the fieldwork and data analysis in an impartial manner.
- *Going native* - when the researcher loses the research philosophy and adopts the perception and explanation of the local respondents.

Miles and Huberman (1994) acknowledge that many interpretivist researchers believe in the impossibility of establishing standards or criteria for good qualitative research work. Table 3.7 provide some of the terminology and scope that provides the quality expectations of a research.

**Table 3.7 Terms used in research quality assessment. Derived from Yin (2009); Michell (2010) and Miles and Huberman (1994)**

Terminology	Scope
Reliability/Dependability/Auditability	Consistency of the research process and ensuring that a later investigator can follow the same procedure used by the earlier investigator and obtain the same findings for the same case. This should be reasonably stable over time and across researchers and methods.
Internal Validity/Credibility/Authenticity	Ensuring that inferences have been considered and that the evidence from different explanations and possibilities converge so that the research findings and conclusion drawn are credible.
External Validity/Transferability/Fittingness	Ability to generalise the research findings and conclusions drawn to other contexts or some broader theory to identify other cases to which the results can be transferred.
Utilization/Application/Action Orientation	Relative neutrality and reasonable freedom from unacknowledged researcher bias. Explicitness about the inevitable biases that exist. This domain is sometimes labelled “external reliability,” borrowed from classic quantitative terminology. Emphasis is on replicability of the study.
Objectivity/Confirmability	Implications of the research for the participants to the study and the researcher.

Therefore in summary to the data collection technique, the data collected would be relevant to the research problem and that the data was reliable, valid and representative of sample chosen.

### 3.9 Data analysis

Yin (2009) acknowledges that the analysis of case study evidence appears to be one of least developed and in particular that of qualitative research methods. It is crucial that the researcher carefully considers and chooses an analytical strategy that can be reconciled with the original objectives of the research. It is inevitable that qualitative research material often comes in huge amounts and researchers employ computer assisted tools or software to manage the data. Yin (2009) mentions *Atlas.ti*, *NVivo*, *HyperRESEARCH* and *The Ethnograph* as some of the computer-assisted data analysis software that can be used. These computer aided tools help researchers in the coding process as this can avoid writing code tasks manually and can handle large amounts of fieldwork material notes or documentation (Robson, 2002). It must be noted that the collected data from the field notes and all other documentary evidence is required to be at least converted into textual form for it to be handled by the computer aided tools (Yin, 2009).

The analytical technique used for this for this research study is the *Explanation Building* technique. Swanson and Holton (2005) argue that case study data analysis must lead to identifying, sorting through and linking new data relationships to the theoretical and phenomenological propositions. In the absence of a theoretical proposition, the researcher is required to develop a descriptive framework bounded by the case study research design (Yin, 2003). Most case studies employ statistical analysis and testing for the data gathered. Miles and Huberman (1984) present alternative analytic techniques in which, methods of displaying, tabulating events frequency and ordering information, can be carefully used to avoid bias in the results.

An analytic strategy must be able to have control on the information to be analysed by such techniques as *pattern-matching*, *time-series* and *explanation-building* analysis (Yin, 1994). *Pattern-matching* compares the empirically based pattern with the predicted to establish the reliability of the study (Trochim, 1989). *Time-series* is a technique analysis in which a single variable can be established to predominantly influence the research solution (Yin, 1994). *Explanation-building* is prescriptive pattern matching based on a process of repeatedly refining the theoretical proposition as new information is analysed (Yin, 1994). This technique can cause the researcher to lose focus of the

paradigm and phenomenological position previously adopted by the research philosophy and methodology.

Since information comes from multi-sources, Miles and Huberman (1994) and Robson (2002) recommend a coding system as a basic tool to analyse data, but warn that coding that leads to high concentration of information may actually destroy some of the data. Yin (1994a, 1994b, 1997, 1999) suggests that in order to make sure the analysis provides the highest quality, the researcher must ensure that the selected analytic strategy considers the following:

- a) All available evidence;
- b) All major rival interpretations;
- c) The most significant aspect of your case study; and
- d) Own prior 'expert knowledge' and experience in your case study.

It is important that interview notes are referred to from the start of data analysis process to completion in order to maintain a holistic context of the subject matter. The analysis of data according to Miles and Huberman (1994) follows a three stage flow: data reduction, data display, and drawing conclusion for the data.

### 3.9.1 Grounded theory data analysis technique vs thematic analysis

Qualitative data collection requires an appropriate data analysis technique that displays validity, reliability, inductive and deductive interpretation to enable conclusions to be drawn. In this research study two similar approaches has been considered thus, *grounded theory technique* and *thematic data analysis*.

**Grounded theory:** The *grounded theory* is commonly considered in social research where there is need to tease the preconception of the underlying research questions in order to provoke intervention by professionals to find solutions (Glaser, 1978). Glaser and Strauss (1967:43) define grounded theory as:

..“*the discovery of theory from data systematically obtained from social research*”.

It is generally preferred to use grounded theory where it is required to explore behaviour and culture, without the need to investigate the contextual factors that affect everyday

life (Crooks, 2001). Grounded theory can be constructivist in situations when the researcher's perspective during the interactions with participants becomes part of the researching process (Charmaz, 2000). The advantage of grounded theory is in its ability to identify the researcher's interest without being influenced by theoretical preconception and sensitivity, but requires using an analytical process and appropriate sampling to obtain the most relevant data for the research (Dey, 1999). Whilst the grounded theory methodology has not been considered for this research, the *grounded theory data analysis technique* was considered due the lack of literature/theory on FM in Qatar and indeed the Middle East.

**Thematic analysis:** The *thematic analysis*, like the grounded theory is a qualitative analysis approach that employs classification of patterns of the data during the collection process and that the analysis enables the encoding of qualitative information (Boyatzis, 1998). In short, *thematic analysis* is a simple way of categorising strategy for qualitative information more appropriately when interpretation is a key technique for the data analysis. Namey *et al.* (2008:138) describes *thematic analysis* as a process that:

*"...moves beyond counting explicit words or phrases and focuses on identifying and describing both implicit and explicit ideas. Codes developed for ideas or themes are then applied or linked to raw data as summary markers for later analysis, which may include comparing the relative frequencies of themes or topics within a data set, looking for code co-occurrence or graphically displaying code relationships"*.

Thematic analysis encourages the researcher to understand diverse aspects of data collection to increase the establishment of relationships between concepts and comparison of replicated information. Creswell (2003) regards the participants' perceptions as significantly key to case study qualitative research in order to provide the researcher with the most appropriate interpretation of their behaviour or actions.

There are similarities of the coding of data between this approach and the *grounded theory* according to Braun and Clarke (2006). Glaser and Strauss (1967) argue that *grounded theory* relies on theoretical sampling and *thematic analysis* is more appropriate when a sample is pre-determined and defined at the start of the data

collection process. Both *grounded theory* and *thematic analysis* use a process in which there is continuous analysis of data simultaneously with the collection process.

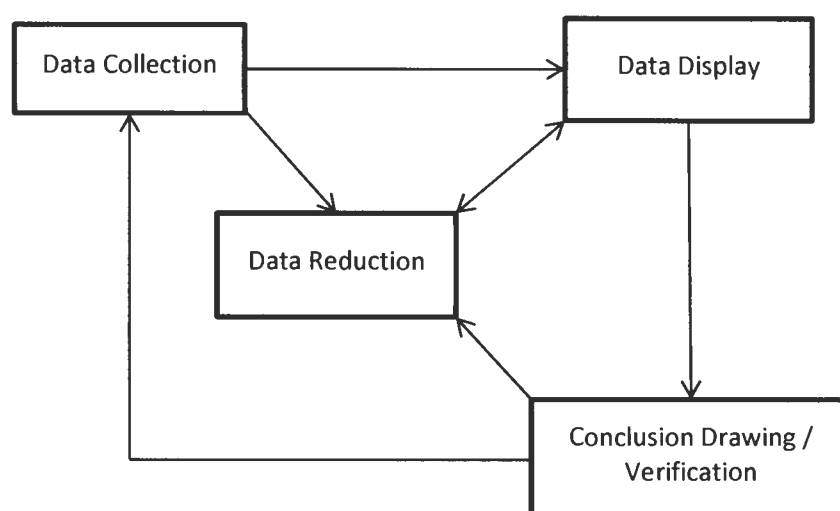
The thematic analysis approach was selected for this research due to the following reasons:

- 1) This presents capabilities to detect and identify variables that influence the participants' environment and external factors during the data collection process (Creswell, 2004). Qualitative research is judged by its ability to enable interpretations to be drawn consistently with the data that is gathered.
- 2) Both inductive and deductive approaches can be used. For an inductive approach it is possible for most of the data collected and precise content to be considered for broader generalisations and theories so that themes are effectively linked to the data collected (Patton, 1990).
- 3) Other data collection methodologies can be used to compare the data collected with perceptions and acknowledgements from participants.
- 4) This enables variables that influence the medium of participants to be identified precaution taken when interpreting the opinions.
- 5) Thematic analysis allows data to be coded and categorised into themes depending on how perceptions of participants and the data can be classified clearly highlighting any differences or similarities (Miles and Huberman, 1994).
- 6) Thematic analysis provides the flexibility of analysing data without being guided by pre-determined or pre-existing themes thereby giving participants' perception greater importance in generating and developing emergent themes.

In this research, coding and categorising was used to develop logical themes that reflects the reality of the data collected as supported by Miles and Huberman (1994). In this research thematic analysis has been preferred to grounded theory due to the above reasons.

### **3.9.2 Data reduction, display and verification**

Miles and Huberman (1994) refer to data reduction as a process of simplifying, abstracting and transforming the data from transcripts. The interview transcripts have been studied and analysed in line with the interpretivist and non-interventional philosophy underpinning the philosophical approach of this research study.



**Figure 3.2 Data Analysis: Interactive Model: Source: Miles and Huberman (1994:12)**

The coding of the data helps the researcher to understand and interpret the information emanating from the interviews through the process of selecting, focusing and simplifying the data from the transcripts (Miles and Huberman, 1994). The conceptual framework is derived by the case selection and questions that can be provided by an in-depth extraction of the data. Data display is the mapping and compressed assembly of data so that themes and patterns can be drawn. Through the display and analysis, the data patterns and explanations can be referred to other evidence to ensure validity. Figure 3.2 depicts an interactive model data reduction, display and simplification for conclusions to be drawn.

### 3.10 Ethical issues

Ethical issues of research concern the appropriateness of the researcher's conduct and behaviour in relation to the rights of participants, those that are the research subjects and any others who may be affected by the research. The definition of 'research ethics' according to Oxford Dictionary of Sociology is:

*"...the application of moral rules and professional codes of conduct to the collection, analysis, reporting, and publication of information about research subjects, in particular active acceptance of subjects' right to privacy, confidentiality, and informed consent"* ([www.encyclopedia.com/doc/1O88-researchethics.html](http://www.encyclopedia.com/doc/1O88-researchethics.html)).

Ethical considerations are paramount in research and more so for qualitative studies in which there is need to minimise the negative influence on the respondents (Bryman and Cassell, 2006). Respondents need to have the confidence that the information they provide is handled confidentially and that they are protected from public scrutiny on the information they provide (Flyvberg, 2006).

The underlying principle in ethical consideration is the need for the researcher to present the ethical propositions for the research to the participants for agreement. The researcher and respondents/interviewees must acknowledge, recognise and exercise professionalism in adhering to the agreed set ethical standards (Alexander, 2003). Respondents have different preferences in relation to the level of confidentiality and disclosure of the information they provide and as such, there is no singular or simpler way of crafting a universal set of ethical standard or coding (Stake, 2005).

The approach for this research is that all information that is regarded to be sensitive is generalised and summarised dependant on the level of confidentiality and individual interviewee consent.

### **3.11 Limitations**

The limitations for this case study research are provided in this section.

Firstly, a single case study has been selected over multiple case studies for this research. Yin (2003) argues that multiple case studies are more rigorous and robust than single case studies. As a result, multiple case studies are viewed as more compelling by many researchers, although they attract high cost and time to conduct the research. Flyvberg (2006) suggests that the generalisability in a single case study is primarily subjective on the phenomenology and paradigm proposition adopted by the researcher, and as such, the results of such a study cannot be universally relied upon. However, the case is a representative of a unique infrastructure, urban and sporting events facilities development in Qatar (read Doha). This circumstance and the researcher's adoption of a non-interventional and interpretative technique that was supported by truthfulness and non-bias throughout the research presented mitigation on the choice of a single case study.

Secondly, an *analytical generalisation* has been adopted for this study. Yin (1984) criticises the *generalisation issue* because he believes that much literature supports *analytical* generalisation to justify a case study and fails to consider that qualitative research which is predominantly associated with case studies can also incorporate a *statistical* representation of the case being studied. The researcher considered both the generalisability in the analysis of the data and the qualitative nature of the research as analysed to identify the emergent themes that are reflected in Appendix D.

Thirdly, the researcher has considered the rapid urban development in Doha (the case) as critical, extreme and unique. No such similar cases have been identified for comparison. The research is limited to the urban development in the city of Doha as the single case.

Fourthly, the results of this research are dependent on the selected method by the researcher, availability of targeted interviewees and their willingness to provide information. Confidential and sensitive information is not disclosed explicitly and a general summarisation has been adopted. Amaratunga and Baldry (2001) supports that response outcomes are influenced by the researcher's selected method and interviewing process. Bias occurs when the researcher influences the behaviour or response of respondents due to prior assumptions made in selecting the method of research (Darke *et al.*, 1998). As a result the outcome of this research is dependent on the opinions of the interviewees and how they presented the data. Mills *et al.* (2006) suggests that data collected from interview responses could be relied upon if the research protocols are complied with, however the research protocols are designed and influenced by the researcher. The researcher maintained a non-bias approach throughout the research and avoided influencing respondents during the interviewing process. This was achieved by ensuring that the same questions were asked to the interviewees and allowing flexibility by letting open-endedness to some of the questions and others to adhere to pre-set questions generated from the research theory and case study phenomenology. Each respondent was treated as a unique individual respondent.

Fifthly, the current FIFA Football World Cup 2022 award investigations caused some potential interviewees to cancel their availability and those that accepted to be interviewed exercised caution that would not otherwise be inherent should the investigations had not been in place. This resulted in interviewees to be reluctant to the

recording of the interviews. To avoid negative influence on the outcome of the research, the time for the interviews became inevitably very long as the interviewer had to take detailed notes and cross-checking with the interviewees to ensure that the detailed narrative notes resemble what was meant.

Lastly, due to constraints on time, cost, number of interviewees and access to government departments, the limited size of the sample may have affected the results of this research study. The achievement of saturation status on some of the semi-structured questions may have addressed this limitation.

### **3.12 Concluding remarks**

This chapter was aimed at explaining and justifying the philosophical and methodological framework of a qualitative case study research which has been adopted for this research. The chapter outlined the reasons for considering and selection of a case study guided by available research theory and literature on urban development, sustainable development and FM strategies. The available approaches to obtain information from respondents' opinions and perception have been considered as supported by the research theories.

The research process and procedures that act as guidelines for undertaking the research have been outlined. The research adopts a positivist paradigm that assumes an interpretive philosophy, non-interventional and inductive approach to the case study ideological parameters. The limitations of case study research are detailed and the ethical considerations outlined.

The following chapter presents the discussions of the emergent themes that emanate from the data analysis pertaining to urban development in Doha, perception and prediction of its impact on FM.

## CHAPTER 4: EMERGENT THEMES

### 4.1 Introduction

Chapter 3 provided and justified the research methodology adopted for this study. This chapter presents the discussions, interviews, observations and other documentary evidence that are recorded during the data collection process. The research results reflect the various in-depth information provided on urban sustainability and unique FM challenges posed by a rapid urban development scenario.

This chapter will provide a brief background on the case, the QNV, the impact of hosting major sporting events, induced urban development and sustainability of urban development and FM post the sporting events. The collection of data and analysis thereof is in line with the requirement to establish the awareness of sustainable development, FM considerations and extent of consultations of stakeholders: all as perceived by the respondents. This forms the fundamental platform to achieve the objectives of the research. The emergent themes of the study will be discussed in this chapter.

### 4.2 Background of the case

Urbanisation in Doha effectively commenced during the 'oil discovery' period around 1939 (Wiedmann *et al.*, 2012). From then Doha has witnessed a rapid second phase of urbanisation that has triggered the need to craft new development strategies that will ensure that it remains economically, socially and environmentally sustainable. The rapid increase in oil and gas production has created a platform for the growth of both private and public investment and provides opportunities to liberalise and diversify the economy (Wiedmann *et al.*, 2012).

#### 4.2.1 Pre-oil discovery settlement

Doha's pre-oil discovery urbanisation resembled an absolute space settlement evolution. Due to fishing, pearling and craftsmanship, the city evolved along the coast with cluster houses albeit for different tribes for certain specific areas of the coastline (Al Buainanain, 1999; Wiedmann *et al.*, 2012). The gathering and grouping of the population based on habits and activities reflects a perceived spatial practice that is interpreted as *absolute space* as shown in Figure 2.1 (Chapter 2). Figure 4.1 depicts a linear settlement along the coast in line with the fishing, pearling and craftsmanship

activities while Figure 4.2 shows the aerial view of the cluster houses of old Msheireb settlement along the coastline after the discovery of oil in the 1930s to the 1960s.



**Figure 4.1** Doha during the Pre-Oil Settlement in 1947. Source: Wiedmann et al. (2012:40)



**Figure 4.2** Urban structure of Doha during the oil discovery period. Source: Scharfenort (2012:226)

#### 4.2.2 The oil boom settlement

The nineteen seventies witnessed an urbanisation pattern underpinned by the oil and natural gas revenues (Scholz, 1999). This revenue generated from oil production was invested in infrastructure developments such as roads that would link the production sites, such Dukhan to the west of the country, to the administrative centre and to the airport/seaport (Wiedmann, 2012). Due to the political and administrative setup, which was centred on the location and ruling by the Al Thani family, urban development and growth concentrated on the location and residence of the administration in Doha (Al Buainain, 1999).

The increase in trading activities such as the exportation of oil and importation of goods (cars, air-conditioning equipment and food) promoted vast immigration numbers. Figure 4.3 reflects vast difference from Figure 4.1 and now shows the high concentration of development around the administrative centre (Doha) and new networking roads to the airport and oil extraction sites. This urban development resembles the *abstract space* production shown on Figure 2.1 (Chapter 2) - the theory of space production for urban evolution.



**Figure 4.3 Urban fabric during oil boom. Source: Wiedmann et al. (2012:41)**

Urban development became heavily influenced by the ring-road concept which is common with most European cities. This pattern of development contributed to the

influence of Llewelyn Davis, a British consultant who worked with Qatar's Ministry of Municipal Affairs and Agriculture (MMAA) in the urban planning of the city during the nineteen seventies (Al Buainain, 1999). This ring-road concept promotes urban development with established land allocation and uses that create urban sprawl in the outskirts of the city (Wiedmann *et al.*, 2012).

The oil boom period also witnessed an increase in population from approximately 89,000 to 434,000 (inclusive of foreigners), and the introduction of new land policies which Al Buainain (1999) argues promoted rapid urban sprawl. MMAA (1997) reports that the urban patterns showed that local Qataris and high income foreign earners occupied the outskirts of the city and the rest of foreign labour force concentrated in the central areas, resulting in the deterioration of the quality of the city. By the late nineteen nineties, more state-owned and semi-privatised organisations had been established and this triggered accelerated rapid urban development (KCIC, 2011). This also led to the dramatic increase in the population to increase to approximately 1,500,000 inhabitants.



**Figure 4.4** Doha's urban settlement fabric post oil discovery. Source: Wiedmann *et al.* (2012:52)

### 4.2.3 The post oil boom settlement

The nineteen seventies were key to the development of Doha driven by the oil boom period as shown in Figure 4.4. Wiedmann *et al.* (2012) argues that, during the post oil boom of the 1990s, the urban fabric became detached from vernacular Arabic architecture due to the influence of western ideologies of space utilisation in urban development and the urban morphologies became heavily influenced by industrial and trading activities. The post oil boom period brought about centralised governance and welfare state policies, which reduced direct individual influence and participation in urban development while encouraging the distribution of wealth amongst the local Qataris (Wiedmann *et al.*, 2012).

The emergence of the real estate business encouraged many locals to invest more in the sector than in financial services or stock markets (Al Buainain, 1999). Figure 4.4 shows the urban fabric post oil discovery, a direct result of or which was underpinned by investment in the sector. Figure 4.5 depicts modern city of Doha albeit further development taking place.



**Figure 4.5 Modern Doha's West Bay Central Business District. Source:**  
<http://www.stylehiclub.com/middle-east/qatar/doha-qatar-day/>

The post oil boom has also witnessed a decline in the dependence on oil and gas alone, which according to The Gulf Times (2013), accounted for 42% of the GDP in 2012 as compared to the oil boom period in which the sector accounted for 70% of GDP in the 1970s. The need to move away from the dependence on the oil and gas sector further strengthened the case for crafting the NDS 2011- 2016 economic strategy and the QNV 2030 blue print, both with latest revisions in November 2013, led to the crafting of the need to encourage a diversified economy and encouraging sustainable development. The Qatar Minister of Development Planning and Statistics, Dr Saleh bin Mohammad Al Nabit, is quoted on the ministry's website (<http://www.gsdp.gov.qa>) saying:

*“...we believe that Qatar is now at a pivotal moment in its history, as it must move beyond the Oil and Gas industry to ensure that its economy is diversified and sustainable, guaranteeing a more prosperous tomorrow for its citizens”.*

#### **4.2.4 Concluding remarks**

There has been a shift in thinking and the acknowledgement that securing a sustainable environment and growth cannot be singularly addressed by the managing the resources. The principle of 'knowledge economics' which is presented as economic success based on the effective utilisation of intangible assets such as knowledge, skills and innovative potentiality as the key resource to competitive advantage (Brinkley, 2008).

Cities such as Dubai, Abu Dhabi and Doha have witnessed the crafting and ideology of implementing the principle of *knowledge economics* by their governments in order to create international economic hub cities. This is driven as mitigation measures to natural resources depletion. In the case of Qatar, the government has embarked on investment in infrastructure and urban development with the objectives of liberating the market and strategically presenting Doha with the opportunity of becoming an economic hub. This inevitably attracts immigration influx and exerts socio economic pressures that give different urban dimensions and morphologies, erosion of traditional identity that impacts the environment and *sustainable development*.

What follow are the emergent themes. The thematic analysis allowed four themes to emerge from the data, namely: Qatar National Vision 2030; Urban Development; Sustainable Development; and, Facilities Management. Each of these will be discussed

in the next sections. The emergent themes are derived from the interviews as analysed in the emergent theme matrix depicted in Appendix D.

### **4.3 EMERGENT THEME 1: National Development Vision**

The late nineteen nineties witnessed the establishment of more state-owned and semi privatised companies. This phenomenon triggered the acceleration of further rapid urban development, resulting in a further increase of the population to approximately 1,500,000 people as more foreign workforce came to Qatar. It resulted in the need to craft the Qatar National Vision 2030 (QNV), which aims to transform Qatar into an advanced country by 2030, "*capable of sustaining its own development and providing a high standard of living for its entire people for generations to come*". QNV defines the long-term outcomes for the country and provides a framework within which national strategies and implementation plans can be developed. The QNV approaches long-term outcomes holistically and sets out four pillars for the sustainable development of Qatar:

- Economic Development;
- Social Development;
- Human Development; and
- Environmental Development

In order to advance the visions of QNV, the government has embarked on specific core areas that have been identified as the driving force to propel the national vision forward. Amongst the key sub-visions are *sports, education, tourism, transport and real estate* development.

#### **4.3.1 Sporting sub-vision**

Sport was identified as a cornerstone of investment opportunity with the primary objective of putting Qatar on the global stage and attracting people to the region. The Qatar General Secretariat of Development Planning (QSDP) identified that hosting international sporting events would be ideal for recognition on a world stage and to send a message that Qatar was ready for cultural integration through sports (Hasanin, 2007).

The founding of Aspire Zone, as a sports city resulted in the construction of a sports academy (Aspire Academy), sports hospital (Aspetar Hospital), sport stadium (Khalifa Stadium), aquatic complex (Hamad Aquatic Centre), world's largest indoor sports

facilities (Aspire Dome) and recreational park (Aspire Park). These facilities are supported by the hospitality establishment of the Grand Heritage and Torch Tower hotels, and the retail shopping complexes of Villaggio and Hyatt Piazza, all within Aspire Zone ([www.aspirezone.qa](http://www.aspirezone.qa)). The Aspire Zone sports and hospitality facilities provided a platform for Qatar to win bids to host the 2006 Asian Games competitions, the 2015 Men's Handball and the 2022 FIFA World Cup tournaments. Qatar is also bidding to host more sporting events such as Formula 1 car racing and is currently developing Lusail City racing circuit.

