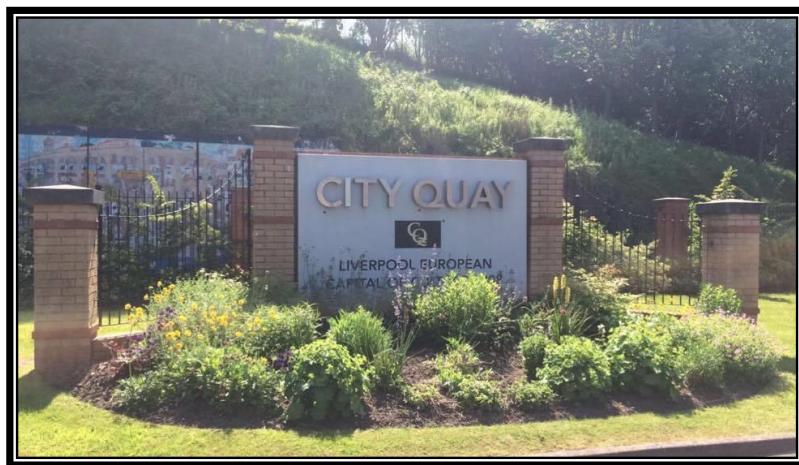




Learning Lessons for Sustainable Futures in Urban Residential Communities: The Case of City Quay, Liverpool.



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ABSTRACT:

In the face of climate change, the consideration of sustainability is of burgeoning importance on a global scale. From multinational environmental agreements down to the neighbourhood level the phenomenon cannot be ignored. This thesis explores the existing site of City Quay, a neighbourhood on Liverpool's water-front, east of the city centre. Previously, there have been numerous failed attempts at approaching sustainability in this urban neighbourhood, which was designed without contemplating the three pillars of sustainability, being environmental, economic and social factors. Making use of professional interviews, and a residential survey amongst a land use and SWOT analysis, this research makes conclusions as to why these past attempts have been limited in their success, closing with recommendations for the future. The professional interviews firstly uncovered that the poor initial design of the site, which never considered how sustainability can be achieved, and secondly, the lack of funds to support improving the site's approach to sustainability have been fundamental in the past failures. Subsequently, creating a vicious circle as to how these issues can be addressed and rectified. The residential survey furthers this through highlighting the lack of social cohesion, and thus, social sustainability across the site, which is only exacerbated through a high turnover rate alongside the controversial change to the board of directors which occurred during this research process. Considering all factors discovered within this thesis, the results conclude that the key factors hindering successful approaches to sustainability at City Quay are the lack of social cohesion, and finance. Without social cohesion, it is questionable whether sustainability can ever be truly achieved in accordance to the central pillars upholding the concept. Furthermore, attaining sustainability on a technological scale cannot be achieved without the funding to rectify poor initial design and a lack of sustainable mechanisms.

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LIST OF ABBREVIATIONS:

CQ: CITY QUAY

DEFRA: DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS

IPCC: INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

LHU: LIVERPOOL HOPE UNIVERSITY

ONS: OFFICE FOR NATIONAL STATISTICS

SWOT: STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS

USP: UNIQUE SELLING POINT

WHO: WORLD HEALTH ORGANISATION

INTRODUCTION:

Climate change is of escalating importance on the international political agenda, especially within urban areas, home to over 50% of the world's population (WHO, 2018). Globally, there is recognition that this problem requires attention through a range of mechanisms at various levels. Specifically, the multinational principle of common concern delegates the responsibility to nations whereby climate change can be addressed on smaller scales, within the UK, this is often conducted at the neighbourhood level through mitigation techniques.

"Global climate change is a profoundly important issue for neighbourhood planning."

Figure 1: Barton et al, 2003:9

Thus, it is evident that the macrocosm and the microcosm of climate change are interdependent (Barton et al, 2003:1), hence the need for sustainable and resilient neighbourhoods (Figure 1). However, the multidimensional nature of sustainability, encompassing environmental, economic, and social considerations as three fundamental concepts, highlights the complexity in addressing this issue, as chapter one will explore.

The following research will be focused on urban sustainability, inclusive to previously failed attempts at City Quay [CQ], a waterfront residence, located east of Liverpool's city centre (Figure 2). The purpose-built neighbourhood is comprised of four-hundred-and-sixteen residential flats, making it the largest apartment complex in Liverpool. Built upon the site of the

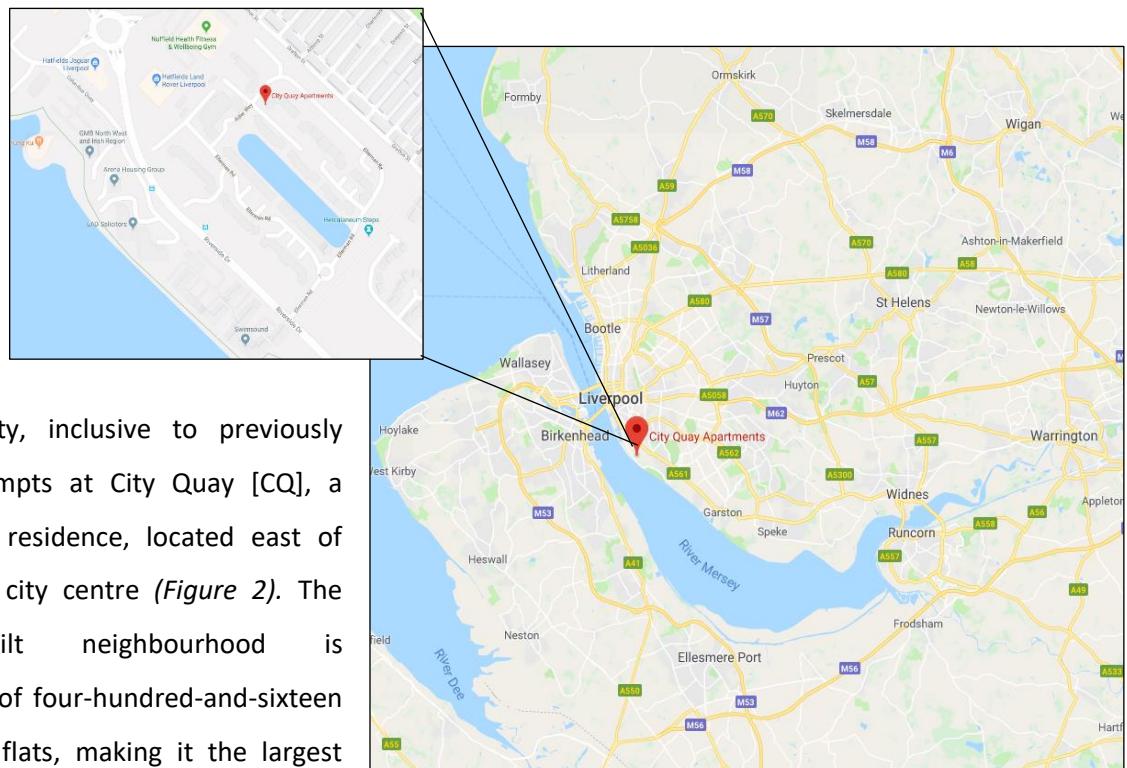


Figure 2: City Quay, Liverpool. Source: Google Maps

historic Herculaneum dock, CQ is centred on a large lake. To the north of the site, lie forty-six casemates, a grade two listed monument, which rely on CQ for their maintenance. A mix of owner-occupier and rental tenants adds another dimension to the complex's unique character.