The hosting of the 2006 Asian Games resulted in the construction of accommodation facilities ranging from residential villages, apartments and hotels for housing the participants of the games. **FMF1** argues that the residential development, citing Edzan Village compounds as an example, was planned and constructed without factoring in sustainability principles. This resulted in most residential units remaining empty after the game. **FMF1** was quoted below:

“...Ezdan Village, for your information, was a show case of lack of planning for future use of the compounds as virtually all the compounds were vacated after the games. And to answer your question on FM, there was no way the facilities would have been managed successfully. You need people to be living in a property for FM to make a difference....simple!”.

**FMF1** implies that the vacated residential units were only meant for housing the participants and there were no legacy proposals or flexible future use plans to ensure that these developments could be well maintained. Hotel accommodation and apartments were not spared as high vacancy rates were recorded after the games (**FMF2**). This was supported by **FMF2** with the quote below:

“...Sustainability is about reducing the use of energy, right? How can you have a tall glass-building and expect to warm or cool it using little energy? More and more high-rise buildings and shopping malls are being built that will consume a lot of energy or rather less energy efficient buildings. So the issue of sustainability is a big concern and I believe this will be the same story after the 2022 FIFA World Cup if the future legacy plans that the Supreme Committee has crafted are not implemented”.

#### **4.3.1.1 Sports sub-vision's impact on urban development**

The sporting vision has been identified as having a great impact on the three elements at the centre of the research, namely urban development, sustainable development and

FM. It was generally acknowledged by participants that urban development is affected by the building of infrastructure, sports facilities and accommodation especially in small town that will be hosting the games:

**QGDC1:** Urban development will be on the rise. There is a need for new infrastructure to service the sports ambitions. The city will grow due to the renewed need for accommodation, retail, hotels, offices and even industrial areas.

The development activities are witnessed in small towns and with construction and improving of the infrastructure, more roads linking these small towns with Doha results in the movement and location/relocation of people to these small emerging towns. The requirement of having sports stadia in various small towns means that employment is created in those areas to support the location/relocation of the workforce:

**CPPM1:** The emergence of new development activities in small towns has already been witnessed. The likes of Al-Wakra, Al Khor and Lusail are having their own stadiums and that in itself is promoting development away from Doha city centre.

**QGDC2:** There is going to be massive city growth for the next 4 to 6 years. There will also be more cities emerging...as for an example... some of the World Cup games will be staged in small towns which means the small towns will be massively developed.

There was also the argument that the demographic pattern, which plays an important role in urban development, will not be necessarily affected by this sporting vision. It emerged that it is not generally the case that people will relocate to where there are employment opportunities in Doha. The reason for this could be due to size of the country as it is possible to travel from around the smaller cities to Doha (or vice versa) in reasonable time for work or other business:

**BDECO1:** I see little impact here. The city is not going to grow because there is a new stadium. People will not relocate because there is a new stadium built. Unless they develop similar sporting villages like Aspire Zone, which has mixed developments that create employment and retail facilities, then people will think of staying closer to work and trigger the need for accommodation, schools etc. That what makes a city grow....Employment!

#### 4.3.1.2 Sports sub-vision's impact on sustainable development

There have been mixed responses on the impact of the sporting vision on sustainable development. Spare capacity after hosting major sport events is a sustainable development concern which people don't really think about due to the excitement of hosting the events. Qatar (read Doha) will be challenged even more because the local people are not a sporting nation and they do not have the numbers to fully utilise the facilities after the events. Qatar (read Doha) depends on foreign numbers for legacy purposes and yet expatriate workforce leave at the end of projects or contracts. Although new expatriate workforce comes in, it emerged that until there are changes in labour laws, there will be always lack of long term commitment by foreigners to live in Qatar (read Doha). This creates sustainability and legacy issues. This was supported below:

**QGDC3:** Not enough numbers....population... to sustain this vision. Hosting major events is cyclical and it is a 'big flash and go'. Usage of the facilities is a big challenge. Sports village like Aspire is not even fully utilised. The temporary structures will be demolished that will cause environmental issues. So you have both the sustainability and environmental issues.

It was acknowledged that 'sports' is now big business that will attract generation after generation. The sports sub-vision is to provide a unique market for the world of sport in Qatar (read Doha) as an element of dealing with sustainability and legacy issues. It emerged that the Supreme Committee of Delivery and Legacy has since established a team that deals with legacy and sustainability for the 2022 FIFA World Cup facilities to ensure that the communities will be able to use the facilities after the tournament. The only challenge is whether there will be local demand to sustain as argued by **BDECO1** below:

**BDECO1:** The market is not just there to utilise the facilities post the events. This is different from the western world... for instance the UK where every small town has a stadium with a local team which is supported at grassroots. I am referring to football here. It is not going to be sustainable here. Besides, no locals really want to live away from Doha anyway!

There were mixed perceptions of whether sports contribute to sustainable development with **CPQS1** believing that there is an element of social improvement on welfare sports facilities. These facilities are thought to help in keeping the nation healthy and also to make Qatar (read Doha) become visible to the sporting world. This will promote new

sports business. It was acknowledged that Qatar (read Doha) has hired experts of sustainable development to help with the preparation of 2022 FIFA World Cup. There has not been any publication of any document or sustainability policy to enable its implementation by the construction sector. There are concerns that the after math of the 2022 FIFA World Cup will follow the effects of the 2006 Asian Games, which left many villages empty and posed environmental issues:

**FMF1:** I am told there is a good agenda and policy documentation about sustainable development through sports. It will be interesting to know much about this document and its implementation. The Asian games of 2006 left the sustainability agenda on the edges. There is nothing for me to verify that there will be a success story on sustainable legacy this time around. Q22 program is still in its infancy. There will be even a greater scale of accommodation sites, transport networks and training facilities. These are all required to remain in use after Q22. I think this could actually turn out to be worse than the Asian games with regards to the impact on sustainable development and the environment.

It merged than FM companies have not been involved in providing information on stadia and other facilities' design development with regards to sustainable development and sustainable FM:

**FMF3:** As an FM company we have not been and may not be involved in providing information on sustainable FM, which really is sustainable development. On a small scale we are providing services to similar portfolio as would be the Q22 facilities and we hope we will be the service provider of choice to look after a big chunk of the Q22 facilities, but we have not been contacted for any input. I hope the building process allows designers and contractors to assist the urban planning process in considering sustainable development principles. The sustainability agenda is a big challenge to the world and to think that a small nation such as Qatar will be successful in using sports to change the culture is very misplaced.

#### ***4.3.1.3 Sports sub-vision's impact on FM***

The sports vision will bring a lot of FM opportunities albeit many challenges. The development of sports facilities is believed by **QGDC1**, **QGDC3**, **CPPM1**, **FMF1**, **FMF2** and **FMF3** to be incorporating high design specifications that will require unique FM knowledge, technology, techniques that are different from traditional FM. There was general acknowledgement of the need for international FM companies to come to Qatar to assist current companies.

**FMF1:** These are anxious times for us as we are anticipating great business opportunities but we are mindful of the potential challenges in managing unique

facilities. We have been involved in facilities managing sports related portfolio and we are hoping this will provide us with the experience and edge as we anticipate the opportunities that will be created by the building of many of the spots facilities. Another issue we are mindful of is that there will be a lot of issues after Q22. We really expect that that there will be issues with the contracts on scope changes. We will probably be asked to manage the dismantling or the reduction of facilities to suite community's needs. It will be a unique experience I think.

There was general acknowledgement of great FM opportunities as a result of the development of sports facilities and venues, more importantly during the time leading up to hosting of major events. There are concerns of the FM issues as it appears that the development process (designing and construction) excludes FM input. The sports facilities and venues are of high design specification and with the lack of FM input at design stages, there are concerns that the technology and techniques required to operate and maintain the facilities:

**FMF2:** This will grow FM business with greater market opportunities. Many new local and international FM companies attracted to do business in Qatar. It must be noted though that there will be new FM technology required to meet the requirements of modern designs. It could actually turn out to be very challenging because we are told the authorities have embarked on ambitious designs and iconicity.

**QGDC1:** Operational of facilities is a key element to any business. You are opening up Qatar to the world of sports FM on a massive platform ....more than 10 times to what is currently experienced at Aspire Zone. There will be a lot of challenges and one of them will be that efficiencies will be compromised due to the shear FM volumes of services required from FM companies. As you probably know, there aren't many FM companies here that can deliver such big contracts.

There was strong acknowledgement that the level of FM expertise and capacity in Qatar (read Doha) will not be able to cope with the demand that will be created by the addition of new facilities and venues. It is there imperative that Qatar (read Doha) attracts international FM firms to come and help the local firms with experience and new techniques to cope with the demand that will be created. Joint ventures (JV) between local and international firms would be ideal in a market where local firms lack experience and international firms are required to seek sponsorship or partnerships:

**QGDC2:** I can see more opportunities for business in the field. Some of the technology requires FM companies from abroad that have the experience to manage stadiums...so you see...there will be that promotion of international firms to come to Qatar and that will boost competition and sharing of knowledge

with locals as these big firms will certainly form JVs (Joint Ventures) on a big scale. Local FM companies will be forced to hire experts in the field.

Most facilities and venues for the 2022 FIFA World Cup are expected to be completed well before the events. These facilities or venues require maintenance although they will not be fully operational. There will be no income generated by these facilities and that will exert pressure on FM charge-out rates.

**QGDC3:** For Q22, a lot of the facilities are required to be completed by 2018 or 2020. You are therefore asking FM companies to manage facilities that will not be occupied for a period of time. These facilities will not be generating income to the government or organising committee. The cost for FM services will be just a 'sunk cost'. With high temperatures and dust in Qatar, I am sure facilities managing such empty facilities will present huge challenges to FM companies themselves.

**CPQS1:** I think this will be business increase to FM companies. Definitely there will be new FM players to be able to cope with the demand. Most of the designs are imported anyway, and as such you need these international companies to lead the way.

It can be summed up that the sports sub-vision particularly the hosting of major sports events creates FM opportunities. However, the modern design poses challenges to FM firms on the level of technology and techniques, and in the context of Qatar, requires international firms to provide the support to the less experienced local firms.

### **4.3.2 Tourism sub-vision**

Tourism is another aspect that has been considered as a major influential investment opportunity. QSDP's strategy on this is to establish Doha as a tourist hub through the promotion of cultural integration and becoming one of the leading Gulf Cooperation Council (GCC) and Middle East countries to exhibit the Arabic heritage and culture. The revitalisation of the traditionally rich history, Arabic architecture, heritage and culture of the Musheireb and Souq Waqif has been identified as a crucial integral element for tourism attraction within the region and internationally. Other outstanding projects include the Islamic Museum, the traditional Katara Village, the prestigious Hamad International Airport, Aspire Zone and a wide range of retail shopping centres, all identified to be able to attract tourists to Qatar.

Whilst the drive for tourism is primarily aimed at extending beyond sport events, there have been concerns of Qatar's willingness to open up and accommodate other cultures

in particular the westerners who are considered to provide the greater number of tourists to the country as quoted by **BDECO1**:

“...As long as there is vast cultural differences between the tourist and the locals, and if the locals are not prepared to genuinely compromise, tourists will go somewhere else where they feel they can enjoy their holidays better. It is like investment, the investor invests where he believes he will get the highest return on his capital. I therefore cannot foresee how tourism (beyond 2022) based on cultural grounds can significantly contribute to the sustainability agenda particularly with Qatar Foundation’s vision of encouraging local community and preserving the local culture”.

Most places of interest are accessed free of charge with income from rentals paid by businesses operating within the area such restaurants and catering. This is advantageous in that tourists are motivated to visit these places once they come to Doha. The draw-back is that government subsidises on few places and takes full responsibility for the provision of security and maintenance on the many tourist attractions. In other parts of the world, such tourist attractions would be financially self-supporting and the government or local authorities would only facilitate through regulations, the smooth running of such places guided by the responsible government ministry.



*Figure 4.6 Katara Village Cultural Day. Source: <http://dohanews.co/katara-cultural-village-has-launched-its-2nd/>*

**FMF1** argued that in Qatar (read Doha) responsibilities of providing security, maintenance and subsidies to the running of the tourist attraction site, does not strain the government which has been consistently achieving budget surpluses year on year for the past few years. Government spends huge sums of money in engaging locals to provide entertainment to tourists. Figure 4.6 shows cultural display to entertain tourist at the Katara Village.

#### **4.3.2.1 Tourism sub-vision's impact on urban development**

The location and climatic conditions of Qatar (read Doha) presents challenges in advancing tourism as a holiday destination. The western world which provides the highest numbers of tourism have their summer holidays as Qatar (read Doha) but the climatic temperatures in Qatar (read Doha) can reach 50 degrees Celsius and deters potential visitors. There was general acknowledgement that tourism would not significantly impact on urban development. The need to improve the current on local heritage facilities will promote social gathering. It was acknowledged that there is need for other facilities to support these social gathering but this has less significance on impacting urban development. Therefore in terms of urban development there will be infrastructure development and an element of city growth in small towns where new tourist centres are to be built, although to a lesser scale that with other sub-visions:

**CPPM2:** I think there will be impact on city growth. This will probably drive some sort of development to small towns outside Doha where there are is the need for tourism centres. I am sure Dukhan has started to experience this growth with the revitalisation of Dorsari game reserve and Al Faisal museum.

**QGDC3:** Tourism will have little impact on urban development. You do not need volumes of new infrastructure or housing for tourism....I mean in a significant way.

**BDECO1:** I haven't witnessed any new building coming up of historical status. Tourism for the Middle East really is not a sector that can impact on urban development due to the Islamic culture which is not liberal in terms of what westerners expect when they go on holiday.

**CPQS1:** Well, I think there is positive city growth in re-building some of the historical facilities to maintain the local and Middle East heritage.

**FMF1:** There is not much really on the up about urban development or expansion resulting from just re-building the old and historical areas. I mean the city is not physically getting expanded by that.

#### 4.3.2.2 Tourism sub-vision's impact on sustainable development

Respondents generally indicated mixed responses on the impact or influence on sustainable development from purely a culture and heritage based tourism. The sustainability of this sub-vision is underpinned by the extent to which visitors get attracted to visit the country. Dubai in UAE appears to have opened up and more liberal to accommodate western integration while still keeping the local culture and as such more tourist who visit the Middle East region prefer Dubai to other cities of the region. This was supported by **CPDC1** below:

**CPDC1:** I am not sure of sustainable development that can be achieved by this vision from a local experience. Other countries in the region seem to have the same sort of heritage...so I guess people from other parts of the world will go to Dubai which is more open to a lot of things including more relaxed rules that govern the sale and consumption of beer.

Although it was generally acknowledged that Qatar (read Doha) appears to provide one of the best Arabic heritage, most probably due to the historic fishing and pearling activities (Wiedmann *et al.*, 2012), there were concerns that the regulations and laws governing visitors and their cultural expressions vary with the local culture which is not as accommodative as in Dubai, United Arab Emirates:

**QGDC2:** I think this will attract visitors and Qatar seems to have the best heritage for the region. This will help on sustainable development because it will indirectly promote other economic activities.

Sustainable development is measured by meeting current needs (WCED, 1987) and the provision of employment is one of these needs. It was generally acknowledged that the tourism sub-vision does not create employment at the same magnitude with the other sub-vision and therefore lacks in the contribution to the sustainability agenda:

**QGDC3:** I can say very little sustainable development. There are not many development activities that can be generated by this...not much employment can be created by this vision in Qatar and don't forget there is competition from other GCC members such as UAE (United Arab Emirates) which has better attractive conditions to visit or do business.

**CPPM1:** It is a toss. This is unique in the Middle East...I mean to think that local culture and heritage will sustainably bring western tourists for example.

**CPQS1:** Not really impacting on sustainable development. I am not convinced that culture and heritage can be enough to attract tourist on a sustainable scale. It should be a case of opening up to business that can help the tourism vision.

There was acknowledgement that the revitalisation of places of historic and heritage interest provides the platform for attracting visitors. Some of the places of interest require visitors to pay entry fees thereby generation income to maintain the operations of the facilities:

**BDECO1:** I genuinely think there is positive impact on sustainable development. Coming of visitors will create inflow of income either directly or indirectly to the economy.

**FMF1:** I don't think this will bring sustainable development. If only these areas of tourism can bring other business that can back it up, then maybe. It appears tourism is not an income generation venture in Qatar as it is in other parts of the world.

**FMF3:** Tourism will help social interaction but these are heavily subsidised by the government. For example, the bigger component of the running costs on energy and security are the government's responsibility. Hospitality industries and the market model should generate some income that can contribute towards the running costs....I hope!

It challenge that emerged is to attract tourists to Qatar (read Doha) that can support the vision on a sustainable scale.

#### **4.3.2.3 Tourism sub-vision's impact on FM**

There is requirement for FM to ensure smooth operations and maintenance of these tourist centres. The general acknowledgement was for the need for FM companies that have experience and Arab knowledge will be required to ensure that the culture and heritage is preserved:

**FMF1:** I can tell you that it is a big challenge for FM to provide valuable services. It is a unique area, with unique materials for either repairing or replacing. FM includes cleaning and polishing of the artistic pieces. If a valuable piece accidentally breaks then it can cause all sorts of problems to replace. It becomes an area where most FM companies do not prefer to get involved.

It emerged therefore that FM firms may be required to take unique all risk insurance in case their employees damage by accident any of the displayed expensive items in the museums:

**FMF2:** I think this can grow the FM business and probably attracts local and regional FM companies as they have the Arabic knowledge and interest. But...yes...it is unique for most FM companies.

**CPPM2:** I think this has the same challenges as with the other visions in that there will be more facilities on the market and therefore more FM opportunities.

FM services for places of historic and cultural heritage appear less attractive to many FM firms. The unique set-up and the value attached to most of the items in say museums, poses high risk on FM in terms of insurance and replacement should there be accident on the pieces on display:

**QGDC3:** I am not sure of any FM demand for this on a big scale. Arab history or culture knowledge is required to facility manage these places and many FM companies in Qatar are international and would not have the required Arabic knowledge.

It was also acknowledged that regardless of maintenance regime challenges, tourism would cause an increase in services demand and its links with the retail and hospitality industries:

**BDECO1:** This is actually a positive contribution to FM. While not limited to the tourism facilities themselves, it increases the demand for FM in other areas such as retail and hospitality sectors. So it indirectly creates FM opportunities in other sectors.

From the above, therefore tourism can bring about elements of sustainable development if the numbers of visitor are constant but poses great challenges for FM

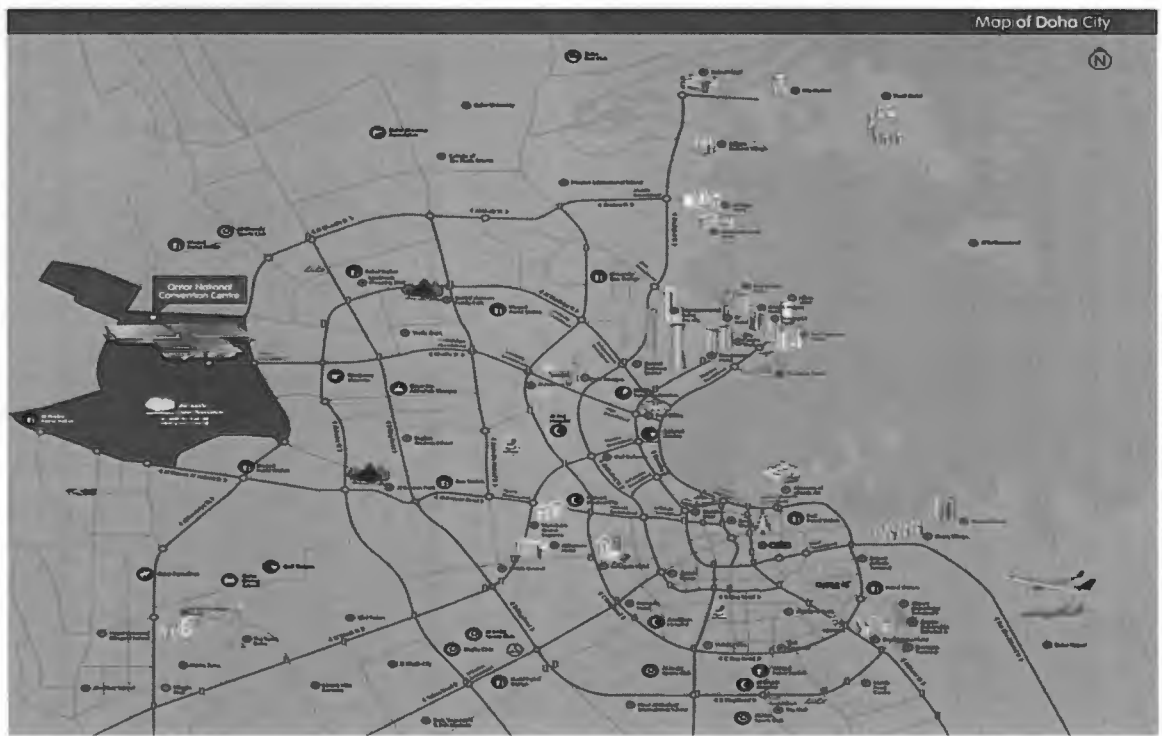
#### **4.3.3 Education sub-vision**

Education was identified as another key element of sustainable development. This has witnessed the establishment of Qatar Foundation in 1995, whose vision is to develop Doha into a centre of knowledge in the region and to enable Qatar to compete in this sector on a world stage ([www.qf.qa](http://www.qf.qa)). Qatar Foundation is tasked with advancing education, science, technology and community developmental projects. By investing in education, Qatar has realised the need to change the mind-set of the community by broadening the knowledge base to tackle sustainable development according to **BDECO1**. Qatar Foundation has already established and now houses the following:

- *Education* - five (5) American universities within its Education City complex;
- *Health* - construction of Sidra Medical and Research Centre which will be the one of the biggest and most modern medical centres in the world; and

- *Business and leisure* - Qatar National Convention Centre (QNCC) which houses four (4) five-star hotels, four (4) four-star hotels, media facilities and business.

Figure 4.7 (shaded area) shows the location of the Education City. Wiedmann *et al.* (2012) reiterates that Qatar Foundation’s Education City will soon become an international hub for education, medical research, science and technology, business, leisure and community based development that will attract many different people but still managing to protect Qatar’s culture and heritage.



**Figure 4.7** Qatar Foundation’s Education City (shaded). Source: [www.qatarconvention.com/visitor](http://www.qatarconvention.com/visitor).

#### 4.3.3.1 Education sub-vision’s impact on urban development

There was general acknowledgement that the education vision is having a huge impact on urban development. This was supported by the referencing of Qatar Foundation educational development as one of the next education ‘hub’ in the country or region:

**BDECO1:** There is huge significant impact on sharpening the look of Doha. Qatar Foundation is becoming a town on its own and it will be even massive when all the reported planned developments are completed in the next 2 to 5 years’ time. Everything is there, buildings for learning, accommodation complexes ...some even far away from the complex... hotels, conference centres, hospital as in

Sidra, the facilities network including car parks, roads, railway links and drop-off zones...it will be huge.

**QGDC2:** Definitely this impacts on the city growth. The need for new institutions, schools, accommodation and even infrastructure to service these educational centres will make Doha grow in size.

The lack of urban planning processes influence rapid developments. Qatar Foundation as an example is developing into a city with education, health and commercial facilities all contributing to the development. It is hoped that the education sub-vision will lead to new urban planning technology and techniques that will help in the formulation of Master Development Plan the will help to promote the achievement of social, economic, human and environmental development. This was supported by **QGDC3**; **FMF1** and **CPQS1** below:

**QGDC3:** I think people underestimate the impact of the Education City on the urban development of Doha itself. You are just creating a 'city within a city'. This obviously affects the Doha Master Development Plan as I believe the Education City is sanctioned by the high authorities. Therefore the urban planning process ...if there is one... it's just gonna become a 'toothless dog'.

**FMF1:** Education is key to any nation. From an urban development angle, yes, there is going to be even more physical expansion to Doha. We are witnessing a lot of infrastructure development to service the education centre. Demand for accommodation will be on the increase and schools for workers' kids will be in demand as well.

**CPQS1:** Another impact is that education will bring about new urban planning technology and policies that can be of help to the MMUP to control and manage space in Doha.

#### **4.3.3.2 Education sub-vision's impact on sustainable development**

There were generally positive responses to the sustainability of this vision, more so with the provision of a platform to share knowledge on sustainable development that is brought by international academic players. This was also viewed as fundamentally capable of effecting culture, mind-set and perception towards embracing the sustainability agenda as per **CPQS2** and **CPPM1** below:

**CPQS2:** This will build capacity in terms of knowledge base that is needed to advance sustainable development policies. I am sure this will improve the quality of human resources with regards to the awareness of sustainability issues.

**CPPM1:** A big plus with this vision is that it will continue to promote cultural integration and thereby shifting the perception on sustainable development ...in a

good way. Research on sustainable themes will probably cover areas of social, political, economic and environmental issues that are seen as the basis of why people talk of sustainable development.

It emerged that the education sub-vision impacts sustainable development through research and development. Educational institutions conduct research in many areas and sustainable development will benefit due to the increase of the knowledge base. This will influence awareness and cultural integration as local, regional and international students come to these centres and share ideas. This was supported by **FMF1**; **FMF2** and **BDECO1**:

**FMF1**: I believe there will be mind-set change and do things differently on the areas of energy consumption and environmental awareness. Universities will play a more and more leading role with the sustainability message.

**FMF2**: New knowledge will influence new culture towards sustainable development and Qatar will benefit in a big way from international experts on sustainable development.

**BDECO1**: I believe this is a significant platform to advance sustainable development. Research feedback will actually improve local knowledge that is required to effect culture change. Sustainable development is a behavioural and attitude change that helps the world to be a better place to live.

There was also an argument on whether educational institutions alone can provide a holistic approach to sustainable development without the help from the industries that produce carbon emission round the clock:

**QGDC3**: This promotes knowledge base on sustainable development. I am not sure if research and development by these universities will add much value on sustainable development. This should be led by the industries whose attitudes should change and employ energy saving methods and taking cognisance to the environmental issues.

There were strong sentiments that education plays a fundamental role. Education enhances research and development, knowledge share, quality of human resources, local knowledge improvement, culture integration and perception. Urban development or growth is bound by knowledge that triggers employment creation and result in infrastructure, housing, schools, hospitals and other developments. Sustainable development is perception and behaviour that can be changed by the influence of education. FM will benefit with new techniques or technology from this education vision.

#### 4.3.3.3 Education sub-vision's impact on FM

The education vision was viewed as a positive contributor to the FM knowledge base and also creating business opportunities to FM companies:

**FMF2:** This creates more FM business opportunities. Also this is basically generating interest for universities to consider FM courses and programmes that will teach FM disciplines at local institutions.

As more institutions will be built under this sub-vision, there will be increase in facilities that require FM. It must be noted that some of the facilities are of high design specification and will require modern FM techniques to maintain:

**FMF3:** This vision increases the facilities stock to be managed and thereby presenting an enhanced demand for FM business. You should note that some of the facilities are state-of-the-art designed and therefore will present a lot of FM challenges.

**QGDC2:** Yes, education will provide knowledge and the introduction of new methods and techniques of FM being employed in other parts of the world. Things like certification will be aligned to international standards and thereby making FM in Qatar to be more recognised on the international scene.

The infancy of FM in Qatar (read Doha) means that education will help in providing FM knowledge by attracting expert to come to Qatar (read Doha) to institution that will provide FM courses. The lack of accreditation of FM practitioners by internationally recognised bodies such as IFMA, BIFA and FMA presents the need for the region to work through MEFMA in promoting regional educational institutions to include FM courses in their curricula:

**QGDC3:** I actually believe that promoting FM educational courses will potentially come up with a local FM template that can be replicated by both local and international players who are involved in the region. It could be a Middle East template that is designed to deal with contractual engagement, unique weather conditions and the Arab culture.

**CCPM1:** Absolutely, education will bring technology on FM from international academics or practitioners as long as that knowledge is tailored to suit the desert conditions.

There was also general acknowledgement that the physical and practical operation of the new stock of facilities presents FM challenging circumstances in the areas of energy

consumption, maintenance costs and space/venue management. The issue of security as well emerged as another challenge the FM services will be faced with:

**QGDC1:** FM is an integral element for advancing sustainable development. Running an entire city-like complex as the Education City, with the level of FM capability in the country...it is difficult to strike a balance that provides FM services and sustainably while considering the environmental issues. You just need more FM companies to come on board to ensure healthy operations of these complexes.

It therefore emerged that some facilities will require a 'round the clock' FM presence such as hospitals in complimentary with security services. This adds to the challenges that FM will be faced with as a result of the development implementation of this sub-vision:

**FMF1:** While this creates opportunities for more FM work, the challenges are huge. Some of the facilities are unique...for example Sidra Hospital will have a lot of research labs and operating theatres that are highly specified....I mean the design...and these unique facilities can have high demand for serviceability and energy consumption to operate. Some facilities need 24/7 attendance. Even security is an FM service. You just need top...top FM companies to deal with these issues.

### 4.3.4 Transport sub-vision

Transport network has also been identified as a key element to support the economic development. The development of the prestigious Hamad International Airport, which has been recently opened, is aimed at enhancing the attraction of 'stop-over' passengers on international flight journeys. It is expected to handle 30 millions of passengers per year and increasing to 50 million passenger per year when fully operational, thereby making Doha an international hub ([www.qatarairways.com.qa](http://www.qatarairways.com.qa)).

Qatar (read Doha) has embarked on rail network development that includes both underground and over ground train routes. This development is led by Qatar Rail Company which was formed in 2011. The planned railway network is aimed at supporting the QNV by providing an efficient public transport system that will service both private and public sectors ([www.qr.com.qa](http://www.qr.com.qa)). Figure 4.8 shows a proposed Qatar Rail railway network which is also planned to go beyond the borders of the country in future as part of the GCC rail network development.

In addition to the rail network Qatar (read Doha) is also re-developing the seaport. This is evidenced by the construction of the New Doha Port at Mesaieed, south of the country. This port will help in enhancing and facilitating the importation of materials to support the QNV development vision. To complement this transportation strategy, there are plans to construct an orbital road (express way) that will link the north (Al Khor) the south to Mesaieed thereby relieving traffic congestion in Doha central. This orbital express way is reported and expected to cost US\$148 million (<http://dohanews.co/qr48-2bn-of-contracts-awarded-as-ambitious-plans-for/>).

There have been mixed reactions from the interviews regarding this vision. **QGDC2** believes that the transport vision will result in urban growth and will contribute massively to sustainable development through improved international trade, movement of people, exposure of domestic markets and easy congestion on the roads. **QGDC3** believes that the low cost of energy will continue to compromise sustainable development in Qatar (read Doha) and this was also the basis of **FMF3**'s argument on high energy consumptions. **QGDC3** is quoted below:

“...carbon emission is the biggest challenge in the world as far as sustainable development is concerned. The ‘car culture’ in Qatar will not shift towards public transportation. Also the hot temperatures will not be favourable to public transport passengers who, in other parts of the world, walk for ten or fifteen minutes from the train station to the office. This will not happen in Qatar for an unforeseeable future”

The ‘car culture’ is the current set-up in which nearly every household owns a car and drives to work, to shops or any other local journeys. The local household owns at least two cars and does not use public transport.

Transportation networks require high maintenance and it important that FM input is sought during the construction process. The participation of international FM companies that have experiences in rail FM would be required to work possibly in partnership with local FM firms that lack exposure to the rail transportation FM and rail station management.

#### **4.3.4.1 Transportation sub-vision’s impact on urban development**

The transport system is central to all the areas of development needs in Qatar (read Doha). This was generally acknowledged as one of the key drivers of the impact of

urbanisation particularly the encouragement of urban sprawl and emerging of small cities or towns outside Doha (BDECO1; FMF1; FMF3; CPQS1):

**QGDC1:** This is having huge impact on the growth and city layout and re-planning of the city. The previous traffic congestion issues were due to lack of proper urban planning. I think the new vision has brought new planning techniques and I hope there will be constant improvement.

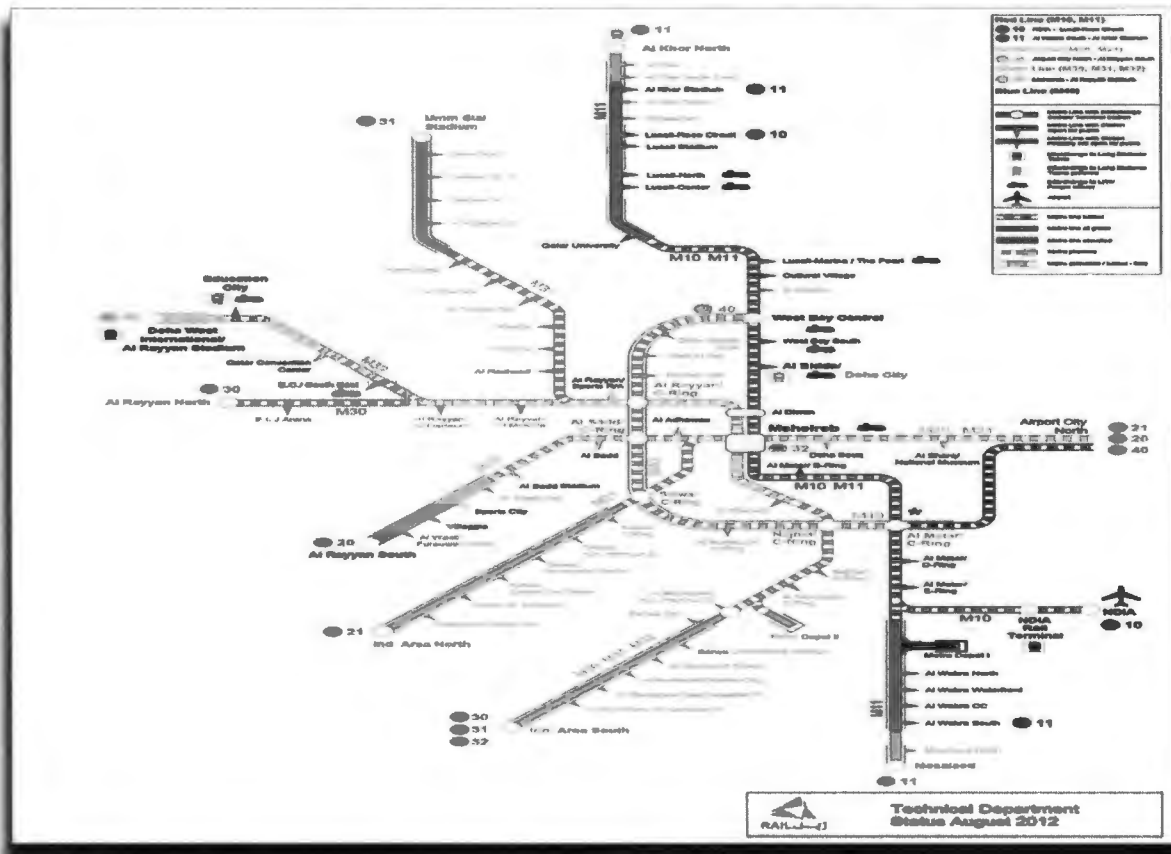


Figure 4.8 Qatar/Doha Rail proposed route networks. Source: [www.qr.com.qa/English/Projects/Pages/Doha-Metro.aspx](http://www.qr.com.qa/English/Projects/Pages/Doha-Metro.aspx).

Infrastructure development has been acknowledged to affect urban growth. The transportation sub-vision has resulted in the construction of the Hamad International Airport, roads and links, railway routes, railway stations and seaports. In support of these construction activities, there has demand for housing, schools, retail, and hospitals to cater for the workforce delivering these projects. This increases urban development activities:

**QGDC3:** City growth is the big impact. I think it is an excellent idea for local and outside borders transportation of goods. This is encouraging urban sprawl as new links to small cities are emerging and people can travel outside Doha easily.

**CPPM1:** It can be witnessed now that Doha has been growing and this I hope will go for a number of years to come. There will be more commuting encouraged by new roads and railway routes and most people will see it easier to live away from Doha city centre. This is already showing in that links to small towns are actually encouraging urban development to those areas as well.

The above statement was also supported by **FMF1**, importantly the linking of remote places and the development of those areas.

#### 4.3.4.2 Transportation sub-vision's impact on sustainable development

There were mixed response on the impact of the transportation vision on sustainable development:

**QGDC1:** The use of transport system will help to generate more business to all sectors of the economy in transporting goods and materials. I am not sure whether this will have much impact on the use of public transport such as the railway.

**CPPM2:** The low cost of energy and fuel will hamper sustainable practices. It is currently cheaper to drive around than to use public transport.

The low cost of energy and fuel emerged a huge retardant to the promotion of carbon emission reduction. It emerged as unlikely that local Qatari nationals will use public transport to reduce the number of private cars on the roads. It appears that the public transport is only meant for expatriates:

**QGDC3:** Locals will not help the sustainable development cause due to their '*car culture*'. However, the bigger component of the population is made up of foreigners who are used to public transport in their countries. It is a case of having one set of rules to the 'locals' and another for expatriates.

'*Locals*' is a reference to Qatari nationals and the '*car culture*' refers to the general observed culture in which the Qataris only use cars to drive around or are chauffeur driven and each family generally owns at least two cars:

**BDECO1:** I think there is quite a significant impact on sustainable development. This opens up access to local and international markets through developed airport and seaports; the movement of people through road and railway links and the easing on traffic congestion that can have a knock-off effect on business.

The low cost of fuel has been acknowledged as one of the influential element for the use of cars as compared to public transport. There are very few transport operators in Qatar (read Doha) and that could be a reason why people hardly consider public transport (**QGDC1**):

**CPQS1:** Sustainable development is questionable. There is need for culture change by the local population towards embracing the use of public transport. Everyone seems to own at a car and the low cost of fuel will encourage people to use own cars than using public transport.

Developing the transport networks also increases carbon emission and high energy consumption. The local population do not use public transport and it is up to the foreign population to assess the cost benefit between using individual cars or public transport. It was also acknowledged that the use of rail transport presents more challenges due to the heat that can be experienced when walking between the station and place of work or shopping mall (**FMF1; FMF3**):

**FMF1:** This is not going to ease congestion. The better the roads, the more cars go on the roads. Rail transport will not work due to the weather. You are asking people to walk 10 to 15 minutes in the sun from stations to their place of work. I mean it can't work.

**FMF3:** I am not sure of sustainable development. It will be a big cultural change. Walking paths linking the stations and buildings or shopping malls need to be covered and air-conditioned. This will then increase the energy consumption.

There was acknowledgement that the vision itself is geared at advancing the principles of sustainable development as this has been proven in other developed nations such as the UK and USA. The implementation is challenged in the sense that unless government comes up with a model and regulations to attract public transport use, the vision will remain a plan.

#### **4.3.4.3 Transportation sub-vision's impact on FM**

Whilst the transportation vision is geared to promote more business opportunities across sectors, FM was generally acknowledged to be presented with huge business opportunities while heavily challenged on the technology and techniques required in providing services to this sector:

**FMF1:** This will bring new FM business opportunities to services mainly the train stations and airports. There will be enormous challenges as these services are unique. There are challenges already on the newly opened Hamad International Airport and new FM partners are required to assist in the smooth running of the facilities.

**QGDC2:** I see lots of unique challenges for FM as this is a case of moving from the traditional buildings and shopping mall FM to stations, train depot and state of the art airport facilities.

The general perspective by **FMF2**, **QGDC1**, **QGDC3**, **CPPM1**, **CPPM2**, **CPQS1** and **CPQS2** is the need for bringing FM experts in rail from abroad whose experience in the sector will be required as this will be new in Qatar.

#### **4.3.5 Real estate sub-vision**

The need to invest the budget surplus resulted in the establishment of Qatar Investment Authority (QIA) in 2005, tasked with the identification of investment in both local and international real estate markets. QIA became responsible for directing and managing Qatari Diar Real Estate Investment Company that was founded in 2004 as a government owned profit making organisation. Under the direct responsibility of Qatari Diar, real estate developments have taken the lead in investment allocation with such projects as Lusail City, Pearl Qatar (Figure 4.9), Al Waab City and Barwa City all expected to provide residential accommodation that are/will house the majority of the expatriate workforce (Qatari Diar, 2011).

It is interesting to learn of the argument from Wiedmann et al. (2012) that all these real estate developments for these areas are not incorporated in the Qatar master plan known as the Physical Development Plan produced by the MMAA and its consultants.

**QGDC2** believes that the local real estate development will exceedingly supply accommodation demand and is quoted as:

“...real estate development is driven by expected future demand for the time leading up to hosting of the FIFA World Cup and not taking into account the fact that 80% of the current occupancy is by expatriate workforce that will leave the country when major construction projects are completed. Construction activities will not go on for ever”.

**QGDC2** implies that when the expatriate workforce leaves the country, the vacancy rate will sky-rocket and thereby creating FM challenges and presenting an unsustainable environment.



**Figure 4.9** Modern Doha's Pearl Development: A new lifestyle exclusively for an elite segment of the society. Source: Wiedman *et al.* (2012)

While the major property developments are government driven, many private property developers have been investing in areas that yield quick returns on investment capital and these include residential (compounds and apartments) with the office market being less preferred. **CPPM1** believes that the urban development in Doha is based on investment opportunities that are driven by both private and government influence and detached from the phenomena of physical planning and the 'master plan' development implementation. This is supported by Wiedmann *et al.* (2012) in his citing of the re-development of Al Sadd area as an example of office development attraction which was initially not incorporated in the MMAA 'master plan' but influenced by private business principles of easy accessibility from Doha Expressway linking the airport and the northern part of the country.

#### **4.3.5.1 Real estate sub-vision's impact on urban development**

The real estate vision was generally acknowledged to be one of the significant elements that is driving the rapid urban development and urban fabric of Doha today:

**CPQS1:** This is the driving force behind all what we are witnessing with rapid development in both the CBD and areas in the surroundings.

**QGDC1:** The real estate development is leading the economy from reliance on oil and gas to a diversified income-generating economy. Both internal and external investors are contributing to this increase in urban growth, but I must say

the government is heavily involved at an even bigger scale. It is driven from the top through availing the funds needed for most of these developments

The real estate development is acknowledged to be creating 'cities with the city'. The development of retail centres will attract residential development around the centres and can result in relocation around these centres:

**QGDC3:** This is causing a huge impact on urban development. In fact, it is the 'real deal' to the urban development. I must say, the development of other coming up city-like centres such as Lusil, Barwa and this other new one....near Ikea...Doha Festival City, are actually becoming 'cities with the city'...I talked about earlier...and are all part of this vision. It is serious investments that can't be attributed to private investors alone without government involvement. All the other elements of development such as residential, schools and recreational areas will come out of this real estate investment.

Whilst there were similar perceptions from **BDECO1**, **FMF1**, **FMF2**, **FMF3**, and **CPPM1** on real estate vision as the major player in the rapid development of Doha, there were also concerns on the viability of the majority of the developments:

**CPPM2:** The real estate can be regarded as the key driver but this is based on the mantra that we build and the occupiers will come. It will be interesting to see if there have been feasibility studies carried out before these developments commenced. I doubt it.

#### **4.3.5.2 Real estate sub-vision's impact on sustainable development**

There was general acknowledgement that rapid development triggered by the real estate development does not present and align with the principles of sustainable development. This is supported by **CPPM1** below:

**CPPM1:** This is not sustainable. Supply exceeds demand. These sorts of developments are of similar type to those within the GCC region. You wonder whether this is just a competition platform. The expatriates who are investors in one way or the other will probably prefer Dubai due to relaxed culture regulations and laws. About 80% of the current population are foreigners but there is minimum or no property ownership here and foreigners will obviously not invest in here or stay here on a long term basis.

The real estate development is influenced by the understanding that once built, the occupancy will come. It is acknowledged that most built-up residential properties are of high quality standard as and only attracts high income earners. The expatriate workforce is targeted to occupy these properties and demand levels are not being met.

Moreover the high turnover of expatriates means some properties are occupied on short term basis:

**BDECO1:** There is risk of the bubble bursting due to high end asset development. I mean there is no guarantees for future demand...say five to ten years' time...and the price expectation, whether it is for rentals or sale, is probably be on the high end. The question is, will the expatriate workforce be able to fill the gap based on current regulation? The answer to me is NO!

**CPQS1:** I think it is a big challenge to think of sustainable development on this rapid development. Property uses such as housing and hotels will not be sustainably occupied...say after 2022. There will be just no population numbers for the demand.

It also emerged that the perception of restrictions to property ownership by foreign workforce of individual investors is contributing to the acknowledgement of sustainability challenges of the real estate vision:

**CPQS1:** The restriction of property ownership to foreign workforce will worsen the sustainability agenda. But I think the government through their advisors are aware of this, probably that is why they are busy investing in properties outside Qatar.

**QGDC3:** Not sustainable. Overly supply of all elements of development. You see...with restriction on property ownership on expatriates, most of them will leave after the completion of major projects. Look at the Pearl for example, it only caters for a certain elite section of the expatriates and right now there are a lot of empty apartments. The rentals are unnecessarily high and...you know what the reason is? It is because of high vacancy rates and the occupied must compensate the unoccupied. It does not present a sustainable investment situation to me.

It also emerged that the developments are commercially driven without consideration of social responsibility, environmental impact and sustainable development (**QGDC2; FMF2; FMF3**):

**QGDC1:** There is an element of commercial vs social responsibility. Commercial is winning maybe as a result of investors. This maybe the reason why the investments are directed to residential sectors more as it is perceived to provide quick returns.

Another element acknowledged to present lack of sustainable development is the amount of energy consumption required for these developments:

**FMF1:** There is actually an alarming high use of energy to cool or heat these buildings. Whether you want to take this as an FM challenge...but from a sustainability angle it is a big problem. There is also high waste and someone must really think of designs that account for sustainable issues.

#### 4.3.5.3 Transportation sub-vision's impact on FM

It was generally acknowledged that the real estate vision provides the bulk of FM opportunities in Qatar (read Doha). It also emerged that the high volumes of FM services presents many FM challenges:

**FMF1:** We are very excited with the level of business opportunities and the FM industry will grow and grow in this country. FM is actually challenged to meet the demand. In fact we are worried that some of our competitors could actually end up providing substandard services and that will tarnish the FM image in Qatar as a whole. We are pressing MEFMA to be actively involved in setting the standards in the region and providing a monitoring service.

These challenges include the lack of monitoring by an independent body such as BIFM in UK or FMA in Australia. There is expectation that MEFMA should do more in setting standards and a monitoring framework to be adhered to by all FM companies:

**FMF2:** This is presenting more opportunities for FM business. We are witnessing new players coming in and that is good for competition. The new developments are presenting us with challenges due to new technology and techniques required to operate and maintain these facilities.

It emerged that the FM challenges will affect the quality of services and that there is need to align the FM services with international quality control:

**FMF2:** I hope these challenges will result in the encouragement of research and development in the FM field and interaction with international organisations and associations such as BIFM and RICS in the UK.

**QGDC2:** The challenge of having more stock to manage means that the demand for FM services will exceed supply and that can result in low quality services.

It also emerged that residential FM poses challenges due to the privacy of tenants that is needed to be observed and maintained. As a result many FM companies prefer commercial facilities to manage. Lack of maintenance to residential properties trigger

tenants to relocate and that creates empty buildings and property deterioration. This was supported by **FMF3**:

**FMF3**: This demands high quality services while employing new FM techniques. Residential FM is an example as it is also associated with a social element of infringement on privacy in tenants homes.

The requirement of new technology, techniques and IT knowledge was also acknowledged by **BDECO1**, **CPQS1**, **QGDC1**, **QGDC2** and **QGDC3**.

There was acknowledgement of having a lot of FM service providers to meet the demand now and in 5 to 8 years' time and there is perception that this demand will drop significantly after 2022:

**CPPM1**: The requirement of these FM services cannot be guaranteed in the future. I predict that there will be a high vacancy rate come 2023. It is not an easy task to provide FM services to partially occupied buildings. It is not cost effective at all. Therefore FM companies must be careful when they choose the Contracts that are long term with regards to the terms of engagement.

#### **4.3.6 Concluding remarks**

This theme provided a general acknowledgement that the QNV played a central role in triggering developments that impact on the urban fabric. The general concerns emerged are that QNV is a general government policy document that does not provide the measurement tools to ensure that each 'sub vision' leads to achieving social, economic, human and environmental development. It emerged that all the sub visions lead to urban growth due to infrastructure development, retail, residential and institutional expansion. Sport sub-vision require legacy measures to be put in place to address sustainability concerns; tourism requires the visitors' numbers to sustain the flow of tourists; education requires the local population to take initiatives to attend institutions of higher learning for the embedment of a sustainable knowledge base; transport requires a paradigm shift in the 'car culture' and for expatriates and locals to embrace the benefits of public transport on carbon emission reduction; and real estate need to be supported by developments that are strengthened by demand and supply, feasibility and market research and environmental impact assessment. This theme established that limited opportunities for property ownership by expatriates, show signs of unsustainable development such as the Pear's real estate development.