This research will analyse past implementation failures of sustainability schemes at CQ, which have been suggested by external companies such as BCA, Laguna Science and Farm Urban, all of whom produced reports intended to improve CQ's sustainability. These failed attempts have incurred high financial costs and required a significant amount of time and effort; thus, it is integral to contemplate what caused their failures. This will be done through considering the views of professionals with a situated knowledge of CQ, or Liverpool as the wider area through interviews, and the residents of CQ through an online survey. This will follow on from a similar survey conducted by Liverpool Hope University in 2015 (LHU), allowing for a deliberation as to whether views have changed, with all results discussed in chapter three. Ultimately this will permit for realistic suggestions to be raised as to how these issues previously experienced can be overcome in the future to achieve successful sustainability at CQ. The research objectives for this thesis can be seen in *figure 3*.

-
- 1. To discover why past proposals have been unsuccessful in encouraging sustainability at City Quay.*
 - 2. To understand residential attitudes towards sustainability and encourage more sustainable behaviours in the residential community at City Quay.*
 - 3. To raise realistic suggestions which would enable City Quay to be more sustainable in the future.*
-

Figure 3: Research Aims

In perusing these objectives, CQ will have a greater understanding of how sustainability measures can be delivered within the neighbourhood, and where they have struggled in the past. For many years, the board of directors, which is constructed through voluntary residential participation, have considered sustainability as a central aim for the site. However, during this research process this conservationist board unexpectedly resigned, leaving such issues to a new board, who became less involved within this research. Despite this, research continued allowing a wider understanding of how CQ's sustainable future as an urban neighbourhood can be accomplished.

CHAPTER ONE: - LITERATURE REVIEW:

This chapter will analyse three key themes, firstly, sustainability, which will remain at the forefront of discussion within this research. Secondly, climate change, allowing for a contextualisation of sustainability's significance today. Finally, this chapter will explore how these concepts have influenced policy, with a specific regard to Liverpool, the base for research.

1.1 SUSTAINABILITY:

The first global consciousness of sustainability was brought alight in 1987 within the Brundtland Report which stated, "humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet theirs" (WCED, 1987:8). Since then, this definition has been proliferated across intercontinental boarders, being written into national and international policies, business strategy and more. For this research, sustainability will follow the above definition.

Reinforcing the Brundtland Report, it is imperative to acknowledge that sustainability as a concept is integrative and considers environmental, social, and economic issues as three fundamental dimensions (Hansmann et al, 2012). Collectively known as the three pillars of sustainability, Portney (2015:6) explains that "sustainability is about achieving results related to all three pillars, and achievement in one pillar cannot and should not be accomplished by sacrificing another." Within business, the three pillars are referred to as the 'triple bottom line'. Rogers and Hudson (2011) suggest that within industry, balancing sustainability measures, whilst maintaining operations and remaining profitable, is challenging, due to economic forces and opportunity costs. For small businesses, sustainability may be encouraged through a 'show and tell' technique; whereby as one business regards ecological modernisation, others are inspired to follow suit (North and Nurse, 2014).

Despite the interconnectedness of the three pillars, it is important to comprehend what each of the three fundamental aspects of sustainability represent as singular entities.

1.1A SOCIAL SUSTAINABILITY:

According to literature, sustainable communities are long- term settings which foster cultural integration and participation, whilst supporting growth alongside improvements in quality of life (Yifatchel and Hedgcock, 1993; Polèse and Stren, 2000; Dempsey et al, 2009). Social sustainability mutually considers physical factors together with intangible elements, such as safety, social cohesion, and sustainable urban design (Dempsey et al, 2009), reiterating that social sustainability is not autonomous. In regarding this, Bramley et al (2010) suggest that at neighbourhood level, sustainable

communities consist of five key elements being: interaction; participation; pride; residential stability; and security. This is reinstated by Urban Task Force (1999) in stating that a sense of belonging or ownership is key in the curation of sustainable communities. As aerial elements, we can consider the aforementioned factors to be engrossed within behavioural sustainability, rather than technical sustainability, which concerns design and materials (Williams et al, 2010). Riddell (2004:13) furthers this concept in stating that sustainable behaviours are “socially engineered”, which is reinforced by the notion of “soft infrastructure” by Barton (2003:163). This covers individual’s behaviour, motivation, knowledge, and support in explaining that there must be impetuses for living sustainably, rather than a reliance on technological influence (Barton, 2003). DeYoung (1993) investigates the alteration of people’s behaviours through three methods, being the information technique, the positive motivation technique, and the coercive motivational technique.

Following this, academics have explored the contemplation of whether residents of sustainable neighbourhoods inhabit them for altruistic tendencies or because they are often more cost effective than residing elsewhere (Johar and Razak, 2014; Eagle et al, 2017). This consideration will shape the following research, exploring the impact of residents on achieving sustainability at the neighbourhood level.

1.1B ECONOMIC SUSTAINABILITY:

Economics are a central aspect to sustainability (Jones et al, 2010). Economic sustainability places a greater emphasises on being resource efficient. This is described by Baumangärtner (2009:446) as “non-wastefulness in the allocation of natural goods and services.” Thus, considering the monetary value of resources and their protection.

The Stern Review explicitly states that “ignoring climate change will eventually damage economic growth” (Stern Review, 2007:8). This report covers a diverse range of topics in detailing how climate change will exacerbate numerous issues and how its externalities are unevenly distributed. Consequently, a social implication of the phenomenon is global inequality, especially affecting the world’s most disadvantaged populaces. This underpins the global development debate which reinstates that developed countries have reached their economic position through unrestricted pollution, which is now impacting countries who may not have the same liberal opportunities (Cullet, 2010; Connelly and Smith, 2012). Furthermore, Gupta (2012) explains that there is a paradox to environmental challenges, whereby the most vulnerable societies will be affected if environmental challenges are addressed as well as if they are not. This demonstrates why economic sustainability, which incorporates equality, is integral within climate change and how there is a snowball effect between the three pillars, reinforcing their interrelatedness.

1.1C ENVIRONMENTAL SUSTAINABILITY:

Moreli (2011) considers environmental sustainability to be meeting the needs of current and future generations without compromising the health of ecosystems providing resources and services. Thus, environmental sustainability is often focused within the intricate relationship between humankind and the built environment; especially within the design and construction. This burgeoning contemplation, is of foremost importance within global policy, and is highlighted through the implementation of sustainable building standards, such as BREEAM, utilised in seventy-six countries. This supports Doyle et al (2008) who agree that environmental challenges cannot be solved without international cooperation.

1.1D TWELVE BARRIERS:

A central piece of research, regarding the built environment by Williams and Dair (2007), determined twelve barriers preventing sustainable building in England. In comparing five relatively new sustainable neighbourhoods, barriers were identified as being “commonly” or “infrequently” recorded. The obstacles distinguished cover an assortment of issues including availability of sustainability measure, site conditions and powerless stakeholders (*figure 4*). This will provide a fundamental basis for research at CQ, acting as an aid to the identification of past failures.

What is Stopping Sustainable Building in England?		141
	Barrier to acting sustainably	Incidence of barrier
1	Sustainability measure was not considered by stakeholders	By far the most commonly recorded barrier
2	Sustainability measure was not required by client (includes purchasers, tenants and end users)	Commonly recorded
3	Stakeholder had no power to enforce or require sustainable measure (in some cases it was the responsibility of the client or the contractor)	Commonly recorded
4	One sustainability measure was forgone in order to achieve another (traded)	Commonly recorded
5	Sustainable measure was restricted, or not allowed, by regulators	Commonly recorded
6	The sustainability measure cost too much (in some cases the investor would not fund)	Commonly recorded
7	Site conditions mitigated against the use of a sustainable measure	Commonly recorded
8	Inadequate, untested or unreliable sustainable materials, products or systems (including long term management problems)	Commonly recorded
9	Sustainable measure was not available	Commonly recorded
10	An unsustainable measure was allowed by the regulator or statutory undertaker (so no impetus for a sustainable alternative to be used)	Infrequently recorded
11	Stakeholder was not included, or was included too late, in the development process to implement sustainability measure	Infrequently recorded
12	Stakeholder lacked information, unawareness or expertise to achieve sustainable measure	Infrequently recorded

Table 3. Barriers to achieving sustainability in the case studies

Figure 4: Williams and Dair, 2007: 141 (12 Barriers to Sustainable Building in England)

However, it is crucial to acknowledge that, this research was published in 2007, before the introduction of key national policies, and prior to the globally extensive regard for sustainability. The most commonly recorded issue was “sustainability measure was not considered by stakeholder”, this

may be less appropriate today as there is a substantial regard for protecting the environment within development practices.