#### 4.4 EMERGENT THEME 2 - Urban development

The rapid urban development was generally acknowledged to be underpinned by the QNV with real estate and property development taking a leading role. Respondents were asked what they perceive are the reasons for the rapid development as an open ended question. The following were some of the responses:

- Qatar wants to be noticed in the region and globally (**FMF1**);
- The desire by the country's leadership to diversify and move away from the reliance on oil and gas (**CPPM1; FMF1; FMF2**);
- Ambition to make Doha become a global 'hub' city (**CPQS1; FMF2; FMF3; QGDC2**);
- The need for a modern style of life (**FMF2**);
- Rush to develop the country and invest before natural resources depletion (**CPPM1; QGDC3**);
- Ambition and prestige (**CPPM1**);
- Competition with regional neighbours and internal cities (**QGDC2; QGDC3**);
- The need for facilities due to a growing population (**BDECO1; FMF3; QGDC1; QGDC2**);
- Surplus budget coffers requiring expenditure (**CPPM1; QGDC2; QGDC3**);
- The need for improvement and maximising potential national growth (**QGDC1**);
- Social dynamics due to wealth and new focus on business investments (**CPQS1**); and
- The hosting of major sporting events (**BDECO1; FMF3; CPQS1; QGDC1; QGDC2**).

##### 4.4.1 Urban planning process

There was general acknowledgement that the urban planning process requires changing to align with the new demand of facilities in the city. Emerged was the realisation that the urban planning process is under review and would be changed to align with the National Doha Development Master Plan (NDDMP). As a result it was acknowledged that some developments were rushed before the new process comes into implementation.

The current development has been perceived to be non-coherent with NDDMP:

**CPQS1:** One can actually conclude that the lack of planning process is in fact influencing rapid development so that the new process comes into play when their developments are completed and will not be affected by the new process.

**BDECO1:** The current planning process is seen not to be functional. There is need for a new process that can regulate and control development project and the MMUP should move fast to get this sorted.

It was also perceived that the development of Doha resembles a bias towards western city models such as New York and London (**QGDC1; CPPM1**):

**QGDC1:** The entire planning system needs changing. There is too much of western influence. I see people want to create a New York in Doha or London for that matter. The conditions are different and this is a desert and should be considered based on the environmental and climatic conditions. Doha should be a Doha and is not other cities.

**CPPM2:** The urban planning process as I see it is very much geared to reflect modern city development. The drawback is to get carried away and start to impose global cities on Doha.

#### **4.4.2 Expatriate influence on urban development**

Notwithstanding the immigration laws, the expatriate workforce was acknowledged to have a greater impact on urban development. The requirements for housing, schools, retail and other facilities appear to have a significant impact on urban development. Some expatriates are believed to demand quality high end facilities and this does not only impact on physical urban development, but also creates sustainability issues due to high turn-over of the workforce as most of the expatriates leave on completion of assignments or projects:

**CPQS1:** Yes, the workforce forms the bigger component of the population. This increase the demand for facilities that result in all sorts of urban development we are seeing today. High skilled expatriate experts demand high quality facilities and services including high quality accommodation that we see being vacated when projects come to completion.

One of the sustainability challenges brought about by the expatriate turn-over is the creation of high vacancy rates as most of them leave the country. It was acknowledged that the limited property ownership to expatriates leaves most expatriates with no choice but to leave and not come back to Qatar (read Doha):

**QGDC3:** I believe urban development sustainability depends on property ownership. Expatriates consider renting and invest somewhere else since buying a property in Doha is a big challenge. You see, people will always come to an area if they left some investments in one way or the other particularly property investment portfolio.

A positive acknowledgement was that expatriates bring the needed knowledge base to provide the international taste demanded by the high design specification for the developments:

**QGDC1:** Yes, expatriate workforce brings positive impact in the field of development planning and the knowledge that reflect international standards for business or leisure.

#### **4.4.3 Urban development vs sustainability**

Urban development is a key element to the QNV. It has been generally acknowledged that urban development is fulfilling the need for more facilities as the population grows and also providing platform for job creation for economic diversification. The development of infrastructure will support business, social and economic development.

Notwithstanding the positive contribution by urban development, it emerged that there are concerns on the sustainability of the rapid development in Qatar (read Doha). Listed below are some of the sustainability challenges perceived to be key elements that affect the sustainability cause:

- There are clear challenges of balancing growth and sustainable development (**FMF2**);
- The low cost of energy dilutes the drive for sustainable development (**FMF2**; **CPCA1**);
- The rapid growth influences the lack of consideration for sustainability parameters (**FMF2**);
- Public transport system may not be popular due to temperature challenges (**FMF2**);
- Limited human resource knowledge from local staff (**QGDC1**);
- External investors are interested in commercial returns rather than social responsibilities (**QGDC1**; **CPCA2**);
- The need for high energy consumption for power generation and water reticulation (**QGDC1**; **CPDC1**);

- The long term vision is too ambitious to depend on foreign workforce leading the sustainability agenda (**QGDC1; CPQS1**);
- The developments do not have the population numbers to make it sustainable (**CPPM1; CPQS2**);
- Development is currently dependent on foreign population that can leave at some point in time (**CPPM1**);
- The restriction on foreign property ownership will keep high vacancy rate such as experienced at the Pearl (**CPPM2**);
- Once the boom is over, expatriates will leave and this will be or worse than Dubai in 2010 (**CPPM1; CPCA1; QGDC3**);
- There are no agents for sustainable or environmental development who solely focus on the sustainability agenda (**CPQS1**);
- The visionary ideas are cyclical with peak demands at points in time (**QGDC3**); and
- Real estate development is creating an oversupply of expensive property that affects affordability levels (**QGDC3**).

#### **4.4.4 Urban development vs FM**

The general acknowledgement was that urban development was providing more FM opportunities and this is resulting in the following:

- More FM organisations being formed locally and attraction of international firms to come to Qatar (read Doha);
- New technology and increase in the knowledge base of FM;
- Attracting high skilled experts in FM;
- Generating more interest in FM and involving FM associations such as MEFMA that will provide knowledge sharing and quality monitoring;
- Provide opportunity to register with international certification bodies; and
- Encouragement of FM consideration early during the construction process.

**FMF2:** This is positive news for FM. The new FM opportunities will also result in healthier facilities and increase of FM knowledge.

**QGDC2:** In addition to what I said before, I think we will see more research and training on the FM subject. You can only expect that this will result in high quality FM services

**FMF3:** I am not really concerned about the high demand for FM services. The theory of demand and supply will solve the situation. High profile services require more experts and that is good for FM. It is a question of choosing the right contract that matches your capabilities.

The urban development is resulting in some very high design specifications, coupled with the high demand; there was general acknowledgement of many FM challenges experienced in Qatar. Some of the challenges are listed below:

- 1) There is lack of FM knowledge, technology and techniques to deal with the high demand and provide services to modern designed facilities;
- 2) There is no FM body in Qatar that can work with MEFMA to control and monitor FM service providers to ensure high quality services; and
- 3) There is lack of partnership with international FM service providers for knowledge sharing and improvement on the quality of services.

**QGDC3:** The types of developments require high FM technology and techniques. There is definitely, I am sure, the requirement of FM experience from abroad to provide services for rail type facilities such as rail stations. Even rail maintenance companies are required. May be a good idea to give rail contractors maintenance longer contracts and incentivise for them to stay.

It emerged that there is a lack of FM involvement during the construction process. Some government clients use their existing FM service providers to help on new designs but they are not getting involved throughout the construction process:

**CPSQ1:** It is a big challenge to have FM input at design stage for this rapid development. We all know that there are not enough FM companies to cope with the main stream FM services...as I call it...and ask for say design involvement is just too much I think.

Another challenge identified was for the conditions and requirements for international companies to come to Qatar (read Doha). It was acknowledged that there are certain rules and regulations that govern companies to do business in Qatar (read Doha):

**CPPM1:** FM has to deal with advanced technology to run some of these sophisticated buildings. International firms will be required to register in Qatar but as you know... this is governed by the sponsorship laws and may deter the good companies from coming to Qatar. We see this in the construction side of things...big international companies are not here such as Balfour Beatty or Costain from UK.

**FMF1:** Amongst other challenges there is unique growth in the MEP (Mechanical, Electrification and Plumbing) FM. This is a massive challenge due to conditions here. You don't have to blink an eye with the sort of clients we have.

#### **4.4.5 Concluding remarks**

In conclusion, it emerged that rapid development is driven by various factors. It was strongly perceived that the ambition for Doha to be a global hub city is a vision that is linked to the QNV. This is aligned to provide the desired economic platform for international business dealings. The need for facilities to cater for a growing population also underpins this rapid growth. The economy is anchored by the natural resource wealth but diversification is required so that the economy does not rely on the oil and gas revenues alone. It emerged that there are no urban planning process and procedure that can universally control the development and this is leading to uncontrolled developments that will present unsustainable development in the long term. It is therefore generally acknowledged that the current urban development is unsustainable and poses major challenges to FM.

#### **4.5 EMERGENT THEME 3 - Sustainable development**

There was general acknowledgement that the urban development in Doha presents unconvincing sustainability initiatives although it emerged that most respondents are involved in sustainable development in some way:

**FMF3:** We are a FM company but we have established a sustainability department which is dedicated to providing assistance to our clients in advancing sustainable practices, environmental awareness, basic health and safety, best value for money during operations and maintenance of the facilities.

**CPPC1:** We provide comments and guidance to our clients with regards to the sustainability issues, more importantly in tender documents so that contractors are obliged to take that sustainability issue as a requirement and deliverable under the contract.

In many sustainable development initiatives, the government is regarded as a focal point in providing guidelines and policies to help the implementation of sustainability measures. This appears lacking in Qatar (read Doha) as government departments are not presented with sustainable development framework processes and procedures:

**QGDC2:** A government organisation such as ours is required to come up with sustainable processes and procedures. We have a Sustainability Master Plan (SMP) which we have tasked our FM contractors to assist in its implementation.

We are still in Phase 1 of the implementation stage but we hope this is a starting point in ensuring the concept of 'going green'.

**FMF2:** We have an advisory section for business sustainability and we are sharing the sustainability practices with our major clients.

There was clear acknowledgement that some government department, through their consultants, have begun to incorporate sustainable development practices within the tendering process and allowing to benefit from contractors as they compete to provide the most sustainable construction and environmental management on sites:

**CPPM1:** It is something we really have to ensure that our consultants are incorporating in the tender documents sustainable practices, especially health and safety, waste disposal plans and environmental management. Contractors are also given the opportunity to provide their sustainability proposals and policies which are assessed towards tender scoring for their submission. I must say contractors who come from the UK or Europe get very good scores on sustainable development proposals.

It emerged that there are often discussions on sustainable design, LCC and sustainable construction at the concept stages of projects. However the incorporation of these discussions is left to the Design Consultant (DC) to implement. Design reviews tend to include client, DC and designer and overlook the attendance of other construction professionals. The sustainability discussions at this stage tend to be minimal:

**FMF3:** Sometimes we get asked by our existing clients to provide FM information at concept stages with regards to sustainable design feedback from a maintenance point but we never get to know when the design progresses...in fact we will be called at O&M submission or commissioning stages.

**CPPC1:** Like I said before, we provide comments and guidance on sustainable development issues but sometimes it will be at a later stage when contract documents are put together.

There was 100% acknowledgement from all respondents on the relevance of sustainable development to their organisation. It emerged that leadership teams across the organisations support the sustainability agenda. The organisations which do not have sustainability teams or departments support sustainable practices through culture change on general business operations that promote saving of cost, energy or the environment and recycling culture.

#### 4.5.1 Definitions of sustainable development

There were various definitions that emerged from respondents:

**FMF3:** Satisfying needs of the present without compromising future generations.

**CPPC1:** Design and developments that meet the most economic solutions while taking into account viability for operations and maintenance now and for the benefit of future generations.

**QGDC3:** We probably define sustainable developments as viability of use now and post legacy use.

**CPQS1:** Practices that meet today's needs without compromising the needs of future generations.

**BDECO1:** We would define sustainable development as continuation of business from generation to generation.

**CPPM1:** I would define it as the management of social, economic and environmental development to cater for our current needs and those for future generations.

**QGDC1:** We define sustainable development as self-sufficiency of organisation and dependent off government funding, maximising equipment life expectancy, reducing energy consumption whilst maintaining a clean environment.

**FMF1:** Continuation of delivery of services now and in future from a business point view and self-reliant communities on both none and renewable resources from generation to generation.

**FMF2:** Being green through providing continuous needs for business and communities now and in the future.

From the selected respondents, it was evident that today's needs and that of the future generations stood out in most of the definitions.

It was generally perceived that the level of expertise on sustainable development is limited in many organisations in Qatar (read Doha). The sustainability agenda is driven by foreign experts but it clearly shows that there is not much interest from the local prospective professionals in pursuing sustainable development training particularly in the field of engineering and the built environment.

#### 4.5.2 Sustainable development challenges

It was evident that respondents believe that organisations in Qatar (read Doha) itself face many challenges to advance the sustainability agenda. The following were common challenges perceived by respondents:

- 1) There is perception that the knowledge gap can influence a cultural change on basic environmental protection practices in Qatar (read Doha). This reflects lack of awareness and understanding of sustainable development as underpinned by environmental issues:

**CPQS1:** I can think of the knowledge gap as the biggest challenge facing Qatar. Experts come and go and there seems to be no transfer of knowledge to the local upcoming professionals. The culture as well plays a big part. You hear people saying the Qataris are only 20% of the population...so even if they do not use public transport it is not going to change anything. That is the culture which needs to change. The local must be leading the sustainability agenda to help their vision... vision 2030...or even beyond. It is not about leaving the foreigners to sort it...everyone must play the positive contribution.

- 2) It also emerged that the backbone of Qatar's (read Doha) economy is the oil and gas wealth. The extraction and processing of these natural resources require dealing with a wide range of environmental issues. These environmental issues are perceived to clash with the need to maximise production to provide the required revenue to fund the government and development of the nation.
- 3) There seems to be lack of drive to invest in tackling environmental issues at the backdrop that Qatar (read Doha) is an exporter of oil and gas and import everything else such as skills, labour, food, materials and has no strong manufacturing base. This results in the sustainability agenda being led by expatriates who are already qualified resulting in the lack of local interest in the subject.
- 4) There is lack of legislation and policy that incorporates a system wide or holistic understanding of the benefits of cascading the QNV development pillars to the bottom level of society to effect culture change towards sustainable development practices:

**CPCA2:** The biggest challenge I can think of on sustainable development is the lack of legislation from the government's side to provide parameters of improving

policies on the subject. For example, government must arm the municipalities and planning processes with guidance on sustainable development and that planning approvals must consider sustainability scoring for permissions to pass. In the UK, major developments go through environmental impact assessments and related surveys or assessment reports are incorporated in the designs.

**CPQS2:** My only addition on sustainable development is that there is lack of policy to push for a paradigm shift on a culture that promotes sustainable development. Government should re-think how they want to achieve their vision.

- 5) Construction is currently the busiest sector in Qatar (read Doha). Construction is perceived to contribute approximately 50% of the world's waste and the required current development in Qatar is significantly impacting on the environmental issues such as pollution and waste disposals. Environmental impact assessments which are often carried out at design stages in other parts of the world seem to be absent in Qatar (read Doha). It is even more challenging to implement as Qatar (read Doha) lacks a sustainable development department or environmental department, agencies or agents to help with implementation and policing particularly in the construction, oil and gas industries.

**QGDC3:** The high temperature climate presents a big challenge in that it affects energy consumption on cooling...everyone jumps into a car with aircon... and it becomes difficult to provide a framework to maintain sustainable development standards, building sustainably and saving the environment. Besides, Qatar is a buyer of sustainable development knowledge and therefore the sustainable development is dependent on expatriate experts who obviously come and go.

- 6) The Qatar (read Doha) market lacks maturity in dealing with sustainable development particularly with contribution to social and environmental development. It emerged as general acceptance that the Qatari population which is approximately 20% to 30% of the overall population is justified in resisting practising basic environmental steps such as using public transport and that foreigners are expected to take such steps and fill the gap.
- 7) The investments in Qatar (read Doha), particularly in the real estate development, are geared on commercial returns with less consideration of social responsibilities and environmental impact which are fundamental pillars of sustainable development:

**QGDC1:** Key challenges are awareness...umm... and market readiness. I don't think Qatar is ready to roll up its sleeves and get on with dealing with sustainable

development issues in a way it is done in other parts of the world. They seem to want to develop the country at costs and maybe think of the social aspect later...I don't know. I say this because they cater well for the local population and I am sure from a social point on that area, things are under control with the Qatari population.

- 8) The low cost of energy promotes carbon emission and the use of cars. There are no taxes aligned to carbon emission similar to most parts of the world such as UK.

It emerged that the starting point to address the sustainable development challenges is for government to legislate sustainable development policies and provide an implementation framework that can be monitored throughout all business sectors with emphasis on engineering and the built environment.

#### 4.5.3 Qatar sustainability approach

There was general acknowledgement of awareness of GSAS/QSAS and most organisations work with GORD to ensure that the energy rating requirements are met or achieved for new building developments. It was generally perceived that GSAS/QSAS does not provide the fundamental guidelines to achieve sustainable development but is more aligned to achieving sustainable FM:

**QGDC1:** No, QSAS is an energy rating measurement requirement and that is not enough for sustainable development. Sustainable development is a culture change in practice to save the environment, cut energy consumption and move away from dependence...I mean to be self-sufficient now and in future.

There was mixed perception on the restrictiveness and effect of GSAS/QSAS on design proposal in terms of designers' ability to design iconic facilities:

**CPPC1:** No. It is an energy rating guide but not anything like affecting the architectural appearance.

**FMF3:** Potentially yes, but I am not sure if this really works on the implementation side.

**QGDC1:** Yes, designers need to comply with GSAS/QSAS ratings and that may restrict their design expression.

It was also generally acknowledged that GSAS/QSAS can be used as a policing tool to help achieving sustainable development. The energy rating achievement was perceived

to translate into green building status of facilities. The planning process is required to play a major role in implementing the GSAS/QSAS guidelines by ensuring that energy rating consideration and evaluation before designs are approved for implementation or construction:

**QGDC3:** Yes, I think it will work if the guidelines are incorporated in the planning process manuals.

#### **4.5.4 Regional sustainable development (documentary)**

Middle East countries are perceived to be having their pursuit for sustainable development compromised due to being major fossil fuel exporters. World Resources Institute Climate Analysis Indicator Tool (<http://cait.wri.org/>) suggests that four out of the most carbon dioxide emitting countries in the world are from the Middle East. The main challenges to the Middle East are the desert climates and that exacerbates pressures on energy consumptions needed for water provision and reticulation.

Historically, the hot climate compelled the people to embark on water saving ventures and one of these ventures was to keep heat out of the buildings by employing traditional architectural designs that used night cooling with shading and evaporative cooling, amongst other passive sustainable techniques (Mills *et al.*, 2012). In the modern era, the region has experienced difficulties in tackling the sustainability agenda. The lack of green benchmarking and regulations similar to those available in the UK or USA such as BREEAM or LEED, hampered green designs as these could not be aligned to the Middle East conditions ((Mills *et al.*, 2012).

Carboun Middle East Sustainability and Cities ([www.carboun.com](http://www.carboun.com)) argues that although the region is still behind USA or Europe on having integrated economic models that balance growth and social needs while minimising environmental impact, there has been positive development on the need to embrace green designs. An example of this is the Masdar City development in Abu Dhabi which competes to be the first zero and zero waste city ([www.masdarcity.ae](http://www.masdarcity.ae)). In order to develop and establish metrics that could help to measure improvement, Qatar (read Doha) led in the establishment of GORD and is now leading the implementation of QSAS/GSAS in the region. Leading the sustainable development practices in Qatar (read Doha) is the QGBC whose objectives are sustainability, efficiency and innovation ([www.qatargbc.org](http://www.qatargbc.org)).

### 4.5.5 Concluding remarks

Sustainable development emerged as a real challenge in Qatar (read Doha). It was acknowledged that the lack of government policies that can be implemented to address sustainability issues remain detached in practice and individual organisations or government departments try to deal with the issue differently. There is lack of a holistic approach that can be incorporated in the MMUP to deal with planning approval. The definitions of sustainable development that emerged reveal that there is an underlying professional base that acknowledges good practices and procedures that lead to sustainable development and environmental management. Sustainable development and sustainable FM mirror each other. The resultant of unsustainable development presents challenges for FM.

It emerged that QSAS/GSAS is a step in the right direction towards the subjects of sustainable development and sustainable FM. However, QSAS/GSAS lacks the implementation parameters are both not a pre-requisite approval requirements on designs. The achievement of the energy ratings is a good measure of sustainable FM on energy consumptions.

### 4.6 EMERGENT THEME 4 - FM

FM in the Middle East is still new and developing. The fundamental principle suggested by the review of literature on FM, suggests that FM input is required at design stages. According to Nutt (1993), the briefing team ought to include and require facilities client, facilities designer, facilities manager and end user to have input to the briefing process. This was supported by a 100% response from interviewees as a prerequisite of addressing FM challenges. However, all believe this approach is still far from being achieved in Qatar (read Doha) on the basis that there is barely any communication between designer and FM manager and as a result there is no FM input at design stage for most construction projects. **FMF3** was quoted as follows:

“...the developments in Qatar are happening rapidly and it seems to be the culture in the Middle East that FM involvement becomes prominent at handover or even the engagement of FM services takes place when the facility is occupied. It is a big weakness that I am sure MEFMA and other interested professionals in the field are working on. When are we going to witness the change? Time will tell”.

**FMF3** implied that FM seemed to be tasked with liaison with the designers during occupancy and operational stages. This poses challenges as designers would have moved on with other assignments and in case of international designers, they would have reduced their presence in the country or region.

The type of clients has also emerged as a determining factor of the level of integration of sustainable development and FM input among the project team at any stage or throughout the construction process. Government organisations, particularly those involved with the sports projects have established sustainability and FM teams within their structures.

This is bringing the involvement of FM from at least the occupancy stage to at least the commissioning, O&M submission and handover stages. This was supported by **FMF1** as quoted below:

“As a FM organisation we are beginning to get involved and engaged somewhere before final completions of construction, especially with some of our government clients. I mean getting our contracts negotiated and agreed for services provision to commence when O&Ms are submitted by the contractors, commissioning stages and even handover check list stages. This is really helping in getting the relevant clarifications from both designers and contractors on issues of functionality of the facilities. Ideally we would like to be involved even earlier in the construction process but most clients do not dream of FM as early as the design stage”.

This was supported by **FMF2** who stated that most construction projects get stalled at the end of the projects due to issues of functionality and variations are often instructed at this late stage of the project and that then prolong the final completion of the projects.

It appears that the client – designer relationship influences the involvement of both sustainability and FM input during the construction process. Some public clients (government organisations) are guided by the principle of social responsibility and as a result, sustainable development considerations become integral during design stages. This sometimes extends to the call of FM input. This arrangement is less witnessed with private or individual investor clients where commercial consideration overrides social responsibilities.

**CPPC1** believes that the urban planning process is not helping in combating the lack of sustainability issue or promoting its consideration during the planning approval process.

**CPPC1** was quoted as below:

“The planning process in this part of this world is toothless in promoting sustainable development or FM at design stages. Some buildings have had their planning permissions applied for when the construction is completed”.

It appears that urban planning processes and municipality or council operations are not yet able to establish or identify construction projects that are being executed with or without planning consent as with the case in Europe or other parts of the world.

#### **4.6.1 Emerging definition of FM**

As with the case with sustainable development, 100% of the respondents confirmed that they are familiar with FM in one way or another. The following are some of the selected definitions of FM that emerged from the interviews:

**QGDC1:** I would define FM as a management tool for facilities performance and enhancing efficiency and saving cost on operations and maintenance of the property.

**CPQS1:** FM is the provision of occupancy and operational management to align with both clients and company objectives.

**CPPM1:** Keeping the facilities healthy and increasing life span.

**QGDC2:** I would say it is the management of operational guarantee for facilities performance to ensure ever readiness of use as per business functional requirements.

**FMF1:** I define FM as the maintaining of facilities at the optimum operational cost effectiveness that can demonstrate value for money to clients from a quality, time and cost perspective...all in line with our business objectives as a company.

**FMF2:** Service provision to manage the operation of a facility and to protect the facility's health and prepare readiness for functionality and usability.

**FMF3:** FM is the management of services provision to meet the client's requirement on operability and maintenance of the facility at acceptable cost to meet business objectives.

**CPPC1:** We don't have any FM function in our organisation so my definition might be all over the place. Well...I would define FM as operation and maintenance of a property to make sure it functions well and that it meets basic

health and safety standards...umm...and that it is cost effective to run a business.

It was important to note that most of the definitions mentioned words and terms such as operations, maintenance, value for money, service provision, health of facility, meeting business objectives, functionality, operability, usability, enhancing efficiency and cost saving.

#### 4.6.2 FM expertise and function

While respondents FMF1, FMF2, MFF3 and QGDC1 believe that the level expertise in their organisations is high, it was generally acknowledged by all that overall Qatar (read Doha) has a low level of FM expertise:

**FMF1:** The level of FM in our organisation is high. We have most of the areas covered that include FM managers, engineers, project managers, health and safety guys, security, commercial managers, marketing and environmental and sustainability department.

**FMF2:** Oh, yes! The level of expertise for us is high. FM is our core business and we always want to have top talent across all the sectors. Because we are essentially an international company, it helps us to attract and bring some of the best personnel from outside Qatar.

**QGDC2:** As a government client organisation. We only have a FM department to oversee our FM contractors. In terms of expertise...emm...I would say fair. We struggle to bring the top people due to various reasons that any government department faces in Qatar.

3 out of 5 respondents (60%) who are FM firms deal with FM functions in their organisations stated that there are no barriers between the FM managers and the executive management. A horizontal relationship was acknowledged:

**FMF1:** The relationship is open. No barriers. Our FM managers have direct link to the COO.

**FMF2:** The relationship is horizontal...very strong. FM managers can walk into my office anytime.

**FMF3:** Very little. There are reporting lines which function very well. Maybe if there is a major issue, then a meeting can be arranged with FM managers.

**QGDC1:** There is no direct relationship. The organisation chart is used to cascade information. If this does not work, then the organisation chart would be wrong for the business.

On further and in-depth discussion on the reasons for government's failure to attract the top best talent, **QGDC1** cited the challenges of recruiting highly skilled FM personnel to director level or top management as similar to those of any other government departments in which top positions are reserved for Qatari nationals in a policy termed '*Qatarisation*'. FM is fairly new and there are not many Qatari nationals who have pursued and gained experience who can fill the high posts in the field.

There were a number of emergent roles for FM managers apart from the basic day-to-day maintenance duties. Some of the roles that FM managers could provide are listed below:

- Innovative operational ideas to effectively improve the service provision;
- Smart solutions that lead to cost savings;
- Design input that can assist in occupancy and building functionality to be considered early in the construction process;
- Driving sustainability step;
- Marketing the FM brand as an industry;
- Motivation and human resources management;
- Procurement and resource management;
- Pre-contract involvement and negotiation terms and conditions of contract;
- Input during the construction process and specifically on the change control management process where design changes;
- Solving operational client problems;
- Service evaluation and feedback knowledge sharing with both other teams and clients;
- Certification and quality control management;
- Input on business model, business objectives, strategy, planning, business continuity and sustainability and company growth;
- Business performance reporting and annual results responsibility; and
- Delivering client and own business KPIs.

There was generally strong acknowledgement of the need for FM to get involved through the construction process with much emphasis on input at design stage, change

control management, testing and commissioning, O&M submission review and hand over process:

**FMF1:** I recommend that FM managers be involved at concept stages to provide information of functionality and operational requirements that is necessary to be included in the design. I believe this will reduce a heavy handed FM approach. Our FM managers are involved in delivering clients' KPIs and ensuring business continuity with the same clients.

**FMF3:** Yes, at concept stage FM can facilitate knowledge transfer on occupancy strategy and functionality proposals.

**QGDC1:** It is evident in our organisation that FM managers are responsible for periodic reporting to ensure that our KPIs are met. Our annual financial figures are dependent on FM managers' contribution too.

#### 4.6.3 FM strategy, performance and positioning

It emerged that strategic FM planning is a tool that organisations use to enhance delivery of services as effectively as possible. In order to assist in the delivery process of Strategic FM Plan (SFMP), computer aided software were acknowledged to provide the delivery support of FM services. The computer aided tools that were acknowledged are CMMS (Computerised Maintenance Management System), and CAFM (Computer Aided Facility Management). It emerged that the preference of using computer aided tools is depended on the Strategic Maintenance Regime adopted by organisations. The encouragement to reporting problem areas and the application of correct measures provides the basis for updating and re-evaluating the SMP. The allocation of the right resources to deliver tasks and services are acknowledged as fundamental to achieve the implementation of SMP:

**FMF1:** We use such software as CMMS and CAF for our FM planning. Our SMR...I mean strategic management regime... in terms of practical approval is robust and we see this as the best tool to gain confidence from our clients in what we do. It's all about planning you see.

It was acknowledged strategic FM planning is undertaken at corporate level and that different sections of the organisations get involved in providing information that is used to formulate the strategic planning in support of Barrett and Baldry (2003). For the FM firms, the strategic planning is reflective of the needs and feedback from clients:

**QGDC1:** Our strategic FM planning is done at corporate level at the time when the requirements of business units are incorporated in the overall business

objectives. The physical implementation is our contractors' responsibility. We sometime insist that FM contractors provide their strategic planning proposals in tender submissions or in regular reports.

**FMF2:** Our strategic FM planning is targeted at achieving long term commitment with our clients. We want to be the FM firm of choice. You see...we always and consistently research on the needs of our clients' requirements so that we will be proactive in our planning.

**FMF3:** Our strategic planning is linked to our clients and stakeholders' requirements. We use IT to aide our strategy. Everyone plays a part with FM managers advising management on the SWOT of the market. We then align our strategic planning in response to market forces.

It also emerged that sustainable FM is embedded in the SFMP. **FMF1, FMF2, FMF3** and **QQDC1** stated that they have sustainability teams or personnel in their organisations. It was acknowledged that sustainable FM is developed and strategized at corporate level and aligned with business objectives. The challenge with some organisations is that there is a lack of communication between FM managers and the executive management to ensure sustainability of operational activities. A sustainable FM monitoring regime should present a mechanism for tackling the process of environmental management to reduce the gap between FM and environmental benefits:

**FMF1:** Yes, it is part of our strategic business model that we look at energy consumption levels and other resource utilisations...water for example. We are environmentally aware of the basic practices necessary and sometimes we actually manage to influence our clients' behaviour on these things. It is about culture change at workplace, homes or even on the premises we could be on places such as parks or beaches.

**FMF3:** We have a department that is solely responsible for sustainability and sustainable FM. Our corporate objectives are tailor-made to our environmental practices and budget is allocated for this although there is no direct revenue this brings...but we know our clients will look at us differently and positively.

It emerged that the term sustainable FM, was not particularly common but the responses reflected that the fundamental elements of sustainable FM are incorporated in the SMR albeit challenges of managing old buildings regarding energy consumption levels:

**FMF3:** Our environmental, energy saving plans and advice are well embraced by our clients. The problems we have are with old buildings which were not subjected to energy rating approvals at design stages. It is actually more costly to manage old buildings.

It is acknowledged that high level performance can be achieved by ensuring that:

- Client KPIs are achieved;
- Audits being regularly carried out;
- Client feedback is considered and corrective measures are implemented;
- Contracts are clear and unambiguous; and
- Client relationship is managed honestly and transparently.

**QGDC1:** We drive efficiency to maximise life expectance of equipment, facilities and this is the key for us to achieve a high level of FM performance.

**FMF3:** Honest and transparent business...umm...client feedback...umm...applying corrective measures and engaging our supply chain...all give us a platform to achieve high level FM performance.

**FMF1:** We take audits seriously and meeting all our KPIs gives us indications that our performance are of high level or quality.

#### **4.6.4 FM demand and supply**

The unprecedented rapid property and infrastructure development result in the additional supply of property stock and as such the demand for FM increases. It was generally acknowledged that due to the influx on expatriate workforce, vacancy rates have been decreasing on residential, institutions and industrial properties. It was generally acknowledged that although there has been increase in the stock of properties in most property development sectors, there has been also high demand on residential, institutions, industrial, recreational etc. due to the influx of expatriate workforce required for preparing the major events to be staged in Qatar (read Doha).

It was also perceived that demand for FM services is increasingly high and will continue to rise during the time leading up to the hosting of FIFA World Cup 2022 tournament. It emerged that most facilities for the 2022 World Cup tournament are expected to be completed at least 2 years in advance of hosting the event. The period between completion and hosting was acknowledged to present the greatest challenges for FM as the facilities require management while not being utilised:

**QGDC3:** I expect FM services demand to be high in the next 5 years leading up to Q22. You see...hotels, training facilities, medical facilities, the playing venues themselves and even residential village type or compound and apartment

buildings...all will require maintenance before they are fully utilised. Demand will take its peak during the games but will drastically drop after the games.

**QGDC2:** Based on the experience of the Asian Games in 2006, the demand for FM will be high towards 2022 and will drop after that. Some facilities may need to be demolished or they get dilapidated.

It was generally acknowledged that the level of FM expertise in Qatar (read Doha) is low. This was evidenced by the general perception that FM firms are not coping with the demand for FM services in Qatar (read Doha). It was acknowledged that there are many tendering opportunities and the few FM firms available are selective on tenders they are willing to execute. Some respondents were not aware or were unsure of the volumes of FM contracts being awarded. However, **FMF3** believes that FM should be commended on its achievement particularly in the hospitality industry such as hotels. **FMF3** perceives that most visitors acknowledge the high standard of hotel facilities and the FM regime in maintaining the facilities:

**CPQS1:** Not coping at all. There are many tenders out there for FM with no takers.

**CPPC1:** No. More opportunities but FM lacks human resources to deliver these available opportunities.

**CPPM1:** No. Demand is high. There are a lot of properties around that need FM to ensure optimum occupancy.

**FMF2:** No. The market is there but resources limit us on what tenders to get involved in. Some tenders demand certain requirements on the level of expertise.

**FMF3:** Yes, I think so. All hotels I have been, for example, are well maintained. Tenders seem to be getting awarded every day. I am not sure though of the level of quality of service on other facilities.

#### **4.6.5 FM prior, during and post hosting of major sporting events**

It was generally acknowledged that the aftermath of hosting event such as the Olympics Games or Football World Cup tournaments affects FM. Facilities will have spare capacity and FM scope of work gets affected. Some facilities are put up on temporary basis and demolished after the tournaments thereby reducing the scope of FM services.

It emerged that FM services become challenging when the facilities portfolio reduces in capacity as clients expect reduced cost and contractors needing to re-plan and evaluate requirements for the reduced capacity and not necessarily scope changes. The

reduction in capacity means that some of the facilities become non-income generating. This is perceived to affect the value of FM contracts as clients expect reduced costs without necessarily reduction in portfolio to the FM contractors:

**FMF1:** I can only think of legacy issues...umm...spare capacity...emm...if it is partially occupied then it becomes more challenging. If demolition is preferred, then the legacy issue becomes irrelevant and no value is presented by the facilities to the communities.

**FMF2:** Most countries face the problem of FM in areas where the facilities have parts that are not re-usable and still require FM services. FM firms may consider and expect the reduction of workforce and may trigger labour law and immigration issues that are not easily resolvable.

**FMF3:** Most nations face the legacy issue and flexibility of re-use of the facilities. We do not have much flexibility of FM contracts in this country and this could affect FM firms in a big way.

**QGDC2:** FM challenges come about when managing the legacy process. I am sure Qatar has learnt from the Asian Games which left many village compounds empty, they became dirty, posed environmental challenges and risk of dilapidation.

It emerged that the FM challenges are not only limited to the facilities used for the games but also acknowledged was that other areas such as hospitality, residential and security are affected. Security within the ambit of facilities for the games, hospitality, residential and other properties, requires integration with FM:

**BDECO1:** FM challenges I can think of are spare capacity in hotels and clients always expect reduced cost of FM services but with pretty much the same resources for FM firms in providing their services.

It emerged that Qatar (read Doha) is perceived not to have learnt from the FM challenges faced by previous countries that hosted major sporting events such as the Olympics games or World Cup tournaments. The challenges are more likely as the smaller population of Qatar (read Doha) and the expectation that most expatriate workers will leave, will present an oversupply of facilities and demand getting reduced.

Currently there is lack of acknowledgement of the need to get FM on board at design stages for the projects underway in preparation of the major sporting venues. The slow pace in the construction delivery in Qatar (read Doha) in general is perceived to be no different to the preparation of 2022 World Cup venues and facilities. This will result in a

huge rush to complete such facilities before the events start and FM will be seriously affected and will unlikely optimise ideal FM considerations:

**QGDC1:** The FM challenges for hosting major events are future utilisation. You have to ensure that the facilities are used after the events...but we know from experience that this is a big ask especially for small nations. Cost of FM becomes high to facilities owners where the revenues are reduced. Yes, you can consider demolishing some of the facilities but one has to be aware of environmental hazards that may be caused.

### **4.6.6 MEFMA (Middle East FM Association)**

MEFMA, which is borne out of the Real Estate Regulatory Association (RERA), has been working towards providing a platform for FM professionals and other players in the construction sector to develop benchmarking KPIs for the implementation of sustainable development strategies (MEFMA, 2012). It is interesting to note that MEFMA encourages that FM be introduced at the design stage, throughout the construction process, commissioning, handover, operation and maintenance of the facilities. It further points out that the objective is to deliver best-in-class service and asset protection to ensure return of investment.

In Qatar, MEFMA is working closely with Qatar Green Building Council (QGBC) to promote, educate and empower FM experts with sustainable practices ([www.constructionweekonline.com](http://www.constructionweekonline.com)). This was supported by perceptions emanating from the interviews.

### **4.6.7 Concluding remarks**

FM emerged as an element that is affected by all the other emergent themes. It was generally acknowledged that the low level of expertise as a result of the limited number of FM firms will present unique FM challenges to cope with the demand for FM services. This will be worsened by the lack of involvement of FM during the construction process. The preparation of the FIFA Football World Cup is incorporating sustainable development and legacy issues but seem to ignore the role FM plays in providing valuable information on occupancy, operations and maintenance regimes. The demand for FM is perceived to increase sharply from the next two years up to 2022, thereafter it will suddenly drop. MEFMA is expected to influence strategic and positioning of FM in Qatar (read Doha) but the pace is perceived to be slow.

### **4.7 Conclusion**

This chapter has presented and discussed the emergent themes from the fieldwork. To this end, the chapter provided the local perception in the context of QNV, urban development, sustainable development and FM in Qatar (read Doha) as the emergent themes from the fieldwork. The emergent themes highlighted that while the preparation to host major sports events provides a platform for urban growth and sustainable development challenges that result in unique pressures on FM, the QNV emerged to provide a complex system that encourages economic development. It is the implementation of this economic 'blue print' that does not provide urban development guidelines and sustainability policy frameworks to ensure that a holistic development approach is adopted that will not present daunting FM challenges on infrastructure, building and sport facilities operational and maintenance regimes.

What remains, for the thematic analysis, is to bring these emergent themes together into a central theme or core category to enable conclusions to be drawn from the data. From an interpretivist philosophy understanding and according to (Miles and Huberman, 1994), the interview scripts have been studied and analysed to establish practical meaning from the data. The researcher focused on simplifying the data from scripts, making summation and in-depth understanding in the process of interpreting the information to the findings (Miles and Huberman, 1994).

The following chapter focuses on the identification of the core category in this research, a thematic analysis of urban development on FM, the implications and limitations of the research, and the reflection on the research undertaken.

### **CHAPTER 5: SUSTAINABLE URBAN DEVELOPMENT AND FM**

#### **5.1 Introduction**

The preceding chapter discussed the evolution of the emergent themes from the data collection, coding process and analysis thereof. The researcher merged the emergent themes into a core category which is the central theme in the theory development that emanated from the data. To this end, the chapter outlines and discusses the identification of the core category emanating from the emergent themes. The matching of descriptive case study data from different sources is regarded by Yin (2003) as strong reference to the creation of theory that can be translated into operational practices. Therefore the core category in this central theme is to develop a theory that is underpinned by the data generated from the case analysis.

This chapter presents an outline of the implication of the research and the contribution to the conceptual development of urban development and unique challenges to FM. This is followed by the discussion of the achievement of the research objectives and the research question posed in Chapter One is revisited. Thereafter an outline of the research limitation is provided. Lastly, the researcher reflects on the research journey undertaken in this study.

#### **5.2 Emergent themes vs contextual framework**

Urban development as an emergent theme is perceived to be driven predominantly by the implementation of the QNV. The QNV, whose pillars include social, human, economic and environmental development, can be related to the argument from Mumford (1938) on urban development as an encouragement to cities to embrace social and natural aspects of the environment in which people live and pursue life economy. The rapid development in Doha appears to ignore the process of creating a 'growing whole' as argued by Alexander (1987) in which sustainable urban development is an incremental construction and legislative process driven to ensure controlled growth and protecting of the city from global and ever changing local variables.

Wheeler (1996) argues that urban development needs to incorporate sustainable development paradigm to integrate the built environment disciplines. This appears to be ignored as the current urban development is perceived to lack a working planning policy

and sustainable development guidelines. It emerged that the urban development is pressured by the QNV whose emergent sub visions include tourism, sport, transport, education and real estate. The lack of sustainable development guidelines in implementing these sub vision is perceived to be keeping the theory of sustainable urban development at the peripheries contrary to the consideration by Wheeler (1996) for cities to create a broader platform for sustainable development through sustainable urban development. The urban development process in Doha is perceived to be lacking the framework to deal with environmental threats suggested by Nijkamp (2008) regarding susceptibility and appropriate resilience levels. It emerged that there is lack of local participation in advancing the sustainability and environmental goals evidenced by the notion that the local population is outweighed by foreigners who are mainly expected to use public transport while the local people use cars. This is contrary to Pieterse (2010) who argues that the achievement of long term economic resilience and environmental sustainability is essential as a sustainable development goal toward a low carbon society and that the achievement of sustainability entails a wider participation by the public, public and private players/organisations.

Allen (2001) defines the sustainability frameworks in terms of *economic sustainability* (maximising productivity and widening the capital base), *social sustainability* (improvement of the quality of life and fairness to access and distribution of resources), *natural sustainability* (management of natural resources and the minimisation of the impact of waste), *physical sustainability* (urban built environment and techno-structures to support human life and industrial activities) and *political sustainability* (participation of civil society in decision making of urban governance). It emerged that while *social* and *physical* sustainability appear to be embedded in the QNV (intention), the other sustainability frameworks identified by Allen (2001) appear not be explicitly mentioned. The relationships among the above sustainability frameworks provide the basic of policy formulation and urban planning strategies that can deal with external factors that are brought by the pressures of globalisation. It is the lack of a controlled urban development process that is perceived to affect FM strategies that are required to ensure operability and maintenance of these developments.

Urban development in Doha emerged to be detached from the concept of sustainable construction. According to Chaharbaghi and Willis (1999) sustainable construction is a

process that incorporates the basic sustainable development themes. It emerged that most developments do not go through the sustainable construction considerations at design or through the construction phase. It is argued by Raynsford (2000) that construction activities provide an indication of how an economy is performing in response to the social and economic variables. However, for the oil and gas driven economies, it appears irrelevant as it emerged in Qatar that the rapid development is driven by national priorities rather than the direct response to market forces. Lefebvre (1991) argues that the creation of space for urban development is driven by economic, social, and environmental pressures that map well detected urban morphologies in direct response to the environment. The urban development in Doha emerged to be driven by the QNV which does not necessarily prioritise on environmental and ecological response. It emerged that the aims of the QNV have good intent but the lack of sustainable frameworks to advance the aims are lacking. This is supported by Mitlin (1992) who argues that there is little attention accorded to sustainable urban development by both the developed and developing nations.

Due to the rapid urban development, FM emerged to be impacted by all the emergent sub visions of the QNV. It also emerged that FM is not universally considered at the early stages of developments. According to Barrett and Baldry (2003), FM should be an integrated approach for the maintenance of the built environment and it can be expected that every development incorporates FM considerations at every stage of the construction process. Furthermore, Becker (1990) argues that FM can be recognised for bringing together planning, designing and the management of buildings and their systems. This concept did not emerge and appears to be ignored in the development process in Qatar.

It emerged that there is an increase in FM opportunities across the city of Doha and Qatar at large. However, it appears that there are not enough FM firms to drive competition for providing quality services. FM is still to emerge as an integrated multi-discipline of activities underpinned by strategic planning, high quality performance and positioning among competitors thereby meeting the individual organisation's goals and that of the clients (Nutt, 1999; Tay and Ooi, 2001). The lack of experienced FM firms and the abundant of FM opportunities does not appear to present the need or benefits to firms to strategically positioning of their firm for competition purposes. It therefore

emerged that the highly specified developments that includes sporting venues, will present FM firms with great challenges in maintenance.

### **5.3 Identification of the core category**

The previous chapter revealed the FM challenges as highlighted in the emergent themes discussed in this research study. The implementation of the QNV emerged as being influential to the urban development in Doha. In the analysis of the case data and the refinery thereof, the various emergent themes resemble an inter-linkage and connectedness with FM being a central core. Individual themes were cascaded to establish an understanding and awareness of urban development sustainability and sustainable FM.

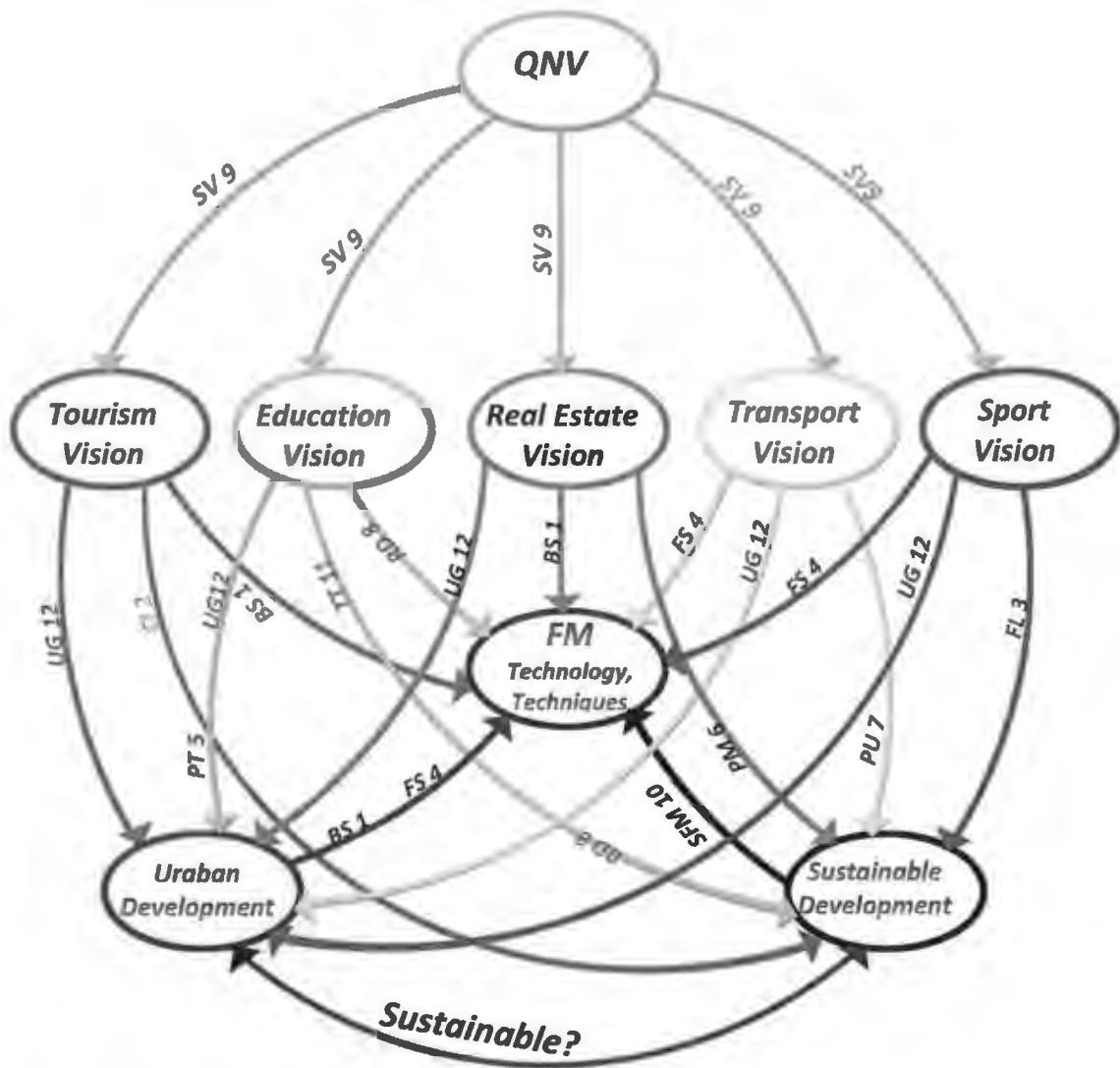
The QNV as a vision of focal point, branches into sub-visions as a first step of its implementation. The research identifies five sub-visions relevant to assist in the achievement of the objectives of this research. The sub-visions are discussed in emergent theme 1 and their implications can be summarised in Figure 5.1. For example, tourism affects urban development through urban growth; sustainable development through culture integration; and the increase of building stock affects FM.

The colour coding in Figure 5.1 relates to the 'major' areas of the research namely, QNV (and its sub-visions), urban development, sustainable development and FM. The impacts of these major areas were identified and colour coded as per the respective major areas. For example, Urban Growth (UG12) is colour coded differently dependant on the major element from which it is impacted. This was preferred to limit the amount of colours used and to provide a clearer presentation of the conceptual framework.