Another essential consideration, and an objective of this research, is the role that residents have played in past failures of schemes. Barrier number twelve, “the stakeholder lacked information” will possibly be applicable to CQ as a lack of knowledge may have hindered the progression of previous sustainability schemes. This is also relatable to the work of Hosteler (2012:11) who claims that “some people have become complacent about the way that communities grow and how they look” this may provide a rationale for the absence of proactive information seeking.

1.1E SUSTAINABILITY CONSIDERATIONS:

Asides from the construction of the built environment, there are many other features which sustainability entails explored within this thesis. James et al (2009) define green space to be soft, natural surfaces such as grass and trees. Green space is often considered within urban planning, as research has found that the proportion of green space in living environments has a positive association with resident’s general health (Swanick et al, 2003; Maas et al, 2006). Furthermore, Fuller et al (2007) discovered a positive correlation between species biodiversity and psychological health, thus supporting the case for increasing biodiversity within urban areas. Similarly, Gascon et al (2017) state that, blue space within planning, (the consideration of water) is also on the rise and is, too, now recognised for its mental health benefits, especially on those who live by water, such as CQ’s residents. This consolidates that sustainability is integral to human health and well-being, fostering its importance within planning. Green space may be considered within urban food production, which is considered as being a vital necessity for urbanites (Hopkins, 2000). Hopkins (2000) explains that this can be achieved through the involvement of a community garden whereby individuals feel that they are lacking resources and knowledge to articulate this independently.

It is also crucial to consider home-based sustainable behaviours as well as travel behaviour and car ownership of residents (Williams et al, 2010). Home-based sustainable behaviours include reducing energy consumption, waste, and recycling, amongst more, whilst travel behaviour entails making fewer, and shorter car journeys (Williams et al, 2010). In considering this, in the UK, private car use accounts for around 13% of overall CO₂ emissions (Hogdson and Hopkins, 2010), which demands change through the encouragement of sustainable transport options to facilitate a reduction. Williams et al (2010:190) explain that on the neighbourhood scale, this can be done through “encouraging walking, cycling and private transport use.” Regarding home-based sustainable behaviours, specifically the wicked problem of waste, according to DEFRA (2016), in 2015 household waste in the UK equated to 26,667,000 tonnes. It is crucial to uncover alternatives to methane-producing land fill

sites, such as recycling (Rudlin and Falk, 2009). The UK's recycling rate stood at around 44% in 2015/6 (DEFRA, 2016), providing much scope for improvement. Connelly and Smith (2012) state that recycling can act as a technological fix in making capitalist economies less environmentally damaging. This emphasises the need for domestic behaviours in reducing national levels of waste.

To summarise, it is apparent that sustainability is a multifaceted notion, convoluted by various aspects and subsequent philosophies, inclusive to the importance of the three pillars. Various academia on the topic permits a wider consideration as to what it means to residents, and whether they have a genuine understanding of sustainability; consequently, fulfilling research objectives. Furthermore, academia broadens perspectives on sustainability, what it constitutes and how realistic suggestions can support a greener future for CQ. In order to place the importance for sustainability within neighbourhood planning into context, an exploration of climate change and its subsequent implications is crucial.

1.2 CLIMATE CHANGE:

In the past decade particularly, it has been recognised that "global climate change is a profoundly important issue for neighbourhood planning" (Barton et al, 2003:9) with the coexistence of humankind and the environment being increasingly considered. Climate change brings with it consequential impacts which not only affect the earth's climate and eco-systems, but the everyday patterns of human life (IPCC, 1990; Hardy, 2003). Therefore, it is important to address issues to minimise the imminent effects of anthropocentric activity which could have major impacts on the lifestyles which society have become accustomed to globally. Despite climatic changes being evident in everyday life, there is a reliance on the work of climate scientists (Stehr et al, 2010), hence the necessity of resilient neighbourhood planning in protecting humanity. However scepticism around climate change still exists , with some critics arguing there is not enough evidence to change behaviours which could impact the global economy (Hardy, 2003).

Natural climate change has always existed, however this is now commencing within decades, rather than centuries, as prior. These accelerated effects highlight the vitality in addressing climate change (Ramanthan, 1988), especially as there is now a 95% confidence that humans are the dominant cause of climate change (IPCC, 2014).

Two fundamental philosophies in diminishing the impacts of climate change, discussed within academia and policy are adaptation and mitigation; both of which must be appropriately united in supporting the sustainable development of communities (Laukkonen at Al, 2008). Mitigation, which is often multinational, concerns avoiding the impacts of climate change whilst adaptation, which if often locally focused, concerns managing the impacts. Bulkeley (2013) explains that "cities are now

firml y on the climate change agenda" and that urban environments need to be heavily considered when regarding climate vulnerability and resilience in human settlements. This delivers indication as to why we must address sustainability, particularly within urban environments.

To ensure that necessary actions are taken, adaptation and mitigation are now involved within relevant policy at every level. Consequently, sustainability and climate change are now vanguard on the political agenda, which leads on to an exploration of politics and policy.

1.3 POLITICS/ POLICY ANALYSIS:

"Over the past few decades, cities have been subjected to severe social and economic pressures, which have had a disproportionate impact on the urban environment" (McDonald et al, 2009:49). In the UK, this is inclusive to post-war development, governmental changes and the 2008 economic crash. Today, sustainable development and climate adjustment are being more critically considered than ever before, emphasised by their presence within policy at all levels. Globally, nations are being strongly influenced to focus on the issue of climate change and how to improve their resilience. However, this political influence is continually changing, presenting challenges for local governments (McDonald et al, 2009). As Kresl (2015:1) explains, "sustainability is one of the most pressing matters for urban leaders today" and so, analysing current local policy and its foundations within national policy is imperative in the setting the framework for research.

In 2008, UK government introduced the Climate Change Act, declaring that by 2050, net emissions must be 80% lower than that of the 1990 baseline. In 2012, the National Planning Policy Framework (NPPF), followed this, considering the three pillars of sustainability as roles within policy. The NPPF (2012:3) details that "these roles should not be taken in isolation, because they are mutually dependent", whilst utilising them in "improving the character and quality of an area and the way it functions" (NPPF, 2012:16) This guides the UK in their pursuit of sustainable development, whilst cementing that the three pillars should be balanced within land use and development alike.

1.3A LIVERPOOL'S POLICY:

On a more local scale, sustainability has evidently been premediated within Liverpool. The report of the Mayor of Liverpool's commission on environmental sustainability specifically identifies where and how the city can be made more sustainable. Split into eight sections, the report highlights, again, that environmental sustainability cannot be considered independently. This holistic approach provides clear and concise recommendations for sustainability within Liverpool. The report's structure analyses how the mayor can implement these changes, and subsequent behavioural changes of the population. As Roberts (2004) explains, successful policy implementation must change people's behaviours, and this will only occur when individuals are required to do so by law when there is no personal gain.