#### **5.3.1 QNV implementation**

The implementation of QNV through the sub-visions emerged as an important pillar to fulfil the aspirations and ambitions of the government. All the sub-visions are linked to the urban and sustainable development and ultimately FM as a central core. QNV implementation impacts on FM by adding building stock (more services) through sport facilities development, upgrading of existing tourist centres, development of education centres and building stock increase through other types of real estate development. This can be conceptualised in this emergent theme to strengthen a theory in which a national development strategy for an emerging economy is required to be underpinned

by the application of a holistic and sustainable approach in managing the implementation of the strategy to achieve sustainable development. Figure 5.1 provides a conceptual framework in which FM emerges as the central core.



**Key**

1. Building Stock (BS1)
2. Culture Integration (CI2)
3. Facilities Legacy (FL3)
4. Facilities Stock (FS4)
5. Planning Techniques (PT5)
6. Property Management (PM6)
7. Public Use (PU7)
8. Research & Development (RD8)
9. Sub Vision (SV9)
10. Sustainable FM (SFM10)
11. Technology & Techniques (TT11)
12. Urban Growth (UG12)

**Figure 5.1 Conceptual framework of FM as a central core**

### 5.3.2 Urban development dynamics

It emerged that the creation of different urban densities through lack of planning regulations works against the Henri Lefebvre Theory of abstract space which is based on practical and planning decisions (Lefebvre, 1991). Wiedmann *et al.* (2012) argues that the concept of sustainability of a city dependent on the social integration and participation of the community is yet to emerge and acknowledged in Doha. It appears that there is lack of coherence between the unprecedented rapid development and the physical planning of the city as emerged from this study and can be aligned to Nagy (2006) who conceptualises the same. Therefore this **emergent theme 2** strengthens the concept that formulation of an urban development process will assist in creating a controlled urban growth that can offer a viable creation of social inclusivity needed to achieve sustainable development (Wheeler, 1996). This will assist the relevant government department in managing urban sprawl, preventing 'ghost' neighbourhoods and thereby enhancing economic development

Doha's architecture has been pressured to resemble a global pluralism on leisure, residential, business, transportation and move away from a functional modernity and monumental representation. Nagy (2006) believes that cities are subjected to develop vertically and laterally to keep up with demand but reiterated that the development should be guided by planning regulations underpinned by urban development master plans. Wiedmann *et al.* (2012) argues that Doha's urban growth lacks directional planning strategies citing the example of high traffic congestions due to lack of public transport. **Emergent theme 1** recognises that the use of public transport is a key element in encouraging the reduction of carbon emission and yet Qatar relies on the taxi industry for public transport and that nearly every family owns at least one car. This setup works against the sustainability agenda of reducing pollution and the consumption of energy.

MMUP is responsible for the Qatar National Master Plan (QNMP) whose principles are underpinned by those of QNV regarding *human, social, economic and environmental* development. MMUP (2010) presents a planned and decentralised urban development approach that defines urban centres and a transportation networks that will support the urban centres. While Qatar could have learned from other GCC countries regarding master planning programs, Qatar's urban development still lacks incorporation of urban

development challenges of the expectation that high numbers of foreign workforce will leave Qatar in the immediate future. This research identified in **emergent theme 2** that Qatar is required to adopt comprehensive urban development strategy and long term investment that will attract expatriate workforce to invest and stay longer in the country.

The sustainability of the rapid urban growth in Qatar remains a concern and Figure 5.1 shows question marks on sustainable urban development and sustainable development policies that can be applied to urban development. This was discussed in **emergent theme 2** and what still remains a fundamental argument is that the growth does not resemble an organic propagation or the emergence of cities that will sustain themselves in future. This study established the following that were also identified by Wiedmann *et al.* (2012) as the main drivers of the rapid urban growth in Qatar:

- a) *Government's future ambitions* – The government embarked on the creation of a city (hub) that is expected to attract the world through sports, tourism, transportation, education, retail, business, financial services etc. It is strange to notice that there is less emphasis towards the expansion of manufacturing and industrial development.
- b) *Urban planning process* – the loosening and decentralisation of the urban planning process has been encouraging the government and real estate developers to compete in the property ownership market with little expatriate ownership involvement and yet over three quarters of the population is foreign.
- c) *Budget surplus* – the availability of budget surplus funds is another important driver of the rapid urban infrastructure development to show-case that Qatar is ready for global membership to participate in sports, education, transportation, tourism business etc.

Urban population plays a fundamental role on urban development. This research analysis supports the argument posed by Wiedmann *et al.* (2012) in that the urban growth cannot be detached from the effects of immigration numbers attracted by high salaries in Doha. It emerged that immigration numbers are expected to dwindle down when major infrastructure and preparations to host the FIFA World Cup are completed. This supports Nagy (2006) who stated that 90% of the population in Qatar is foreign and this does present sustainability challenges when activities in property development and construction reduce with foreigners not investing in the country.

### 5.3.3 Sustainable development

The sustainability of the current development in Doha has emerged to be unable to meet a continued social and economic development. As shown in **emergent theme 3**, there is a lack of sustainable development policies and environmental assessment guidelines that can be employed by the MMUP during the approval process of development projects. It is important to have sustainable development guidelines to achieve sustainable urban development.

Sustainable development is affected by the lack of acknowledgement and paradigm shift to public transport (transport vision); the great volume of property stock that requires high energy use, stretched FM and environmental management (real estate vision); the demand for facilities legacy and community utilisation of sport venues and facilities post events (sport vision); the challenges in cultural integration to attract visitors (tourism vision); and the challenge to transform Qatar into a creator of a sustainable development knowledge base and not a hirer of sustainable development experts who come and go. All these issues are depicted in Figure 5.1. This leads to the theoretical proposition that sustainable development is a culture change that requires governments to take responsibility in ensuring that policy formulation and implementation incorporates a holistic approach in order to achieve social, economic, human and environmental development.

### 5.3.4 FM unique position

As an emergent theme, FM was established as a central core that is impacted by the other three emergent themes of this research. The achievement of strategic FM can only be embedded in a development process that embraces the importance of FM involvement in the early stages of the development process. The research conceptualises the central core category of FM as an approach that is required to cope with technological advancement by being involved in the construction process supported by the formulation of contractual models that encourage FM firms to want to engage in business.

The Middle East has been subjected to many construction activities since the discovery of oil and gas. The rapid urban growth means that the demand for FM becomes imperative. The vision of diversifying the economies and the moving away from the dependence on oil and gas has witnessed the opening up of investment doors to both

local and international players. The research through **emergent theme 4** identifies investment in real estate as being the driving force behind the need for FM as investors seek to protect and maintain their properties for a maximised life-span.

FM is fairly new in the GCC region and there has not been much research on FM for the region which presents a unique climatic condition as compared to Europe, America and Australia. FM consideration is central from a business investment perspective as well as from a service delivery point of view. BIFM (2013) states that the role of FM is increasingly becoming a strategic business tool in helping to drive efficiency and to provide a better and cleaner living environment. FM now covers a wide range of business operations such as project management, planning, programming, maintenance and repair, property management, operations, administration, venue management and employee support and services; all these business activities can be achieved by effective management of physical resources and the workplace (Chotipanich, 2004). The emerging principle that FM becomes central in providing a support service function to the business through the management of resources, space and workplace is supported by Alexander (1999).

### **5.4 A thematic analysis of urban development on FM**

It has been identified that the urban development of Doha is being driven by the implementation of the QNV and ambition to host major sports events. Figure 5.1 depicts the inter-connectedness of the vision(s) implementation the impact on urban growth, sustainable development and FM. The unique impact on FM as a central core has been acknowledged in all the emergent themes as underpinned by the challenges of technology, techniques and the lack of FM companies that are required to provide the oversupply of FM services in Qatar.

**Emergent theme 2** established that the fundamental process of the emergence of a city in relation to self-organisation while mitigating external influence is not evident in Doha. This puts Doha as a growing city that lacks the required balances of the major factors of growth that help achieve sustainable development as depicted in Figure 2.2 in Chapter 2. It emerged that there are no urban planning processes and procedures that can universally control the development and this is leading to uncontrolled developments that will present unsustainable development in the long term.

The emergent themes and core category established that the dominant FM challenges as revealed by the findings can be focused on a number of fundamental FM shortcomings. Firstly, this research study revealed that FM is not recognised as a conceptual framework that brings efforts of planning, design input and building management system that makes FM firms help to position them competitively as supported by Becker (1990). The FM concept as a future cost saving emerged as being irrelevant in the study. This concept usually comes about when there is need for strategic planning to mitigate future economic down turns (Alexander, 1996), but the acknowledgement in this research study presents a scenario in which Qatar does not expect an economic down turn at least until 2030.

Secondly, strategic FM planning is inherent in FM corporate organisational objectives and has no influence on the urban development in Doha. The research analysis established that FM firms are more concerned in coping with FM demand for services than the strategic modelling that can present a platform for policy framework for decision making and consideration of future challenges as supported by Barrett (1995). The findings and thematic analysis of the data emanating from this research reveal that FM is still in its infancy in Qatar and as such strategic planning process provided in the literature depicted in Figure 2.7 in Chapter 2, has not yet been implemented.

Thirdly, the positioning of FM is overshadowed by the oversupply of services due to rapid urban development and emerged that FM firms take initiatives of dealing with environmental issues as good practice and not necessarily for the reasons of competitive advantage. It emerged that the type of property developments and sports facilities / venues are of high design specifications and as a result FM is required to equip itself with the adequate level of technological advancement and employing the corresponding techniques in providing FM services both in the short and long term as argued by Chotipanich (2004).

Fourthly, this study reveals that the lack of competition among FM firms does not encourage the FM models that are underpinned by management services of core business needs that take account of external factors. The performance of FM as a result lacks the required feedback from clients to ensure service improvement. Therefore it can be concluded that the level of performance of FM in Qatar is not known.

Fifthly, this research established that most respondents acknowledged the need for FM involvement at an early stage in the development process but it emerged that clients do not involve FM until at handover stage. The findings therefore reveal that there is lack of client awareness of FM importance to deal with occupancy and operational matters at briefing and design stages as encouraged by Kelly *et al.* (2003a). The conceptual core category does not provide FM with the platform to be an integrating profession that should be embedded in the urban development and sustainability advancement in Qatar.

The sixth point to note is that the framework conceptualising FM in terms of technological challenges and techniques requires an urban planning process that incorporates the goals of social and economic development by providing a holistic environmental and sustainable development. This will assist in the formulation of a contractual model that would incorporate FM involvement during the construction process and mitigate future challenges.

Lastly, it was surprising to note that property market influence did not emerge as a theme. The limited property rights could be attributed to this outcome. It emerged that the major property developments are government driven and that private property developer base is skewed towards local nationals. This suppresses the property market to investments on residential development (compounds and apartments) to cater for the expatriate accommodation needs. This is supported by Wiedmann *et al.* (2012) with the argument that the Qatar master development plan does not incorporated real estate development driven by market forces. A free operating 'demand and supply' property market becomes dormant under these circumstances. It would have been interesting to establish how a free 'property market return on investment' regime would impact on FM.

### **5.5 Research objectives and question revisited**

The research investigated the sustainability of the urban development in Doha as driven by the preparation of hosting major sporting events such as the Asian Games in 2006, Men's Handball Tournament in 2015 and FIFA Football World Cup in 2022. The central core of the dissertation is that there exists a general perception amongst stakeholders and professionals within the built-environment fraternity that a rapid urban development presents unique challenges to FM. There is a gap and lack of critical involvement of FM in the development or construction process in order to address future operability and

utilisation of facilities post the events. The central theme is revealed by the lack of awareness of the fundamental role played by FM in providing sustainable solutions to infrastructure development and urban growth in helping to drive the sustainability agenda on a wider perspective.

The thematic analysis used in this research study and on the data provided, resulted in the emergent theme as guided by the aim and objectives of the research to address the research question. Based on this context, the research objectives of this study, stated in Chapter 1 were to:

- a) Establish *why* the awareness of sustainable development and FM consideration is paramount at an early stage in the development process.
- b) Obtain an in-depth level of understanding of *how* FM as an integral element of urban development and growth is impacted from a sustainability perspective.
- c) Assess the current FM challenges and *what* roles they play to ensure measures are implemented to address future challenges.
- d) Establish *how* the extent of consultation of stakeholders ensures the long term sustainability and FM of the facilities.
- e) Assess *what* sources of sustainable demand would fulfil the acceptable level of occupancy of the facilities and the adaptability of the facilities to other uses.

There were four emergent themes that were identified by the thematic theory methodology. They were Qatar National Vision impact, urban development drive, sustainable development policy and FM challenges. These emergent themes provided a critical foundation of the inherent requirement for FM involvement in the urban development process, be it infrastructure, real estate, transportation, facilities and venues for sporting events or recreational purposes. It is evident that the study provided the understanding and awareness that the QNV provides the greatest influence of rapid development that is not matched with sustainability measures and guidelines. The establishment of infant levels of FM in Qatar necessitated by the lack of FM expertise highlights some of the critical and fundamental FM related issues that affect occupancy levels, operability and maintenance post construction. These reasons for the lack of awareness of FM as an integral element of the development process are established in the emergent themes, thereby accomplishing objective (a) of this research study.

FM was identified to be a subset of the other emergent themes in that it is impacted upon by all the sub-visions, urban development and sustainable development as depicted in Figure 5.1. Urban development / growth drive and the implementation of QNV strategy are proved to be sustainably challenged and this presents unique FM issues, more so where FM is not considered during the development process. This can be seen to justify accomplishing objective (b) of this research study.

Embedded in the discussion and assessment of current FM challenges was the general perception and acknowledgement of the level of FM expertise, predominantly due to the infancy of its discipline in Qatar. As a central core category and a critique of the QNV, urban development and sustainable development, FM firms cannot currently cope with the current level of demand for services. More critically, emerged was the need for a paradigm shift by all stakeholders to influence the FM discipline to grow as a business and be able to bring the much needed experts to aid the initiatives of MEFMA and the QGBC. FM contracts in Qatar are regarded as being rigid and lack the flexibility and negotiating platform to provide a win – win outcome. This detailed assessment accomplishes objective (c) and (d) of this study.

There was evidence of lack of FM consultation by stakeholders and built environment on development projects, more importantly, on the preparation of sporting venues that will see the construction of at least eight stadia and corresponding training facilities. There was acknowledgement of sustainable development initiatives led by SCDL through the legacy agenda but the FM initiatives were not established to be playing any part. This establishment of the lack of FM consultation accomplishes objective (d) of this study.

The legacy issue was perceived to be dealing with mainly sustainable development and the utilisation of the facilities post events. The central core category is a critique of FM challenges as a result of QNV implementation, rapid urban development and sustainable development requirements. Moreover, it is not only the requirement of achieving and coping with FM strategy but also sustainable FM. The concern of the legacy achievement as emerged in the coding themes is underpinned by the population numbers required to provide the demand levels for facilities, venues, residential, hotels etc. to maintain occupancy and usage. It emerged that there may not be sufficient

demand required to operationally utilise the facilities. This accomplishes objective (e) of this research study.

The aim of the research was to establish the awareness of the rapid development in Doha in relation to sustainable and FM challenges. This has emerged as being triggered by the QNV and the preparation of major sporting events and such developments can present sustainability and FM challenges. The research question initially posed was:

*Can FM provide a sustainable solution to infrastructure development and urban growth that arises from the construction of sporting event facilities in the long term?*

The four emergent themes and the core category established that FM is a common factor of all the themes and that the lack of FM experts and more critically, the limited number of FM firms in Qatar, presents FM challenges now, in the period leading to the events and post events hosting. The underlying lack of a critical foundation of FM involvement in the development process in general, limits the fundamental perception that were sourced to provide the answers to the research question. All stakeholders and the planning process approach appear to miss out on the potential contribution by FM if involved and considered throughout the development process as supported by the literature that underpins the arguments in this research.

The lack of FM involvement in the development process still presents inconclusive establishment of the extent to which FM can influence the infrastructure development and urban development that arise from hosting world events in the context of Qatar.

### **5.6 Theoretical propositions**

The interpretation and the understanding of the emergent themes discussed in previous the chapter, together with the identification of the core category and the development of a framework that conceptualises a rapid urban development and its impact on FM may be formally stated. Hence, the series of propositions presented by this research are:

- 1) *A national development strategy for an emerging economy is required to be underpinned by the application of a holistic and sustainable approach in managing the implementation of the strategy to achieve sustainable development.*

The management and implementation of a national development strategy is crucial to the achievement of social and economic development. The development need to be supported by a sound base of investment principles to ensure long term economic benefits to stakeholders:

- 2) *The formulation of an urban development process will assist in creating a controlled urban growth that can offer a viable creation of social inclusivity needed to achieve sustainable development. This will assist the relevant government department in managing urban sprawl, preventing 'ghost' neighbourhoods and thereby enhancing economic development.*

The absence of an urban planning process that influences a rapid urban development that is not sustainable. The lack of a strategic urban planning presents an enabling environment for uncontrolled development of projects that do not incorporate long term return on investments, especially in Qatar where the population numbers are dominated by expatriates whose ownership of property is limited:

- 3) *Sustainable development is a culture change that requires governments to take custodian in ensuring that policy formulation and implementation incorporates a holistic approach in order to achieve social, economic, human and environmental development.*

The government of Qatar is perceived to be a hirer of sustainable development experts rather than investors in sustainable development to ensure that there is training provided by experts and that knowledge is passed and deposited in the local knowledge base:

- 4) *The development of a strategic FM approach that can cope with technological advancement requires formulation of a contractual model that incorporates FM involvement during the construction process.*

The involvement of FM in the construction process provides a platform for occupancy, operational and maintenance issues to be identified early and that design preference and construction materials assist in minimising FM challenges that may arise in future.

### 5.7 Research implications

The basis of this research is underpinned by the existing problem that the huge infrastructure development and urban growth is triggered by the QNV and the preparation to host major sporting events, presents sustainability and unique challenges in the medium and long term. It is inevitable that this research's implications may be viewed differently, not only by stakeholders, but also the perceptions may be of different opinion to those emerged from the respondents to this research.

As a result, the research question that can be posed is:

*Can the QNV's implementation be re-evaluated against an urban development to ensure a sustainable urban development that presents a framework for FM involvement in the development process thereby limiting future FM challenges?*

The implications of the research are discussed below in relation to QNV, urban sustainable development and FM challenges.

#### 5.7.1 QNV implementation

The implications of the implementation of the QNV are of great importance towards achieving a sustainable economy. This may require a re-evaluation of the vision and establish areas of concerns such as the 'real estate' vision which emerged as an outstanding challenge towards social, economic, human and environment development. In this research the implications of the QNV are central to the sub-visions discussed in the emergent themes as below:

##### 5.7.1.1 Sports

The sports vision plays a fundamental role in bringing development to different sectors of the economy. The sports vision will assist in social development and if the legacy issues can be considered and incorporated in development of the sports facilities, this will help in achieving the much needed social and economic development. Albeit mixed perceptions on the impact of urban development, sports vision would assist in addressing the demographic patterns as the emergent of small towns affects the movement of people and thereby easing congestion in Doha. This vision would help expand the FM services and creation of employment in these small towns.

### **5.7.1.2 Tourism**

Tourism would assist in influencing people to come to Doha since the vision is to establish a tourist hub that can promote the exhibition of Arabic heritage and culture in a way that beats competition in the region. Tourism would assist the integration of cultures, particularly with the western world which is estimated to provide a greater number of tourists to Qatar. Tourism would influence development in the hospitality industries and would provide an income generating base for FM services in areas such as hotels, resort facilities and retail. A strong tourist base would support sustainable development.

### **5.7.1.3 Education**

Education would assist in bringing the knowledge base that is required to improve on the existing urban planning technologies, techniques and processes. The required techniques would assist in ensuring that Doha would not be subjected to the creation of 'small cities within the big city' that could present sustainable development challenges. Education would provide the necessary research and development outcomes that could be employed to deal with sustainable development and environmental management. Education would aid in the contribution to FM knowledge base that would help in the creation of more FM businesses to cope with FM services demand in all sectors of the economy.

### **5.7.1.4 Transport**

The transport vision also emerged as a key element to urban development. This would assist in providing the movement required for conducting business operations. However, the challenges with sustainability seem more inherent in the task to encourage public transport as to reduce carbon emission. The transport vision requires implementation of incentive schemes to attract public usage. The low cost of energy and fuel hampers the success on public transport use. It emerged that there is a requirement to put FM measures in place as new types of FM in rail facilities require unique techniques and maintenance regimes. Establishing long term maintenance contracts with specialised rail contractors would be a solution worth considering instead of leaving all these contracts for ill-experienced FM firms to chance with.

### **5.7.1.5 Real estate**

Real estate development emerged as one of the key drivers of urban development. Real estate development is required to be aligned with investment drive that is underpinned by feasibility studies, market research and environmental impact assessment to achieve sustainable development. Strategic urban planning techniques and processes would be fundamental to provide a controlled growth that could be sustainable in dealing with social, environmental and FM services issues. Real estate development needs to be driven by a demand from a customer base that can be afforded the platform to evaluate between renting and property ownership. The government needs to realise that the cyclical influx of expatriate workforce creates occupancy challenges as the majority of the workforce opts to leave the country at the end of their assignments or projects. If ownership of property in Qatar was not a limiting factor, a greater percentage of the expatriates would consider investing in the country and take up the next job in Qatar in order to protect their investments.

### **5.7.2 Urban development**

Urban development is driven predominantly by the QNV. As an emergent theme urban development must be reinforced by an urban planning process that ensures a sustainable growth pattern. The research shows that the urban growth is triggered by the ambition of Qatar to be an international hub city. However, the urban development emerged to lack a planning and approval process for developments against locations to achieve social, economic and environmental development that empowers the community to drive the sustainability agenda.

The government is best positioned to sanction an establishment of a framework that can be applied to control the approval process of developments. Stakeholders such as Kahramaa, the sole distributor of energy and water in Qatar, should be incorporated into the MMUP in dealing with energy and water connections. The emergent perception that some developments are triggered by the fear of depletion of natural resources and that there is need for an accountability system that can advance the pillars of QVN. The rapid urban development would increase the stock of buildings and other facilities and this presents unsustainable challenges to FM on operational and maintenance regimes.

### 5.7.3 Sustainable development

This research has shown that there is no framework or policy that exists to deal with sustainable development. Sustainable development requires government policy that can deal with instilling a culture change in order to embrace urban development as a social development to fulfil local economic development. The lack of an environmental department that branches its responsibilities to the built environment can be seen to influence unsustainable urban development. Government can establish such a department to work with GORD, QGBC and MEFMA to deal with a variety of environmental, energy consumptions and maintenance issues.

The government is perceived to be content with Qatar being a sustainable development knowledge hirer and not a knowledge base creator such that the knowledge can be passed to the local communities through training and implementation of sustainable development policies. The empowering of the local communities / organisations with sustainable development practices would drive the need for culture change in dealing with energy saving, pollution minimising, carbon emission reduction, use of public transport, environmental cleanness, recycling of waste and other sustainability initiatives.

### 5.7.4 FM challenges

This research has established FM challenges as a central core emanating from the implementation of the QNV and a resultant urban development that is perceived to be unsustainable. The implication of the implementing of a strategic FM involvement at design stage would help in the discussion of occupancy, operational and maintenance strategies at an early stage of the development process. The existing high level demand for FM services has been identified to continue for at least up to 2022 when Qatar hosts the FIFA 2022 Football World Cup. This level of demand will have major implications to FM's strategic planning, performance, positioning and sustainability. FM firms are perceived to be concentrating on coping with the current demand and that the core FM strategic planning, positioning and sustainability become overlooked. Over supply of FM services would result in less competition to drive efficiency and quality.

An additional consequence is that of high specifications of designs for infrastructure and property developments. This would likely result in FM being over stretched on technology and techniques required to cope with the demand. This research identifies

the need for more FM firms and expertise that are required to cope with the technology inherent in the design of the developments.

### 5.8 Research limitations

Michell (2010) believes that a 'validity check' demands that the researcher critically review and evaluate the method and process employed to obtain the data and the analysis thereof. More importantly, in qualitative research carried out under the influence of the environment and medium of social interactions (Miles and Huberman, 1994). The five criteria of assessment provided by Miles and Huberman (1994) are reliability, internal validity, external validity, confirmability and applications are addressed below in relation to this research.

**Reliability/dependability/auditability:** A consistent research process was ensured throughout the interview process by using a similar interview protocol. Miles and Huberman (1994) argue that consistency during a research process is paramount in order for the outcome to be reliable upon and dependable. Reliability of a research method can be achieved if it is used repeatedly and results proving to be the same (McNeil and Chapman, 2005). An aide memoire for the interview was used to ensure a systematic and consistent approach. In order to constantly allow for an in-depth extraction of respondents' perceptions, the aide memoire was accorded the flexibility of allowing emergent issues from the interview to be further discussed. Yin (2009) acknowledges that only few studies go as planned and inevitably minor or major changes may occur in pursuit of new emerging lead information. The researcher ensured that the flexibility in accommodating unexpected lead information was constantly checked against its relevance to the objectives of the research.