The City of Liverpool Climate Change Strategic Framework (2009) recognises that domestic housing contributes 37% of the City's CO₂ emissions annually, realising that significant changes must occur within the domestic property sector, amongst others to see success in the city. This is inclusive to new buildings, which should follow national policies, aiming towards 0% net emissions, and old buildings, which require retrofitting, ensuring energy efficiency and reduction of future emissions, reinforcing the 2008 Climate Change Act. It is important to consider this within the following research and remember that "there is a growing political imperative to build sustainably in England" (Williams and Dair, 2007:135). This report led on to the development of the Liverpool Sustainable Energy Action Plan (SEAP), 2012, which sets targets of reducing the City's emissions by 20% by 2020, at the end of 2017, Liverpool were already close to reaching this. According to a cabinet review of SEAP (2017), if Liverpool continues reducing emissions at its current rate, from 2012 until 2020, they will have fallen by 34%. Liverpool SEAP is currently being rewritten to warrant that Liverpool will make further progress, ensuring the obtainment of future targets. It is central that neighbourhood design supports the fulfilment of such targets. The contribution of Liverpool, alongside others is significant in facilitating the achievement of national targets. It should be remembered that cities emit 80% of global greenhouse gases yet take up just 2% of the Earth's surface (Berg et al, 2004).

The Liverpool Green Infrastructure Strategy Plan (2010) highlights the natural green infrastructure which Liverpool homes and how this can be used to the City's advantage in obtaining sustainability measures. The Liverpool Local Plan (2016) reinforces this, stating that Liverpool has plenty of green infrastructure. The report considers trees to be integral in sustainable development and states that any development within the city should be "based on the principles of sustainable design" (LLP, 2016:238). According to a study by the University of Manchester, "a 10% rise in tree cover in a city could cool urban areas by up to 4oc" (Rudlin and Falk, 2009:187). This is important when considering green space within neighbourhood design, and its associated health and climate benefits.

Liverpool has also taken part in the 'Climate Metropole +' programme along with four other European cities. This programme gathers local councils and national governments together to analyse how climate change and sustainability can be better addressed. Beatley (2012:11) recognises that "Europeans have found similar ways to inspire, encourage and provide positive support for cities perusing sustainability", providing evidence of this togetherness approach. This therefore allows for a wider consideration as how, whilst the UK is still a member, EU targets can be met.

Enforcing such policy ensures that sustainability is realised and considered by law and regulations meaning that it is inexcusable to forego sustainability measures within national and local regimes,

especially within neighbourhood design. This is crucial in ensuring that reductions are made within the domestic sector.

1.0 SUMMARY:

From this literature review, it becomes clear that the concept of sustainability is intricate, and engages with many external aspects, all of which influence how it can be attained within cities. The need for sustainability is clear, to reduce anthropocentric impacts on the climate, thus, we must consider policies which affect the design of neighbourhoods and reducing emissions. Central to this is the consideration that every aspect of human life is globally intertwined. Therefore, local approaches are required to meet national targets, and consequently, international targets. It is critical that neighbourhoods become sustainable to see a global impact. Hence, it is fundamental to analyse why previous attempts have failed to do so at CQ, and how, in the future, they can be rectified. This reinforces the objectives of the following research which aim to consider this, (*figure 3*) and whether this has been impacted by the residents, allowing realistic suggestions to be raised at CQ.

CHAPTER TWO: - METHODOLOGY:

Many stakeholders have been considered within this research. This is inclusive to residents, a range of professionals with strong, and situated knowledge of CQ, and now, ex board members. This data was collected through a range of professional interviews and an online survey for residents, following a similar method to LHU at CQ in 2015.

2.1 SITE ANALYSIS:

Prior to data collection, a land use and SWOT analysis (*figures 5/6*) were conducted on the site. These allow for a greater understanding of the site, as well as enabling a comparative judgment of what various individuals viewed to be a weakness at CQ. Utilising these methods will support a more thorough analysis of results. Both methods were undertaken prior to any change to the board of directors at CQ, and so, accordingly, some alterations may have occurred.

2.2 INTERVIEWS:

In comprehending how CQ has attempted sustainability in the past, and why this has not been as successful as intended, interviews were utilised to “understand how individual people experience and make sense [of the situation]” (Valentine, 2005: 111).

Interviews have been used as a crucial piece of data collection, taking the opinions of those with a located knowledge of CQ, as well as that of others holding a broader knowledge on sustainability and policy across the Liverpool City region. Making use of open-ended yet structured interviews (Patton, 1990), all eleven participants were encouraged to answer a series of pre-determined questions, independent to themselves. However, one question remained constant within the interview process, making use of William and Dair's (2007) twelve conclusive barriers of what is stopping sustainable building in England. This gave a consistency within research, specifically regarding a key objective of the thesis- why have CQ had limited success? Respectively, recommendations can be concluded resulting from the research.

Most of the eleven interviews were conducted face to face, recorded with permission, and then later transcribed. Participants were asked to read an information sheet and then sign a consent form permitting their involvement and use of answers (*see appendix*). With their consent, the information they gave could then be used within data analysis.

Dunn (2016) recognises how a strong rapport with an interviewee can determine the success of an interview, which can be maintained only through verbal communication; hence the importance of face to face interviews. This also allows for a conversational style, which leads to subsequent further

questions that as an interviewer, one may have not prepared for, consequently enhancing research. Furthermore, recordings taken away from these interviews allow for the construction of transcripts, which can help one dissolve any future conflicts from participants. This is particularly relevant when changes unfold, as they did within this thesis.

However, not every interview could be conducted face to face as the majority of contributors are busy professionals with restricted time. As interviews can often be time consuming, some individuals opted their questions via email. As explained by Kitchin and Tate (2013: 48) "face to face meetings have the advantage of personal contact and a higher response rate." Therefore, responses obtained through email are not as thorough as those conducted face to face, as well as lacking the opportunity to ask further questions to progress a person's response and gage more information than anticipated. A particular issue was that e-mail interviewees did not specifically answer the key interview question, with one professional stating that William and Dair's (2007) 12 barriers were "all fair" and another giving no response at all.

Overall, "the interview allows a more thorough examination of experiences, feelings or opinions that closed questions could never hope to capture" (Kitchin & Tate, 2013: 213). Thus, permitting a deeper consideration of topics, excavated via the knowledge which participants acquired previously, subsequently supporting the research process in obtaining as much information as possible.

2.3 SURVEYS:

Following on from former research conducted by LHU; a fourteen question - online survey was constructed to gage the views of CQ's residents, and then distributed through the site's website and Facebook page, (which has now been shut down). Understanding the views of the residents "provided insights into social trends, processes, values, attitudes and interpretations" (McGuirk & O'Neil, 2016:247) regarding sustainable behaviours within the community. Thus, enabling a deeper analysis of how residents may have impacted previous schemes at CQ. The survey aimed to uncover the views of residents and their attitudes towards sustainability; supporting an understanding of whether they have been key in past sustainability failures at CQ. Thus, fulfilling another objective of the research.

Online surveys were used as they are often "fast and efficient to disseminate with results immediately returned" (Peters, 2017:140). In CQ's case, this was the most effective method of surveying residents as each block's doors are controlled by access keys, only available to the residents. As an outsider to a gated community, knocking on resident's doors may have been unnerving to many and aggravated others, subsequently impacting upon results as well as personal safety. Although the LHU research made use of face to face surveying, it should be remembered that this was conducted by a group of

people, thus the work load was easier to distribute, and no significant changes unfolded during their research process.

Another advantage of employing voluntary - online surveys (*See appendix*) is the automatic creation of graphs and charts, which is time effective in the research process. Analysing the data which is already grouped becomes easier than the meticulous process of combining, inputting and analysing data sets. This was emphasised through using closed questions within the survey, which allowed for the responses to be easily coded (McGuirk and O'Neil, 2016).

Unfortunately, after several months, only thirty-two respondents completed the survey, representing just 8% of CQ's population. This could not be increased by surveys conducted on site as access was restricted due to a change in the board of directors. This change in leadership became somewhat impactful not only within the data collection process, but also in the accumulation of ethnographic data; providing this thesis with a greater depth than anticipated.

Overall, both interviews with professionals and surveys from residents, supported a deeper reflection as to why past proposals have been unsuccessful at CQ, and whether residents have played a part in these failures; two of the research objectives for this thesis. Consequently, this holistic approach, will allow for realistic and logical suggestions to be raised as to how CQ can improve this in the future, fulfilling the final research aim. Within the realisation of these aims, gaging views of all stakeholders of CQ was imperative in a complete understanding of the issues encumbering sustainability measures on the site.

LAND USE/ SWOT ANALYSIS:



Figure 5: City Quay Land Use Analysis



Figure 6: Land Use Analysis with Photos

<p>Strengths:</p> <ul style="list-style-type: none"> ▪ The gardens are well maintained. ▪ City bike station outside available for residential use. ▪ Bus stops and train stations right in close proximity to site, this means that it is not necessary for residents to own cars. ▪ There are already signs of sustainable thinking with the orchard, the wildflower meadow and the raised beds. ▪ Lamppost keep the site well light and give a sense of security to the residents as well as the passcode controlled gates. This positively influences social sustainability. ▪ The wildflower meadow is the only urban meadow of its kind in Liverpool has been a remarkable success. ▪ Lots of green space within the site. ▪ There has already been contact made with external businesses who could provide sustainability features. ▪ Consciousness of sustainability from board who are eager to improve sit's current conditions. ** <i>In relation to the now ex-board.</i> 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ▪ Car park potentially too big- this not only takes up space but encourages car use of residents ▪ The bus stop by City Quay only has two busses an hour so limits resident's accessibility. ▪ Poor original design of the lake; this impacts on water quality. ▪ There is no sign post around facilities, so people may be unaware that they are for general use of the residents. ▪ The Orchard may be missed by residents as there is nothing to suggest that they are fruit trees which residents are free to pick from. ▪ Leaks around casemates are limiting the potential that they have, developing these may also be costly. ▪ People are dumping sizable items in the recycling and refuse bays, creating more work for staff and making the site look untidy. This also means that external companies have to be called out, which adds to costs. ▪ Social Media not well responded to and not often used so it is hard to get in contact with residents quickly and cheaply. **<i>(All social media now closed down by new board)</i>
<p>Opportunities:</p> <ul style="list-style-type: none"> ▪ Further improvements could be made to the raised beds and to the orchards to encourage wider use from the residents. This includes the use of signposting. ▪ Casemates have a lot of potential for various uses and may also provide a source of income for City Quay, helping to fund further projects (after the maintenance of them has been funded). ▪ Benches could be placed around the lake to encourage residents to go outside more. ▪ Wildflower meadow could be extended due to success. ▪ The resident's survey conducted by students at Liverpool Hope University suggest that tenants at City Quay are keen on the site becoming more sustainable. 	<p>Threats:</p> <ul style="list-style-type: none"> ▪ Geese in pond are a threat to other wildlife and to toxins in water. ▪ Theft of bee hive means that CQ cannot gain permission for a new one, this was very successful before the theft. This theft may also create hesitance for installing other, expensive systems such as the aquaponics by Farm Urban. ▪ The toxins in the water from the algae impact human health and animal health. ▪ Must be mindful of the service charge which owners are charged, they may react poorly if this is increased after being stable for the past few years. ▪ Lack of finance. ▪ High residential turnover makes it difficult to use data collected from past years. This rate also means that not all residents have the same knowledge of facilities on site. ▪ **<i>New board of directors may not have as much of a regard for sustainability. They have already made some changes which have back tracked on previous sustainability strategies.</i>

Figure 7: City Quay SWOT Analysis

ANALYSIS AND DISCUSSION:

The following analysis will consider the results of the residential survey conducted on CQ as well as eleven professional interviews. The analysis will be split into three key themes: - situational information, residential engagement, and knowledge. In exploring these topics, understanding why CQ has failed to become sustainable in the past should become clear; allowing rational recommendations to be made for the future.

As discussed in chapter two, *figure 5* highlights the current land use of CQ, with specific reference to their existing sustainability features. The SWOT (*figure 7*) allows for a deliberation of where CQ can progress in terms of sustainable behaviours. This analyses how CQ are currently attempting to address sustainability, how this could be improved, and vital factors to consider within this- such as limitations to implementing new features and maintenance of the existing. It should be remembered that this SWOT was conducted prior to the changes in the board of directors; and some considerations may have altered within this.

3.1 SITUATIONAL INFORMATION:

Exploring the positionality of those residing at CQ permits for an insight as to what influences the answers given, and so, is imperative in allowing for a deeper analysis of results. Participants were questioned on how long they have lived at CQ, permitting for an understanding of what prior knowledge they may have of previously conducted schemes.

In accordance to this, *figure 8* demonstrates that out of the thirty-two respondents, 59% had resided at CQ for three years or less. *Figure 9* provides an explanation of the high proportion of tenants residing for 0-3 years, 75% of which have lived at CQ for two years or less.

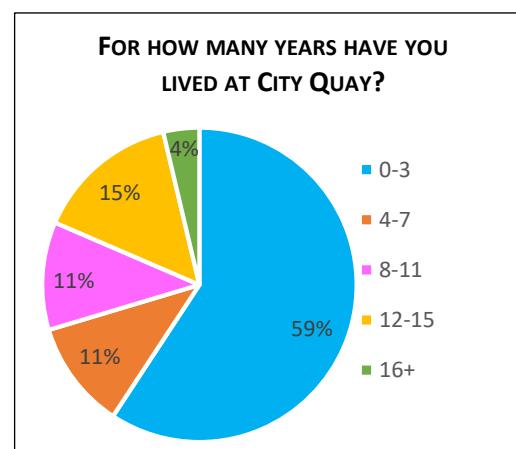


Figure 8: Survey Question 1

"Approximately 60% are renting and 40% are owner occupied... most renters will stay for twelve months to two years and then move on."

Figure 9: Interviewee Quote

This deliberation is key in comparing survey results with that of the LHU Survey (2015), which explored residential attitudes to sustainable behaviours at CQ. The LHU survey provides significance within this research as it may impact upon resident's prior knowledge of previously attempted schemes, through the information technique (DeYoung, 1993). In uncovering that residents had a generally positive attitude regarding sustainability, the high turnover rate could influence a variation in results from LHU's survey as residents have left since 2015.

Another consideration of the high residential turnover is that sustainability is often a long-term commitment; and so, may not be priority to those who do not foresee a future at CQ. This was reinforced by an ex-board member who agreed that this had affected the progress made on previous schemes. Williams et al (2010) agree that this may have an impact in stating that some behaviours, such as social participation, may take time to develop.

Residents were also asked to disclose their age range. The UK government recognises the working age demographic as those aged 16-64 (ONS, 2018). Thus, 94% of respondents embody this demographic. This may present a potential barrier in engaging residents with schemes as they are pre-occupied with their professions.

The high proportion of working population also provides a justification for CQ's high turnover rate. CQ provides an ideal location, close to the city, as a base when starting out in a new career, especially younger people who may have been one of the 70,000 strong student population in Liverpool. This again reiterates the longevity of sustainability, thus, if a resident has no intention of permanent residence at CQ, it is less likely they will be interested (Williams et al, 2010).

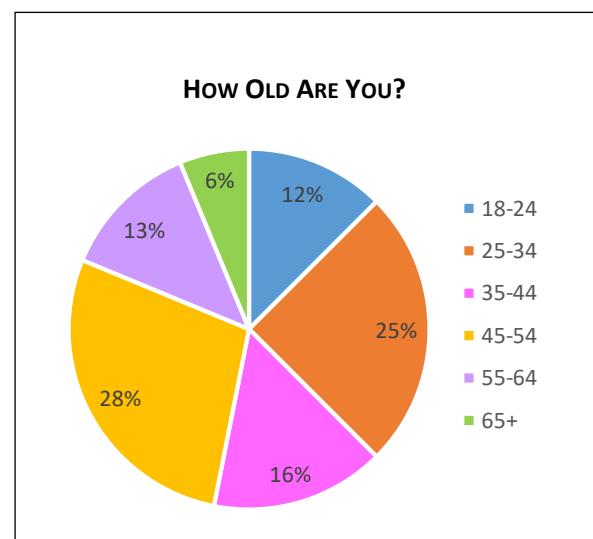


Figure 10: Survey Question 2

It is also important to contemplate that younger generations are generally more tech literate, therefore older people may be under-represented in the survey, with just 19% being aged 55+. Unfortunately, as mentioned in section 2.3, this could not be rectified with the use of paper surveys.