The convenience and purposeful sampling of respondents ensured the dependability on the data obtained. The respondents were assured at the start of each interview that a non-interventional interpretivism philosophy would be adopted for the research. This provided an environment in which respondents felt comfortable to provide information or express their perceptions freely. Consistent coding was achieved by always referring to the interview transcripts and any emerging coding was treated in the same way. Therefore the research can be said to remain in the ambit of reliability, dependability and auditability.

**Internal validity/credibility/authenticity:** Authenticity of a study is embedded in the data assessment techniques or processes that provide a degree of credibility and that the findings of the study relate to the underlying principles of the research to both the researcher and the readers of the research report (Miles and Huberman, 1994). The researcher exercised due care and consideration in interpreting the respondents' perceptions and acknowledgements. Lincoln and Guba (1985) believe that only if the results and conclusion make sense can the research be regarded to be credible. The evidence presented in this study and the conclusion drawn, emerged from a detailed analysis of the rapid urban development in Doha, Qatar being triggered by the QNV and the hosting of major sporting events. This has in the past and is expected in future to present unique challenges to FM service providers. As a 'rule of thumb', a qualitative researcher needs to demonstrate that his/her work is credible (Creswell and Miller, 2000). This was done by validating conclusions drawn from interviews, documentary evidence and observations, thereby suggesting that the findings may be seen to be internally valid.

**External validity/transferability/fittingness:** Miles and Huberman (1994) argue that research results are interpreted on the basis of their contribution to the body of knowledge. However, Lincoln and Guba (1985) believe that the results and conclusion of a research must present a generalisation trend if the research is repeated in so far as meeting the research objectives. This single case study presents challenges in generalising the lack of sustainable urban development and FM challenges in future based on respondents' perceptions that may change by the day. Interviews from both clients and construction professionals were used to ensure relevance and replication could be achieved in terms of urban development, sustainable development and FM in Qatar. Transferability could be a challenge due to the flexibility of opinions and perceptions change with changing circumstances or time.

**Objectivity/confirmability:** Qualitative research on the interpretation of the researcher and Miles and Huberman (1994) raised concerns that researchers may input their bias into the research. In this research the inevitability of the subjectivity and bias has been noted. In order to mitigate bias, the researcher adopted the assignment of anonymity codes to respondents at the end of each interview to limit any chances of interview transcripts being identifiable against the interviewees.

**Utilisation/application/action:** The implication of this research to the individual stakeholder groups and the researcher is underpinned by the sustainability challenges presented by rapid urban growth outside the grip of urban planning process, procedure and implementation to have a control on development projects. FM challenges are brought about by the rapid growth that is not matched with the promotion and application of FM input from concept stage throughout the construction process. Action rests with government initiatives on sustainability policies and implementation strategy that holistically aimed at instilling culture change on sustainability and paradigm shift on FM and environmental practices.

### 5.9 Reflective thoughts

In conclusion of the research journey that has been experienced, reflection of the journey and its wider implications and methodological challenges arising from the study are discussed. Firstly, it is important to reflect on the implications and the assertion that the QNV played a central role in triggering developments that impact the urban fabric of Doha and present FM challenges. The researcher challenges the QNV in terms of its lack of support from government policy documentation guidelines that provide the measurement tools to ensure that the vision leads to achieving social, economic, human and environmental development. The implementation of the QNV through but not limited to, sports, real estate, education transport and tourism, all result in urban development. The implementation requires a decentralised approach with each vision under the guidance of relevant appointed different but relevant ministries to tackle the corresponding development needs of the sub-visions. This would require the government to re-evaluate the QNV policy document and re-align visions with ministerial department. It is unlikely that this research has the ability and/or the power to influence change to the present QNV implementation.

A second reflection is that all the sub visions lead to urban growth through infrastructure, retail, residential and institutional development supported by imported high specification designs. These high end developments require corresponding high FM technology and techniques to manage the operational and maintenance of the buildings and facilities. The literature in Chapter 2 argues that FM involvement at the early stages of the construction process helps to mitigate some of the future issues in the field. The research established that there is hardly any FM involvement during the

briefing or design and construction process in Qatar. This presents FM challenges in that FM firm will start familiarising with the designs only at O & Ms and handover stage. Again this study is unlikely to have the capacity to effect change in the planning process. Empirical research is required to provide findings on the effects on FM for buildings or facilities that have had FM input at their early development stages.

A third reflection is on the sustainability after the implementation of the QNV. The sports sub-vision requires legacy measures to be put in place to address sustainability concerns; tourism requires the visitors' numbers to sustain the flow of tourists; education requires the local population to take initiatives to attend institutions of higher learning for the acquisition of a sustainable knowledge base; transport requires a paradigm shift in the 'car culture' and for expatriates and locals to embrace the benefits of public transport on carbon emission reduction; and real estate needs to be supported by developments that are strengthened by demand and supply, feasibility and market research and environmental impact assessment. These aspects require the government to formulate policies that can be employed to ensure the sustainability issues. To this end each aspect may require further investigations to establish the challenges inherent in them as a platform for any policies that can be formulated. For example, a market research study on investment sentiment from potential property ownership in Qatar and the fundamental requirements necessary to provide and instil confidence in prospective property investors.

A fourth reflection is that the literature and research study findings revealed that there is a strong ambition for Doha to become a global hub city, an ambition which seems to go beyond the QNV. This provides impetus to debate on the various elements that need to be met in order to provide a platform for at least indications of the possibility of this ambition to be realised. This ambition must be aligned with the provision of desired international economic business dealings. This requires the government to re-visit or re-evaluate policies governing business establishment and sponsorship regulations to at least show signs of resemblance to business engagements by other countries. Further research is required to establish the fundamental development principles that are not driven by ambition of global recognition alone but social and economic development principles that reduce the heavy reliance on foreign workforce and hire of sustainable development knowledge. For Doha to be a global city, it should be supported by

business diversification, the population, high tourist turnover, leisure and less social restrictions in the country. Any reduction in social restrictions by the government would be seen by many Qataris as an infringement on the local culture and religious principles.

A fifth reflection is the lack of sustainable development policies that can be applied to address sustainability issues which are detached as practiced by individual organisations or government departments. There is a lack of a holistic approach that can be incorporated in the MMUP to deal with planning approvals. The definitions of sustainable development provided in Chapters 1 and 2 and those that emerged in Chapter 4 reveal that there is an underlying professional base that acknowledges that good practices and procedures lead to sustainable development and environmental management. Sustainable development and sustainable FM mirror each other. The consequences of unsustainable development presents challenges for FM. QSAS / GSAS is aimed at providing step in the right direction towards the subjects of sustainable development and sustainable FM although it deals with energy rating guidelines. QSAS / GSAS lack the implementation parameters and there are no pre-requisite sustainable design approval requirements even though the achievement of the energy ratings is a good measure of sustainable FM on energy consumptions.

A sixth reflection is on the research findings is in terms of the implications for the broader research on urban development sustainability that leads to sustainable FM. The substantive theory of FM challenges developed in this study provided the framework and platform for further research on sustainable development policies that can lead to sustainable urban development to ensure mitigated FM challenges. This has also prompted debate on the generally acknowledged low level FM expertise due to the limited number of FM firms in comparison with the demand for FM services. An example of the findings is that the preparation of the FIFA 2022 Football World Cup is incorporating sustainable development and legacy issues but appears to ignore the role FM plays in providing valuable information on occupancy, operations and maintenance regimes. It is suggested that further research work be undertaken in the following areas:

- 1) The research study has developed a substantive theory on FM technology and techniques requirements that are required to cope with FM demand on a variety of facilities or buildings of high level specification or iconicity resulting from rapid

urban development. These would require testing via a series of case studies or that research methods, as long as it would incorporate requirements of FM involvement at the early stage and construction process in the context of Doha, Qatar.

- 2) The substantive theory on FM technology and techniques should be tested in the GCC, Middle East and different countries. The contextual framework of FM technology and techniques is potentially different from other countries and the test will not only provide answers to the argument of whether having FM involvement at the early stages of design is of greater relevance but also whether early involvement remains relevant if technological expertise and techniques are available.
- 3) An interesting finding to this research study was that while the preparation of hosting major sports events was the initially central problem that instilled interest to the researcher, the implementation of QNV emerged with fundamental influence to the core category that developed into identifying the technology gap on FM and techniques that can be enhanced by promoting more FM experts and firm in Qatar.

In conclusion the intention of this study was to establish the awareness of rapid urban development, sustainable development and the consideration of the effects of the preparation of hosting of the major sporting events, in relation to the impact on future FM that can be brought about by the resultant large infrastructure development and growth. The substantive theory on FM technology and techniques in this research study revealed that QNV implementation and direct urban development present FM challenges. The lack of FM involvement during the design or construction process strengthens the position of the likelihood of unique FM challenges as presented in Chapter 1 of this research study. The requirement of a paradigm shift on the urban development process becomes important in so far as the need to achieve sustainable development and for FM to be able to cope with the level of demand. In addition to this research study, the substantive theory portrays a non-interventional and interpretative view problem context and the findings and conclusions remain important in terms of future debate or research on the subject of urban development that is influenced by hosting of major sports events in relation to sustainable development and FM in Qatar or outside its borders.

**APPENDICES**



## Appendix B: Interview Aide Memoire

**Topic:** *Urban development sustainability and its impact on FM; a case of the city of Doha, Qatar,*

### Interview questions

Interviews were conducted to enhance the information that the documentary analysis, observations and photographic evidence for this study provided.

### General

In your own words, how would you describe your position in your organisation? To whom do you report? What is her /his job title?

Please tell me briefly about your primary job responsibilities?

With regards to your organization's structure or organizational chart, where is your role positioned within the organization? Does anyone report to you? If so, what are their job titles?

Is your position a new role within your organization?

Do you know why your organization created your role? If yes, please explain

Does your job description accurately reflect what you do? If not, what would you add or take away?

### QNV 2030

Qatar's National Development Strategy is underpinned by the Qatar National Vision 2030 to advance *Economic, Social, Human and Environmental* Development. On this note I would like us to discuss five sub-visions that Qatar has embarked on to advance the QNV.

1) *Sports vision*: Hosting of major sporting events is part of this sporting vision. How do you think it impacts on urban development, sustainable development and FM?

2) *Education vision*: Developing a complex such as Education City is part of this education vision. How do you think it impacts on urban development, sustainable development and FM? Do you have any examples to support your thoughts?

3) *Transportation vision*: Developing world class transport systems (airport, rail, roads, and seaport) is part of this transportation vision. How do you think it impacts on urban development, sustainable development and FM? Do you have any examples to support your thoughts?

4) *Tourism vision*: Developing and re-vitalization of Arabic architecture and heritage (Souq Waqif, Islamic Museum, Katara Village etc.) is part of this tourism vision. How do you think it impacts on urban development, sustainable development and FM? Do you have any examples to support your thoughts?

5) *Real Estate vision*: Real estate investments and property development is part of this real estate vision. How do you think it impacts on urban development, sustainable development and FM? Do you have any examples to support your thoughts?

### Urban Development

What you think are the key drivers of urban development in Doha and how?

What do you think about the urban development in Qatar from the following perspectives?

Sustainable Development

FM

Do you think the following could be some of the driving factor of rapid urban development in Qatar and how?

- a) Government's ambition on Qatar as a global member and 'hub' city
- b) Urban Planning process
- c) Budget surplus

Do you think expatriate workforce and immigration laws have an impact on urban development? Why and give examples or scenarios?

### **Sustainable Development**

Which of the following are included in your job?

- Sustainability development
- Health or Environmental Safety
- Corporate Social Responsibility
- Economic policies
- Sustainable design
- Life cycle costing
- Sustainable construction
- Sustainable FM

How does your organisation define sustainable development?

Does your organization's leadership team actively support sustainability efforts at your organization? How do they show their support?

What is the level of expertise on sustainable development in your organization and in Qatar in general?

What steps or policies do you have in place to address the sustainability agenda?

At what stage(s) of the construction process do you think the sustainable development agenda should take centre stage?

What are the key sustainability challenges facing your organization today and what do you think will be the key sustainability challenges your organizations will face in 5 years' time?

Do your clients' leadership teams actively support sustainability efforts in their organizations? Can you provide an example of how they show their support?

What are the key sustainability challenges facing your clients today and what do you think will be the key sustainability challenges your clients will face in 5 years' time?

Do you believe that your company's sustainable development performance and sustainable development messages are reaching all stakeholders as effectively as possible?

How well do the formal duties in your job description align with your organization's strategic sustainability priorities?

What successes do you believe have been achieved by you and your organisations to advance the sustainability agenda and?

What criteria do you use to measure achievement of the sustainability agenda? Is it, for example, based on outcomes, results, or benefits?

Can you name any other major sustainable development areas that you believe your company would like to pursue but are unable to do so currently due to a lack of external resources, information, support and/or services available to assist your company?

Do you think sustainable development is well understood in Qatar? Give 3 reasons to support your answer.

What do you think is the level of expertise in sustainable development in Qatar?  
What are the key sustainability challenges facing Qatar today and in 5 years' time?  
Anything you would like to add on the Sustainability issue in Qatar

### **FM**

Is FM relevant to your organisation?

How long have you practiced in the FM field?

How does your organisation define FM?

Which areas does your company provide FM services?

- Qatar
- GCC region
- Middle East
- Africa
- Europe
- Asia and Oceania
- America and Canada
- South America

What is the level of expertise on FM in your organisation?

What do you think is the current relationship between facilities managers and CEOs in your organisation and in general?

How can a facilities manager be recognized as an expert in other areas of FM besides the day-to-day maintenance duties?

At what stage(s) of the construction process do you think FM input is required?

Briefly, list some of the key strategic FM planning approaches your organisation adopts?

Are you familiar with the term 'sustainable FM'? If yes what is your organisation's approach to achieve it?

In your organisation, who is responsible for FM strategic positioning?

What are the key determining factors in achieving high level FM performance?

What is the general trend of vacancy rate in Qatar for the past 3 years for the following?  
Rising, stabilizing or decreasing?

- Residential
- Retail
- Office
- Industrial
- Institutional (schools, hospital etc.)
- Sports and recreation
- Leisure (hotel, conference centre etc.)
- Other

What do you think will be the level of demand for FM services for the next 5 years?

What would be your prediction of the level of demand before and after 2022?

Do you think there is enough competition in providing FM services in Qatar?

What do you think is the current level of FM expertise in Qatar?

Do you think FM organisations are coping with the demand for the provision of FM services? Why?

What are the key FM challenges facing your organization today and what do you think will be the key FM challenges your organizations will face in 5 years' time?

What are the key FM challenges facing your clients today and what do you think will be the key FM challenges your clients will face in 5 years' time?

Can you name any other major FM areas that you believe your company would like to pursue but are unable to do so currently due to a lack of external resources, information, support and/or services available to assist your company?

**Gulf Organisation for Research and Development (GORD), Qatar Sustainability Assessment System (QSAS) or Global Sustainability System Assessment (GSAS)**

Are you familiar with Global Organisation of Research and Development (GORD) in relation to sustainable development?

Are you aware of GSAS / QSAS and how does your organisation take these into consideration?

Do you think GSAS/QSAS captures the fundamental guidelines to achieve sustainable development and sustainable FM?

Do you think GSAS/QSAS restricts designers to express their desire of designing buildings of high level iconicity?

Can GSAS/QSAS be used as a policing tool to facilitate sustainable development?

Do you think achieving the GSAS/QSAS rating translates to achieving green building status and sustainable development?

**Hosting of major events**

From your experience, what are the FM challenges a host country faces after a major world event?

Do you think FM organisations always cope with the demand for the provision of FM services after a country has hosted a major world sporting event?

Do you believe Qatar has learnt any lessons from FM challenges experienced by other countries that hosted major sporting events? How?

Do you think there are plans and procedures in place to deal with these challenges from a sustainability and FM perspective?

**Ending of interview**

Do you know any other individuals in positions similar to yours I should talk to?

Do you have any other information (documentary, photographic evidence) that you would like to share with the researcher?

I have been asking you a lot of questions during this interview and before we finish up I wanted to give you the same chance. Are there any additional questions that you believe to be significant to the agenda that could add valuable information to the research?

We have reached the end of the interview. **Thank you again for your time!**

**Appendix C: Randomly Selected Interview Transcript**

**INTERVIEWEE FMF1**

**INTERVIEWER:** *Thank you for your time to allow this interview to take place. Further to my e-mail and subsequent telephone call explaining the purpose and outline for this interview, I will be asking you to sign the consent form at the end of the interview. Do you need any further clarifications or have you got any other questions before we start?*

**INTERVIEWEE:** No Robert, we can get on with it.

**INTERVIEWER:** *In your own words, how would you describe your position in your organisation? To whom do you report? What is her /his job title?*

**INTERVIEWEE:** I am a Project Director responsible for delivering FM contracts. I report to the Chief Operating Officer.

**INTERVIEWER:** *Please tell me briefly about your primary job responsibilities?*

**INTERVIEWEE:** Well, my job is overall management of engineering, project management and FM teams, primarily to ensure that we deliver our promise and commitment to the clients. I am also responsible for the strategic planning of the business in terms of vision, objectives, performance and clients' relationship building.

**INTERVIEWER:** *With regards to your organization's structure or organizational chart, where is your role positioned within the organization? Does anyone report to you? If so, what are their job titles?*

**INTERVIEWEE:** I would say my position is top management on the structure and I do have the disciplines I mentioned i.e. engineering, project management, commercial, FM, and sustainability arm of the organisation reporting to me. Each department is headed by a senior manager who reports to me.

**INTERVIEWER:** *Is your position a new role within your organization?*

**INTERVIEWEE:** No.

**INTERVIEWER:** *Do you know why your organization created your role? If yes, please explain.*

**INTERVIEWEE:** Yeah, managing and delivering FM contracts in line with clients' requirements and our organisation's objectives

**INTERVIEWER:** *Does your job description accurately reflect what you do? If not, what would you add or take away?*

**INTERVIEWEE:** Yes. I guess so!

**QNV 2030**

**INTERVIEWER:** *Qatar's National Development Strategy is underpinned by the Qatar National Vision 2030 to advance Economic, Social, Human and Environmental Development. On this note I would like us to discuss five sub-visions that Qatar has embarked on to advance the QNV.*

**INTERVIEWEE:** OK. Go ahead.

**INTERVIEWER:** *Hosting of major sporting events is part of the sporting vision. How do you think it impacts on urban development, sustainable development and FM?*

**INTERVIEWEE:** Urban development is already on the rise due to this. More infrastructure development is needed to support the sports ambitions, accommodation, retail, hotels, offices and industries. So...yeah there will be city growth. For sustainability...well, I am told there is a good agenda and policy documentation about sustainable development through sports. It will be interesting to know much about this document and its implementation. The Asian games of 2006 left the sustainability agenda on the edges. There is nothing for me to verify that there will be a success story on sustainable legacy this time around. Q22 program is still in its infancy. There will be even a greater scale of accommodation sites, transport networks and training facilities. These are all required to remain in use after Q22. I think this could actually turn out to be worse than the Asian games with regards to the impact on sustainable development and the environment. Example is Ezdan Village, for your information, was a show case of lack of planning for the future use of the compounds as virtually all the compounds were vacated after the games. And to answer your question on FM, there was no way these facilities would have been managed successfully. You need people to be living in a property for FM to make a difference....simple!" On a positive note for FM, this is anxious times for us as we are anticipating great business opportunities but we are mindful of the potential challenges in managing unique facilities. We have been involved in facility managing sports related portfolio and we are hoping this will provide us with the experience and edge as we anticipate the opportunities that will be created by the building of many of the spots facilities. Another issue we are mindful of is that there will be a lot of issues after Q22. We really expect that that there will be issues with the contracts on scope changes. We will probably be asked to manage the dismantling or the reduction of facilities to suite community's needs. It will be a unique experience I think.

**INTERVIEWER:** *Developing a complex such as Education City is part of this education vision. How do you think it impacts on urban development, sustainable development and FM?*

**INTERVIEWEE:** Education is key to any nation. From an urban development angle, yes, there is going to be even more physical expansion to Doha. We are witnessing a lot of infrastructure development to service the education centre. Demand for accommodation will be on the increase and schools for workers' kids will be in demand

as well. For sustainable development, I believe there will be mind-set change and to do things differently on the areas of energy consumption and environmental awareness. Universities will play a more and more leading role with the sustainability message. FM will be impacted due to more business that will be created. I am sure we will witness FM course being offered at universities. While this creates opportunities for more FM work, the challenges are huge. Some of the facilities are unique...for example Sidra Hospital will have a lot of research labs and operating theatres that are highly specified....I mean the design...and these unique facilities can have high demand for serviceability and energy consumption to operate. Some facilities need 24/7 attendance. Even security is an FM service. You just need top...top FM companies to deal with these issues.

**INTERVIEWER:** *Developing world class transport systems (airport, rail, roads, and seaport) is part of this transportation vision. How do you think it impacts on urban development, sustainable development and FM?*

**INTERVIEWEE:** Like the other visions, this influences infrastructure development and urban development. Access to small towns will also make those areas to receive some form of general developments. People can afford to live outside of Doha and still use transport networks to travel to Doha. In terms of sustainable development, this is not going to ease congestion. The better the roads, the more cars go on the roads. Rail transport will not work due to the weather. You are asking people to walk 10 to 15 minutes in the sun from stations to their place of work. I mean it can't work. For FM, this will bring new FM business opportunities to services mainly the train stations and airports. There will be enormous challenges as these services are unique. There are challenges already on the newly opened Hamad International Airport and new FM partners are required to assist in the smooth running of the facilities.

**INTERVIEWER:** *Developing and re-vitalization of Arabic architecture and heritage (Souq Whaqif, Islamic Museum, Katara Village etc.) is part of this tourism vision. How do you think it impacts on urban development, sustainable development and FM?*

**INTERVIEWEE:** There is not much really on the up about urban development or expansion as a result of just re-building the old and historical areas. I mean the city is not physically getting expanded by that. I don't think this will bring sustainable development. If only these areas of tourism can bring other business that can back it up, then maybe. It appears tourism is not an income generating venture in Qatar as it is in other parts of the world. In terms of FM I can tell you that it is a big challenge for FM to provide valuable services. It is a unique area, with unique materials for either repairing or replacing. FM includes cleaning and polishing of the artistic pieces. If a valuable piece accidentally breaks then it can cause all sorts of problems to replace. It becomes an area where most FM companies do not prefer to get involved.

**INTERVIEWER:** *Real estate investments and property development is part of this real estate vision. How do you think it impacts on urban development, sustainable development and FM?*

**INTERVIEWEE:** Real estate is big business at the moment. Hotels, residential accommodation, office, retail, schools, health and industrial developments are all on the rise. Investors, mainly local, are just building hoping that the facilities will be occupied. I don't think anyone is doing proper feasibility studies or market research to check the

demand and supply. In term of sustainable development, I am not sure if this is sustainable because Qatar has not got the population numbers to take this up and meet the demand. Also on the environment, the developments require energy to keep them operational. There is actually an alarming high use of energy to cool or heat these buildings. Whether you want to take this as an FM challenge...but from a sustainability angle it is a big problem. There is also high waste and someone must really think of designs that account for sustainable issues. Coming back to FM, for us we are very excited with the level of business opportunities and the FM industry will grow and grow in this country. FM is actually challenged to meet the demand. In fact we are worried that some of our competitors could actually end up providing substandard services and that will tarnish the FM image in Qatar as a whole. We are pressing MEFMA to be actively involved in setting the standards in the region and providing a monitoring service.

### **Urban Development**

**INTERVIEWER:** *What you think are the key drivers of urban development in Doha and how?*

**INTERVIEWEE:** I think the major driver is that Qatar wants to be noticed in the region and globally. It could be also that there is the desire by the authorities to diversify and move away from the reliance on oil and gas.

**INTERVIEWER:** *What do you think about the urban development in Qatar from the following perspectives?*

*Sustainable Development  
FM*

**INTERVIEWEE:** I am not sure if the urban development is sustainable. There are more real estate developments based on the concept that foreign visitors or workforce will use the facilities. Foreign population movements may change and many developments will be empty. I know for sure things are starting to get favourable in Dubai and most skilled professionals will leave this country...umm...we are not even talking after Qatar 2022 but now and in the near future...months actually! The lack of policy regulations on sustainable development for construction projects means that there is no control of energy consumptions. QSAS seems to be considered for government projects but not for private developments. For FM, as mentioned before, more business opportunities. This may require more FM firms to cope with the demand and quality. We are already witnessing a lot of FM challenges and there is need to change our techniques. Amongst other challenges there is unique growth in the MEP (Mechanical, Electrification and Plumbing) FM. This is a massive challenge due to conditions here. You don't have to blink an eye with the sort of clients we have.