3.1.0 SUMMARY:

In studying these situational results; one can consider how the positionalities of residents may affect their involvement with sustainability schemes at CQ. Furthermore, this is subsequently impactful upon

community participation and resulting social cohesion. This demonstrates how rapid turnover and a high working age demographic's positionality may hinder the site's progression with implementing sustainability.

3.2 RESIDENTIAL ENGAGEMENT:

Moving on, the survey aimed to discover resident's understanding of sustainability, how it is encouraged, and whether they engage in sustainable behaviours.

3.2A URBAN FOOD PRODUCTION:



Figure 11: City Quay Raised Beds

To provide a community growing space where residents could plant, and pick produce at their leisure, CQ installed raised beds (*figure 11*). As explained by Hopkins (2000), any neighbourhood aiming towards being sustainable must consider food production for its residents. Often considered within the design of sustainable neighbourhoods', urban food production provides a logical attempt of sustainability at CQ, considering all three pillars.

Residents were asked whether they make use of the raised beds at CQ (*figure 12*.) Results show that a minority of 27% stated that they do use the facility, whilst 43%

of residents stated that they

were uninterested in this feature. This may be due to the nature of residence; when opting to live in an apartment, residents expected to forego a garden thus, they may have lost interest in growing produce as a result or may not understand the benefits of doing so.

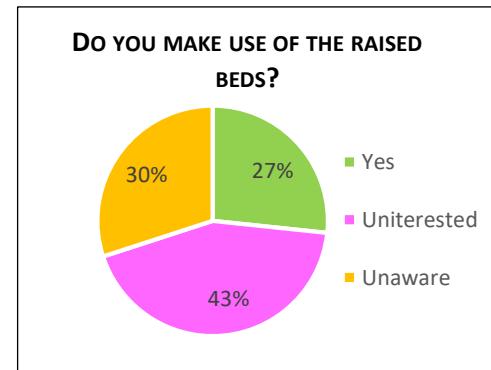


Figure 12: Survey Question 4

However, what proves most interesting is that 30% of residents were completely unaware of this facility. This may be due to several reasons. Firstly, the high residential turnover and working aged demographic at CQ, as earlier discussed. Secondly, may be a lack of interest in CQ's annual reports which detail the works of the board and any changes at CQ each year. If residents fail to read these highly detailed reports, which with busy lifestyles, may not be a priority, they may be unaware of such schemes. Although, in considering this, it should be remembered that 47% of people stated that they had some idea that CQ has been working in becoming more sustainable. This provides evidence that many residents, despite relatively new to the site, are aware that sustainability been on CQ's agenda.

More innocently, this unawareness may be due to the absence of sign posting- an issue raised in the BCA Landscape report (2015) SWOT, and by one interviewee (*figure 13*). Especially being located to the rear of the site, residents based closer to Riverside Drive (*figure 2*) may have no reason to go around to the area where the raised beds are positioned. Installing sign post may ensure that residents understand that this is an open facility, available to all at their leisure. This is reiterated by Young (2011) who explains that ensuring the public support and understand such initiatives is crucial to their overall success.

"It's always good to remind people what they have as a communal resource- landscape and gardening can be a scary area for people who live in a flat and are not used to gardening."

Figure 13: Interviewee Quote on Signposting

As a moderately simplistic and economical approach to sustainability, the raised beds provide only one example of urban food production. It should also be noted that CQ is home to a thirty-six-tree orchard, open to residents (*Figure 5*). Although this does not come without issues, as explained by a past board member (*figure 14*)

"The orchard has problems with its maintenance as we don't have expertise on wild fruit, but they are growing and people do pick from them."

Figure 14: Interviewee Quote on Orchard

Previously, CQ have also approached Farm Urban, A Liverpool- based company who curate innovative urban growing spaces for urban food production. In working together, Farm Urban and CQ raised a suggestion of utilising the casemates to house an aquaponics system, encouraging residents to grow and pick food sustainability. The managing director of the company stated that both parties were happy with the project to go ahead, describing the site as "brilliant" with "huge potential to do something interesting." Also suggested was CQ holding a farmer's market to sell the produce from the aquaponics system, allowing members of the public to join. This would enhance the social sustainability within CQ, not only amongst the gated community as something to meet up and bond over, but for the wider community, allowing a new- found engagement between various people. However, at the time of the proposal, it would have been one of the hardest projects for Farm urban

to conduct and finance, and so, unfortunately, no further progress has been made. This may remain the case, as *figure 15* suggests.

"I'm not sure that the new directors would be as enthusiastic."

Figure 15: Ex-board Member Interviewee Quote

CQ could look elsewhere for inspiration regarding urban food production. Farm Urban have worked with Liverpool's University Technical College (UTC), and the University of Liverpool's Green Guild in creating interesting spaces to engage people with urban planting. The head of the Green Guild praised their aquaponics system, the first to be installed by Farm Urban, as well as highlighting other food producing areas across the university campus. Curating such interesting spaces may intrigue and stimulate the involvement of residents at CQ, which may in turn support their sustainable future. Perhaps more imagination is needed in sustainability strategy, hence past failures at CQ.



Figure 16: UTC Farm Urban Project

3.2B ENERGY MIX:

Moving on to energy, currently, CQ's energy mix is totally reliant on the national grid, with no source of renewable energy. As discussed in the 2008 Climate Change Act and Liverpool SEAP, which one interviewee from Liverpool Council agrees, is the City's most influential policy; it is imperative for cities to reduce their emissions in the face of climate change (Berg et al, 2004; Bulkely, 2013). To facilitate this, CQ, must consider restructuring their energy mix, specifically introducing the use of renewable energies.

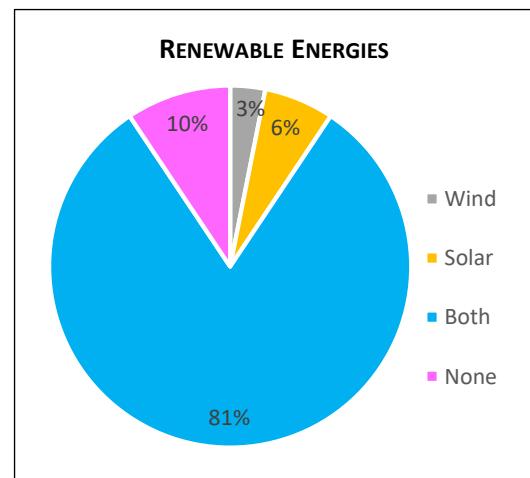


Figure 17: Survey Question 7

Following on from the positivity in the Liverpool Hope survey, residents were questioned whether they would like to see the introduction of wind or solar power at CQ, two of the most common forms of renewable energy. In correlation to said survey, results show that 81% of residents support the use of both wind and solar power at CQ (*figure 17*) Therefore, suggesting that residents understand the benefits of renewable energy. This was discussed with Simple Energy Systems, who have worked with CQ in looking into the potential for this on the site. They explained that this would be viable, however

the main issue to proceed is costs. This appears to be a fundamental barrier with the progression of sustainability schemes at CQ, with 60% of professional interviewees agreeing that within William and Dair's (2007) conclusive barriers, cost is a significant factor at CQ.

Simple energy solutions also explored the possibility of installing an electric car charging point at CQ. As transport is the most rapidly increasing contributor to CO₂ emissions, (Rudlin and Falk, 2009) encouraging urban dwellers to use sustainable transport is again, crucial in reducing emissions. Residents were questioned on whether the installation of such facility would influence their future decision when purchasing a vehicle. There was just a 3% discrepancy between those whose decisions would and would not be influenced (*figure 18*). This may be due to a lack of knowledge on electric cars, as a relatively new concept to domestic consumers, so their decisions may alter in the future.