**INTERVIEWER:** *Do you think the following could be some of the driving factor of rapid urban development in Qatar and how?*

- a) Government's ambition on Qatar as a global member and 'hub' city*
- b) Urban Planning process*
- c) Budget surplus*

**INTERVIEWEE:** The government ambition is what I mentioned earlier and it is a big push. It's like to develop and advanced city in a short period of time while relying on

foreign workforce. I am not really familiar with the planning process but I guess it has to change to control the current rapid development. Budget surplus is needed to achieve the ambitions in terms of investing in the country and even abroad. The problem is that this surplus keeps the cost of energy and fuel very low and does not encourage less consumption of these resources.

**INTERVIEWER:** *Do you think expatriate workforce and immigration laws have an impact on urban development? Why and give examples or scenarios?*

**INTERVIEWEE:** Yes. Accommodation demand is driven by expatriates. Other services that are on demand include health care, schools, transport networks, infrastructure delivery....umm...and retail. If the immigration laws change, the number of expatriates coming to the country is affected and that will affect business and urban development.

### **Sustainable Development**

**INTERVIEWER:** *Which of the following are included in your job?*

- *Sustainability development*
- *Health or Environmental Safety*
- *Corporate Social Responsibility*
- *Economic policies*
- *Sustainable design*
- *Life cycle costing*
- *Sustainable construction*
- *Sustainable FM*

**INTERVIEWEE:** *Sustainable development...*Yes that is part of what we do to help our clients with sustainability issues. *Health or Environmental Safety...*Yes we do this through our process and procedures. *Corporate Social Responsibility ...*Yes, included in my job role. *Economic policies...*Yes, profit making. *Sustainable design...*Yes, when selection of material is required or when given opportunity to get involved at briefing stages. *Life cycle costing...*Yes, same as what I have said in the previous response. *Sustainable construction...*Again as before and new material consideration and regulations. We also look at MEP materials and installation. *Sustainable FM...*Yes we look at the design, type of finishes and energy consumptions levels.

**INTERVIEWER:** *How does your organisation define sustainable development?*

**INTERVIEWEE:** Continuation of delivery of services now and in future from a business point view and self-reliant of communities on both none and renewal resources from generation to generation.

**INTERVIEWER:** *Does your organization's leadership team actively support sustainability efforts at your organization? How do they show their support?*

**INTERVIEWEE:** Yes, as part of the leadership we support sustainable development initiatives. We have an environmental policy and procedure document driven by quality

management systems to deliver our KPIs. We use our intranet and reporting actions cascade information from top to bottom.

**INTERVIEWER:** *What is the level of expertise on sustainable development in your organization and in Qatar in general?*

**INTERVIEWEE:** We have a fairly active team appraised with sustainable development. We have a designated environmental manager dedicated for the sustainability agenda

**INTERVIEWER:** *At what stage(s) of the construction process do you think the sustainable development agenda should take centre stage?*

**INTERVIEWEE:** At concept stage and throughout the construction process. It is pointless or less effective to try to involve it at a particular stage.

**INTERVIEWER:** *What are the key sustainability challenges facing your organization today and what do you think will be the key sustainability challenges your organizations will face in 5 years' time?*

**INTERVIEWEE:** I don't think the challenges of today will be any different to those in 5 years. Everything here happens with a slow pace in this part of the world. Our challenges are to convince the clients to invest in sustainable development, difficulties in reporting sustainable development results or lack of, the volume of changes just puts you off guard and that life cycle costing is not a priority on most developments. In 5 years these challenges will still be there and will be increased with aging building that may need demolishing.

**INTERVIEWER:** *Do your clients' leadership teams actively support sustainability efforts in their organizations? Can you provide an example of how they show their support?*

**INTERVIEWEE:** We experience mixed approaches from our clients regarding sustainable development. Most of them, I must say, do not actively get involved even though we highlight the importance of sustainable development from a day-to-day business operation. Those that do consider sustainability encourage us to talk to them about it in a positive and proactive manner. You can see in them the change in mind-set and cultural perception. They are even willing to invest in sustainable development initiatives.

**INTERVIEWER:** *What are the key sustainability challenges facing your clients today and what do you think will be the key sustainability challenges your clients will face in 5 years' time?*

**INTERVIEWEE:** I think most clients are concerned with sustaining business operations in the volatile medium of high staff turnover due to changing immigration laws. Private clients look at immediate commercial returns rather than sustainable issues. Look here...the public perception on sustainable development is still an issues for both private and public clients and I foresee this to be the case in 5 or so years.

**INTERVIEWER:** *Do you believe that your company's sustainable development performance and sustainable development messages are reaching all stakeholders as effectively as possible?*

**INTERVIEWEE:** Yes, I think so. Actually I think highly effective when we look at the culture change, the quality and feedback we receive from our clients. Our reports show that we meet most of our fundamental KIPs and our new ideas are seem to be received well by our clients.

**INTERVIEWER:** *How well do the formal duties in your job description align with your organization's strategic sustainability priorities?*

**INTERVIEWEE:** Very well. I am involved in the strategic planning of the organisation and therefore I can say my duties are aligned to my job description.

**INTERVIEWER:** *What successes do you believe have been achieved by you and your organisation to advance the sustainability agenda and?*

**INTERVIEWEE:** I would say...ummm...working with the environmental team to produce our sustainable development policy document that we are now using for our clients' benefit. We are also managing to change clients' perceptions especially those in government departments.

**INTERVIEWER:** *What criteria do you use to measure achievement of the sustainability agenda? Is it, for example, based on outcomes, results, or benefits?*

**INTERVIEWEE:** I must admit, sustainable development in this country is still a new concept. We measure our achievement based on outcome...I mean client changing perception and their taking od steps on little things as office space management, energy saving initiatives and even saving printing paper. We also look at the trust we gain through continued business contracts with same clients.

**INTERVIEWER:** *Can you name any other major sustainable development areas that you believe your company would like to pursue but are unable to do so currently due to a lack of external resources, information, support and/or services available to assist your company?*

**INTERVIEWEE:** Not really from a business point but maybe from an environmental point of view. We still lack the influence we would have liked on environmental practices. More so because we view energy saving, reduction in carbon emission and waste recycling and key elements to sustainable development but we lack the budget to go out of the way to raise the necessary awareness to instil the level of culture change we would have liked.

**INTERVIEWER:** *Do you think sustainable development is well understood in Qatar? Give 3 reasons to support your answer.*

**INTERVIEWEE:** No. I don't think so because of lack of initiatives by the government and also the non-existence of sustainable development regulations that can deal with environmental impact assessment results.

**INTERVIEWER:** *What do you think is the level of expertise in sustainable development in Qatar?*

**INTERVIEWEE:** Very low. Few experts are hired for example to deal with Qatar 2022 legacy issues...and yet it should be for all developments.

**INTERVIEWER:** *What are the key sustainability challenges facing Qatar today and in 5 years' time?*

**INTERVIEWEE:** I think maybe the temperatures are big challenge as energy consumptions will always remain high all year round...cooling in summer and surprising warming in winter. The need for water processing means there is always high energy use. Another thing is the need for culture changes by the local population which I can imagine will take many years to be realised.

**INTERVIEWER:** *Anything you would like to add on the Sustainability issue in Qatar?*

**INTERVIEWEE:** No

**FM**

**INTERVIEWER:** *Is FM relevant to your organisation?*

**INTERVIEWEE:** Yes.

**INTERVIEWER:** *How long have you practiced in the FM field?*

**INTERVIEWEE:** 23 years now.

**INTERVIEWER:** *How does your organisation define FM?*

**INTERVIEWEE:** I define FM as the maintaining of facilities at the optimum operational cost effectiveness that can demonstrate value for money to clients from a quality, time and cost perspective...all in line with our business objectives as a company

**INTERVIEWER:** *Which areas does your company provide FM services?*

- *Qatar*
- *GCC region*
- *Middle East*
- *Africa*
- *Europe*
- *Asia and Oceania*
- *America and Canada*
- *South America*

**INTERVIEWEE:** Qatar, GCC region, Middle East, Europe, Asia and Oceania.

**INTERVIEWER:** *What is the level of expertise on FM in your organisation?*

**INTERVIEWEE:** The level of FM in our organisation is high. We have most of the areas covered that include FM managers, engineers, project managers, health and safety guys, security, commercial managers, marketing and environmental and sustainability department.

**INTERVIEWER:** *What do you think is the current relationship between facilities managers and CEOs in your organisation and in general?*

**INTERVIEWEE:** The relationship is open. No barriers. Our FM managers have direct link to the COO.

**INTERVIEWER:** *How can a facilities manager be recognized as an expert in other areas of FM besides the day-to-day maintenance duties?*

**INTERVIEWEE:** Our FM managers are involved in delivering clients KPIs, providing input when business objectives are re-evaluated, being key members of the strategic planning process, solving of operational issues and ensuring business continuity. You see our managers are responsible for actually managing the contracts, including change management control, with the help of the commercial team and engineering teams. They also deal with managing client relationships.

**INTERVIEWER:** *At what stage(s) of the construction process do you think FM input is required?*

**INTERVIEWEE:** I recommend that FM managers be involved at concept stages to provide information of functionality and operational requirements that is necessary to be included in the design. I believe this will reduce a heavy handed FM approach. Our FM managers are involved in delivering clients' KPIs and ensuring business continuity with the same clients. As a FM organisation we are beginning to get involved and engaged somewhere before final completions of construction, especially with some of our government clients. I mean getting our contracts negotiated and agreed for services provision to commence when O&Ms are submitted by the contractors, commissioning stages and even handover check list stages. This is really helping in getting the relevant clarifications from both designers and contractors on issues of functionality of the facilities. Ideally we would like to be involved even earlier in the construction process but most clients do not dream of FM as early as the design stage"

**INTERVIEWER:** *Briefly, list some of the key strategic FM planning approaches your organisation adopts?*

**INTERVIEWEE:** We use such software as CMMS and CAF for our FM planning. Our SMR...I mean strategic management regime... in terms of practical approval is robust and we see this as the best tool to gain confidence from our clients in what we do. It's all about planning you see. Our reporting regime gives us the opportunity to apply corrective measures where KPIs are not being achieved to ensure that we manage to achieve our commitment to the clients.

**INTERVIEWER:** *Are you familiar with the term 'sustainable FM'? If yes what is your organisation's approach to achieve it?*

**INTERVIEWEE:** Yes, it is part of our strategic business model that we look at energy consumption levels and other resource utilisations...water for example. We are environmentally aware of the basic practices necessary and sometimes we actually manage to influence our clients' behaviour on these things. It is about culture change at workplace, homes or even on the premises we could be on places such as parks or beaches.

**INTERVIEWER:** *In your organisation, who is responsible for FM strategic positioning?*

**INTERVIEWEE:** The management team guided by input from all departments including FM managers.

**INTERVIEWER:** *What are the key determining factors in achieving high level FM performance?*

**INTERVIEWEE:** We take audits seriously and meeting all our KPIs gives us indications that our performance are of high level or quality. The ability to carry out corrective measure on our clients' feedback is a good indicator for us.

**INTERVIEWER:** *What is the general trend of vacancy rate in Qatar for the past 3 years for the following? Rising, stabilizing or decreasing?*

- Residential
- Retail
- Office
- Industrial
- Institutional (schools, hospital etc.)
- Sports and recreation
- Leisure (hotel, conference centre etc.)
- Other

**INTERVIEWEE:** Residential, retail, institutional and sports and recreation all have the vacancy rate decreasing. Office and leisure seem to be increasing i.e. high vacancy rate in the Pearl. Industrial is stabilising with zero vacancy rate for some time now.

**INTERVIEWER:** *What do you think will be the level of demand for FM services for the next 5 years? What would be your prediction of the level of demand before and after 2022?*

**INTERVIEWEE:** I think the demand will continue to rise till 2022 and I predict a sharp drop after the Qatar 2022 World Cup event.

**INTERVIEWER:** *Do you think there is enough competition in providing FM services in Qatar?*

**INTERVIEWEE:** I don't think there is enough competition because all the few FM companies are busy. I am not sure about the level playing field though. The general feedback we hear is that the quality of FM is not on the top level and this is caused by unique designs which require technology and modern techniques.

**INTERVIEWER:** *What do you think is the current level of FM expertise in Qatar?*

**INTERVIEWEE:** Fair and improving I guess.

**INTERVIEWER:** *Do you think FM organisations are coping with the demand for the provision of FM services? Why?*

**INTERVIEWEE:** The fact that every FM firm is busy to me tells a story that there is oversupply. Meaning that we are not coping with the demand. The level of quality really seems not to play a competitive advantage and it is a worry. For us we will keep our quality at the top end and ensure that we keep business with our clients.

**INTERVIEWER:** *What are the key FM challenges facing your organization today and what do you think will be the key FM challenges your organizations will face in 5 years' time?*

**INTERVIEWEE:** We face challenges of resources. Not many FM experts are around and we recruit from Europe and Australia. Sometime the top guys come and stay for short period due to a number of reasons...maybe climate, labour laws and social restrictions. We also manage unique facilities and that require the techniques and technology to cope with the requirements. Some clients' perception and expectations are for high quality services for the same value or rates of 3, 4 or 5 years ago. The inflexibility of Contracts gives us a lot of challenges. There are no standard FM contracts especially with government departments. We try to influence negotiated contracts and sometimes it happens...it really depend on case by case.

**INTERVIEWER:** *What are the key FM challenges facing your clients today and what do you think will be the key FM challenges your clients will face in 5 years' time?*

**INTERVIEWEE:** Clients now face resistance from FM firms to contract on old contractual set-up and FM firms now demand flexible contracts. Due to oversupply of FM services, firms now can choose contracts and that is putting pressure on clients to change procurement strategies.

**INTERVIEWER:** *Can you name any other major FM areas that you believe your company would like to pursue but are unable to do so currently due to a lack of external resources, information, support and/or services available to assist your company?*

**INTERVIEWEE:** Not at present

**Gulf Organisation for Research and Development (GORD), Qatar Sustainability Assessment System (QSAS) or Global Sustainability System Assessment (GSAS)**

**INTERVIEWER:** *Are you familiar with Global Organisation of Research and Development (GORD) in relation to sustainable development?*

**INTERVIEWEE:** Yes

**INTERVIEWER:** *Are you aware of GSAS / QSAS and how does your organisation take these into consideration?*

**INTERVIEWEE:** We are aware but it does not aide to any corporate concerns at present.

**INTERVIEWER:** Do you think GSAS/QSAS captures the fundamental guidelines to achieve sustainable development and sustainable FM?

**INTERVIEWEE:** I think the desire is there but implementation is not taking place.

**INTERVIEWER:** *Do you think GSAS/QSAS restricts designers to express their desire of designing buildings of high level iconicity?*

**INTERVIEWEE:** No. I do not have any evidence of it.

**INTERVIEWER:** *Can GSAS/QSAS be used as a policing tool to facilitate sustainable development?*

**INTERVIEWEE:** Yes, as long as it in incorporated in the urban planning system.

**INTERVIEWER:** *Do you think achieving the GSAS/QSAS rating translates to achieving green building status and sustainable development?*

**INTERVIEWEE:** Yes, I think so but that is only for new designs.

### **Hosting of major events**

**INTERVIEWER:** *From your experience, what are the FM challenges a host country faces after a major world event?*

**INTERVIEWEE:** I can only think of legacy issues...uhm...spare capacity...emm...if it is partially occupied then it becomes more challenging. If demolition is preferred, then the legacy issue becomes irrelevant and no value is presented by the facilities to the communities.

**INTERVIEWER:** *Do you think FM organisations always cope with the demand for the provision of FM services after a country has hosted a major world sporting event?*

**INTERVIEWEE:** No. I think the reduction in scope is not always proportionate to clients' expectations of reduced cost. Some scope may entail FM firm to manage the demolition of non-essential facilities thereby deviating from their normal operations

**INTERVIEWER:** *Do you believe Qatar has learnt any lessons from FM challenges experienced by other countries that hosted major sporting events? How?*

**INTERVIEWEE:** I am not sure because they seem to concentrate on legacy and sustainable development without bringing FM.

**INTERVIEWER:** *Do you think there are plans and procedures in place to deal with these challenges from a sustainability and FM perspective?*

**INTERVIEWEE:** Maybe they have learnt from the Asian games in 2006. I am told there are legacy proposals and considerations by the Q22 Team and hopefully that will address the future problems.

### **Ending of interview**

**INTERVIEWER:** *Do you know any other individuals in positions similar to yours I should talk to?*

**INTERVIEWEE:** Yes (name provided)

**INTERVIEWER:** *Do you have any other information (documentary, photographic evidence) that you would like to share with the researcher?*

**INTERVIEWEE:** Umm...have you considered an analogy of Saudi Arabia vs Qatar for culture changes towards urban evolution? That may be helpful. I will arrange to give you some sections of our environmental policy document, it may be of help.

**INTERVIEWER:** *I have been asking you a lot of questions during this interview and before we finish up I wanted to give you the same chance. Are there any additional questions that you believe to be significant to the agenda that could add valuable information to the research?*

**INTERVIEWEE:** No, I hope my answers will be helpful for your research. Good luck!

**INTERVIEWER:** *Thank you for that. We have reached the end of the interview. Thank you again for your time!*

**INTERVIEWEE:** You are welcome!

**Appendix D: Emergent Theme Matrix**

Category	Facilities Management Firms	Government Departments	Construction Professionals	Others
<b>QNV – Sport</b>	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; increase in property portfolio; increase in FM contracts; new technology and techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; increased FM business
<b>QNV – Tourism</b>	Culture integration; increase in building stock; tourist visitors; heritage attraction; advanced FM technology; modern FM techniques;	tourist visitors; heritage attraction; advanced FM technology; modern FM techniques;	tourist visitors; heritage attraction advanced FM technology; modern FM techniques;	tourist visitors; heritage attraction; advanced FM technology; modern FM techniques;
<b>QNV – Education</b>	Research and development; Urban growth (city within city); Increases facilities; High quality design specification; advanced FM technology knowledge; modern FM techniques knowledge; <b>new FM firms required</b> ; increased FM business; Change of perception on sustainable development;	Research and development; Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Research and development; Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Research and development; Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; increased FM business
<b>QNV – Transport</b>	Urban growth; Increases facilities; <b>public use of facilities</b> ; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; increased FM business
<b>QNV – Real Estate</b>	Urban growth; Increase building stock; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business; property management;	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required</b> ; increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; increased FM business

## Appendix D: Emergent Theme Matrix

<b>Urban Development</b>	Urban growth; Increases facilities; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business; sustainable development?	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Urban growth; Increases facilities; High quality design specification; advanced FM technology; modern FM techniques; <b>increased FM business</b>
<b>Sustainable Development</b>	Sustainable urban growth?; sustainable FM?; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Sustainable urban growth?; sustainable FM?; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Sustainable urban growth?; sustainable FM?; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Sustainable urban growth?; advanced FM technology; modern FM techniques; <b>increased FM business</b>
<b>Facilities Management</b>	Increases facilities; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Increases facilities; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Increases facilities; advanced FM technology; modern FM techniques; <b>new FM firms required;</b> increased FM business	Increases facilities; advanced FM technology; modern FM techniques; <b>increased FM business</b>

FM technology,	
FM techniques	
FM business opportunities	
FM companies	
Urban growth	
Increases facilities;	
tourist visitors	
High quality design specification	
Sustainable urban growth	???
Sustainable FM?	???

### Key Notes.

High level analysis shows the emerging requirement of FM technology and techniques most predominant (both ranked 1), followed by the creation of FM business (ranked 3), increased facilities (ranked 4), requirement of more FM companies (ranked 4), urban growth (ranked 4), high quality design specification (ranked 4) and tourist visitors (ranked 8). It overall perception is that the urban development is not sustainable and therefore sustainable FM is a uniquely challenged.

Appendix E: Ethics Clearance

**EBE Faculty: Assessment of Ethics in Research Projects**

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee: submit to Ms Zulpha Geyer ([Zulpha.Geyer@uct.ac.za](mailto:Zulpha.Geyer@uct.ac.za); Chem Eng Building, Ph 021 650 4791). Students must include a copy of the completed form with the thesis when it is submitted for examination.

*This form must only be completed once the most recent revision EBE EIR Handbook has been read.*

Name of Principal Researcher/Student: Robert Chipanga      Department: CEM  
 If a Student: Yes      Degree: MSc. in Property Studies      Supervisor: Assoc. Prof. K A Michell  
 If a Research Contract indicate source of funding/sponsorship: N/A

Research Project Title: *Urban development sustainability and its impact on facilities management: The case of the city of Doha, Qatar.*

**Overview of ethics issues in your research project:**

Question 1: Is there a possibility <u>that your research</u> could cause harm to a <u>third party (i.e. a person not involved in your project)</u> ?	YES	NO
Question 2: Is your research making use of human subjects as sources of data? If your answer is YES, please complete Addendum 2.		NO
Question 3: Does your research involve the participation of or provision of services to communities? If your answer is YES, please complete Addendum 3.		NO
Question 4: If your research is sponsored, is there any potential for conflicts of interest? If your answer is YES, please complete Addendum 4.	YES	NO

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate.

I hereby undertake to carry out my research in such a way that  
 there is no apparent legal objection to the nature or the method of research; and  
 the research will not compromise staff or students or the other responsibilities of the University;  
 the stated objective will be achieved, and the findings will have a high degree of validity;  
 limitations and alternative interpretations will be considered;  
 the findings could be subject to peer review and publicly available; and  
 I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

Signed by:		
Principal Researcher/Student:	Full name and signature	Date
	<i>[Signature]</i>	25/02/2014

This application is approved by:	
Supervisor (if applicable):	<i>[Signature]</i>
HOD (or delegated nominee): Final authority for all assessments with NO to all questions and for all undergraduate research. Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.	25/2/20 60/3/20

## Appendix F: Consent Form

### UNIVERSITY OF CAPE TOWN

#### CONSENT TO PARTICIPATE IN A RESEARCH

Research Topic: ***Urban development sustainability and its impact on FM: The case of the city of Doha, Qatar.***

Dear potential participant;

You are being invited in a research study conducted by Robert Chipanga, a MSc student at the University of Cape Town. The research is supervised by Associate Professor Kathy Michell of the University of Cape Town and the results of the study will be presented to the Department of Construction Economics and Management in fulfilment of the requirements for the degree of Masters of Science in Property Studies in Construction Economics and Management.

If you have any question or concern about the research, please feel free to contact me, Robert Chipanga anytime on +974 6629 8736 or on [rrobchip@gmail.com](mailto:rrobchip@gmail.com). The research supervisor, Associate Professor Kathy Michell, may also be contacted on [Kathy.Michell@uct.ac.za](mailto:Kathy.Michell@uct.ac.za).

#### **Purpose of the study**

There has been a massive construction and infrastructure development boom in Qatar since a decade ago. This construction boom has been fuelled by Qatar's wealth in natural gas and oil resources, the win of the bid to host the FIFA World Cup in 2022 and the country's national development strategy.

The study focuses on the sustainability of this rapid urban growth and the impact imposed on FM and maintenance regimes. The factors underpinning this rapid and unprecedented urban growth and infrastructure development and FM challenges of future maintenance regimes will be considered.

The research will adopt a non-intervention study on sustainability guidelines, policies and processes that are in place to promote the sustainability agenda during the development of property and infrastructure. It will also aim to establish whether these sustainability policies are being considered to alleviate post construction FM challenges.

#### **Procedures**

Your participation in this study is voluntary. If you volunteer to participate in the study, we would consult you to agree a time that would be suitable for a semi-structured face-to-face interview. Semi-structured questions and emerging questions will be asked to aid to data gathered from documentary analysis, observations and photographic evidence for this the study.

#### **Potential benefits to participants**

At your request, the research findings will be shared with you.

**Confidentiality**

Every effort will be made to safeguard all information and ensure that the identity of participant is kept confidential. The information gathered through the interview process will be kept confidential and will be used solely for the purpose of this research. The raw data of the interview will only be revealed to personnel directly related to the supervision and marking of this dissertation.

**Participation and Withdrawal**

You may choose to withdraw from this study at any time of your wish. You may also refuse to answer any question that you do not want to answer.

**Rights of research participants**

You may withdraw your consent at any time and discontinue participation without any penalty. This study has been reviewed and received ethics clearance through the University of Cape Town Research Ethics Board. If you have any question regarding your rights as a research participant, please contact:

Alan Cliff  
Research Ethics Committee Chairperson  
Tel: +27 21 650 5027  
Fax: +27 21 650 5045  
Email: [alan.cliff@uc.ac.za](mailto:alan.cliff@uc.ac.za)

**Signature of Research Participant/Legal Representative**

I have read the information provided for: *Urban development sustainability and its impact on FM: The case of the city of Doha, Qatar*; as described herein. My questions have been answered to my satisfactions, and I agree to participate in this study. I have been given a copy of this form.

\_\_\_\_\_  
Name of Participant (please print)

\_\_\_\_\_  
Company of Participant

\_\_\_\_\_  
Signature of Participant

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**REFERENCES**

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