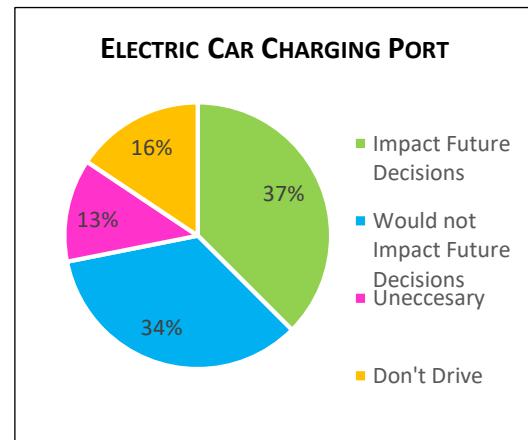


Figure 18: Survey Question 8

3.2C SUSTAINABLE TRANSPORT:

However, CQ are already working to support sustainable transport. As shown by *figure 5*, there are bus stops with links to the City centre outside of the site, and Bruswick station is a ten -minute walk, connecting residents to the Merseyrail Network. Results highlight that 16% of respondents do not drive, suggesting that these transport links are viable. The previous board of directors also secured the installation of a City Bike station outside of the site, encouraging residents to cycle.

Apropos to this, Liverpool's City Bike is managed by Peloton, who operate from a casemate at CQ. As a sustainable business, restoring and upholding bicycles whilst encouraging cycling through the maintenance of the City Bike scheme; economic and environmental sustainability is considered. However, according to the founder, Peloton also supports those who have "struggled in traditional educational systems and/ or those who are in need of rehabilitation." Thus, social sustainability is being supported by the business and by CQ, who have provided a space for business operations. Hence, it is transparent that the triple bottom line of business (Rogers and Hudson, 2011), as mentioned in chapter one, is certainly encountered here.

However, residential sustainability at CQ is somewhat uncertain. High residential turnover, a lack of interest and support, alongside tensions between residents discourages a community feel with the site. However, it is possible to consider social sustainability's physicality (Demspey et al, 2009), which leads on to CQ's blue space...

3.2 D BLUE SPACE/ LAKE:

Blue space and its beneficial health impacts are being considered within planning and development more heavily than before (Gascon et al, 2017). A key feature and USP of CQ is its lake, lying in the base of an old graving dock, a reminder of Liverpool's industrial history. Aligned in the centre of the lake, stand three water features, dispersing water into the air. From this survey, it became apparent that most people enjoy this feature, with 87% agreeing that CQ should be prepared to fund its maintenance (*figure 19*). However, according to the author of the Laguna Science report (2016), due to the poor water quality, this feature is spreading toxins into the air, which could impact on both human and animal health. Said interviewee furthers this in *figure 20*.

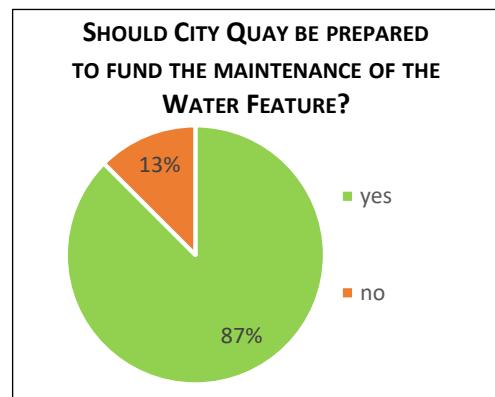


Figure 19: Survey Question 9

"I would say that the fountain system is not very sustainable when there is a cheaper option available in terms of energy cost and probably long- term maintenance costs as well."

Figure 20: Interviewee Quote

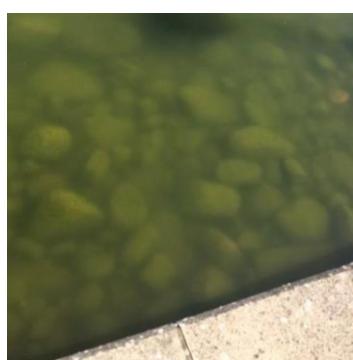


Figure 21: Green Lake

Due to the water in the lake being nutrient rich, it provides an ideal habitat for toxic algae. This algae thrives during the warmer, summer months, giving the lake a green and murky colour (*figure 21*). In the winter, when the algae die, the lake appears to be more blue in colour.

The colour of the lake has often proven an issue at CQ, with conflicts arising from suggestions to facilitate a

healthier lake. The perceptions of this being an issue vary depending on the time of year which the issue is discussed. In accordance to this, residents were questioned as to whether they would like to see a blue, diverse lake at CQ or a green ornamental lake. As shown in *figure 22*, 85% of residents agreed that they would like a blue diverse lake, however it should be considered whether they opted for this because of the colour or the associated biodiversity. Attempts have been made in the past at CQ to facilitate this, through the planting of aquatic flora.

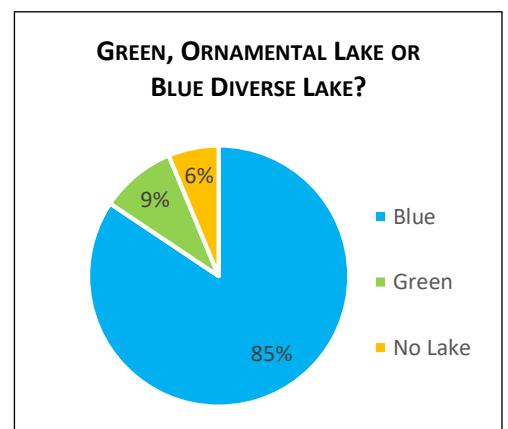


Figure 22: Survey Question 10

One interviewee explained that to achieve clear water in a lake, 50% of the area needs to be covered by plants; which would prevent algal growth and the subsequent green colouring. Facilitating this has been attempted twice previously, the first attempt failed and the second was interrupted by the change in the board, so the outcome is unknown.

Two interviewees who had a vested interest in the lake and its maintenance agreed that, in relation to William and Dair's twelve barriers, the problem lies within the initial design of the lake by the developers (*figure 23*).

"The developers should have designed it properly and then given them [CQ] a lake management manual so that people knew what they needed to perform each year to keep the lake looking good."

Figure 23: Interviewee Quote on Initial Design of Lake

3.2E WILDFLOWER MEADOW:

CQ's wildflower meadow is considered to be a sustainable and dynamic landscape (Rutherford et al, 1994) and is the only of its kind in urban Liverpool. Residents were questioned whether they would like to see this maintained (*figure 24*). Retrospectively, in detailing that this was a unique feature of the City, the diction of this question may have influenced resident's answers; however, may have also educated them on their neighbourhood. 78% of residents agreed that this is a feature they would like to be maintained.

The meadow, running along Riverside Drive, (*figure 5*) has not come without issues. Within the interview process, it was found that residents have claimed to see more rats after its installation and that residents have previously damaged the meadow. Rutherford et al (1994) also consider that often such meadows fail because of a lack of understanding regarding their management. However, the Meadow encourages biodiversity, attracting an array of fauna, as well as inviting residents to spend time outdoors in enjoying the feature, which also supports good health (Swanick et al, 2003; Maas et al, 2006; Fuller, 2007). However, it should be considered that this is a more temporary approach to

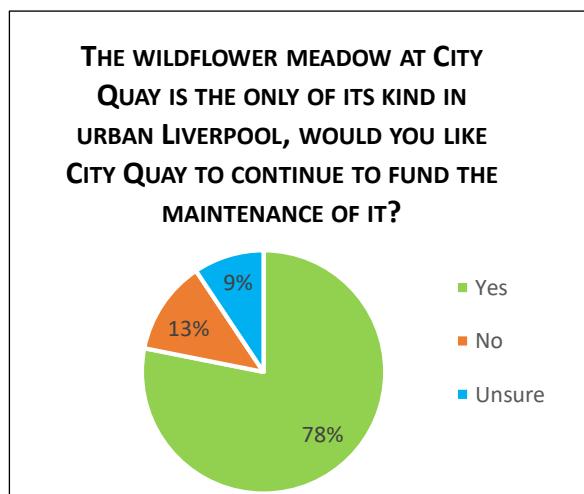


Figure 24: Survey Question 11

sustainability as it last just a few months of the year in bloom. Therefore, it is questionable whether this should be a priority over features lasting throughout the year.

Furthermore, as mentioned in the BCA landscape report (2015) and reinforced by the SWOT there is a lack of outdoor seating around the site. Having natural features such as the wildflower meadow and the lake encourages residents to spend time outdoors, although with a lack of benches, their opportunity to do so may be restricted, especially for the elderly. This is integral to improving sustainability at CQ as there is a strong correlation between time spent outdoors and health, as mentioned in chapter one (Fuller et al, 2007) which ultimately relates to sustainable neighbourhoods.

3.2F RECYCLING:

Waste is a wicked problem for the UK, who, as a nation, produce over 20 million tonnes of domestic waste a year (Rudlin and Falk, 2009:94), with Liverpool having low recycling rates across the City (MRWA 2016). Thus, recycling is a dominant approach to internal sustainability in the home. CQ have addressed this through providing each apartment with a dry recycling bag. However, upon asking whether they make use of this bag, (figure 25), 28% of residents disclosed that they did not own one, with 75% of these people having lived at CQ for three years or less. This provides evidence that upon leaving CQ, people have taken the bag with them or disposed of it; and new residents have not been given a replacement, which could be simply rectified through the board providing this on arrival. This could make significant changes within CQ as 53% of residents at CQ already make use of this feature; suggesting that there is some form of “soft infrastructure” (Barton et al 2003:163) instilled within the residential behaviours.

However, it should be remembered that CQ have had problems in the past with residents dumping large items, such as mattresses, in the waste and refuse areas which then incur a cost to the site for their removal. This suggest that residents have a lack of regard for discussing disposal options for large waste with the board or that they are uninterested in maintaining a pleasant appearance of the complex. Both of these suggestions can relate to a lack of social cohesion across CQ.

3.2.0 SUMMARY:

It is clear that sustainability has been approached in various ways at CQ. However, the issue seems to lie within funding suggested schemes and continuing to maintain implemented features such as the

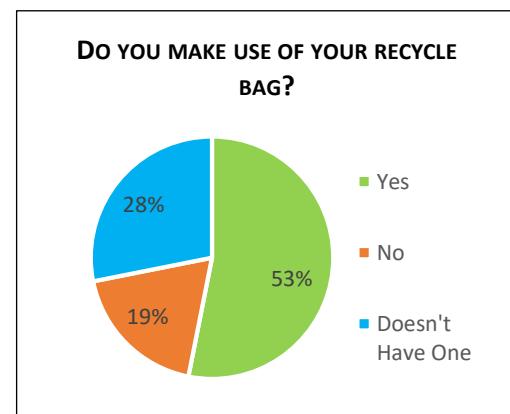


Figure 25: Survey Question 5

recycle bags. There is also a lack of awareness from some residents, the encouragement of proactive behaviours is necessary which would also improve social cohesion.

3.3 KNOWLEDGE:

Within this analysis, it is crucial to consider the knowledge of participants on sustainability in terms of what they understand the concept to define and include within it, and how this can relate to CQ.

Within the residential survey, participants were questioned on whether they were aware of the term 'sustainability' (*figure 26*). Results showed that 78% of respondents considered themselves to have a good understanding with just 3% stating that they were unaware of it. This may be due to the fact that the definition has been proliferated, and is discussed within a global regime frequently.

As discussed in chapter one, sustainability is an expansive concept, including intricate themes within it. Hence, questioning people as to whether they are familiar with the term is broad, and does not allow for a consideration as to what the individual's specific understanding is. Consequently, residents were questioned on whether they would like to learn more about sustainability and what it meant for CQ (*figure 27*). Results show that 75% of participants would like to learn more, despite 52% of this statistic claiming to already have a good understanding. This suggests that residents of CQ are open-minded to sustainability on site, juxtaposing to the past failures.

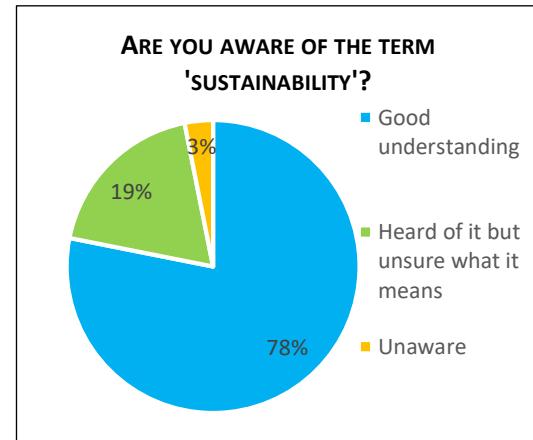


Figure 26: Survey Question 3

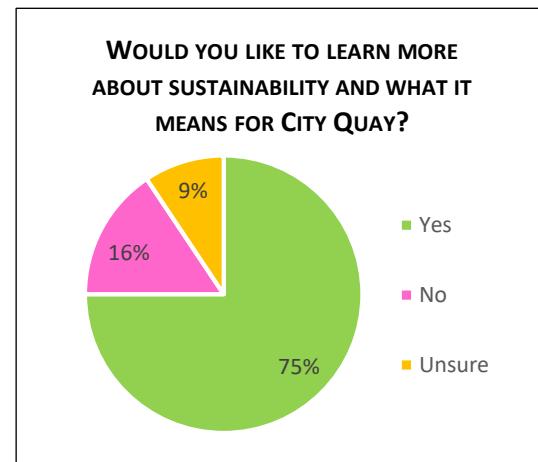


Figure 27: Survey Question 12

3.3A OPINIONS:

Upon completion of the survey, residents were provided with an opportunity to leave comments. Figures 28 and 29 demonstrate a detachment of rental tenants from the themes of responsibility and involvement emphasised within the questions. Respondents highlight that they are not the owners of the property, forming a barrier between themselves and the functioning of the site rather than immersing themselves. This objectivity contrasts the work of Cotgrave and Riley (2013:279) who state that “the contractual relationship between landlord and tenant permits a more tangible approach of the green agenda.” This may not be accurate at CQ due to the management board having control over amendments to the site

“I’m only a tenant so I won’t need to pay for this, my landlord will. What’s it going to do to my rent? If my landlord has to pay more, then I will too and that would make it too expensive to live here.”

Figure 28: Anonymous Resident 1

“As most of the residents are not owners and will not have to fund these schemes, why are you not just asking the owners?”

Figure 29: Anonymous Resident 2

Figure 27 makes an interesting point on how instilling these changes may impact on the rental costs. This relates to the work of Johar and Razak (2009), who suggest that people have a greater concern for their rental expenditures rather than residing in a sustainable neighbourhood. However, this is contradictory of work done by JLL (2008) and Cushman and Wakefield (2007), (Cited in Cotgrave and Riley, 2013) who found that tenants are prepared to pay 1-10% more in rental value when occupying a sustainable building, although with just one resident stating this as their concern, it cannot be taken as definitive (Cotgrave and Riley, 2013:278). However, it is important to remember that in CQ’s case, residents have not been sold a sustainable neighbourhood, and cannot be expected to have a concern for adapting the site accordingly. It is important to consider what the residents demand, and how this can shape what is provided by the site board and manager.

3.3B 12 CONCLUSIVE BARRIERS:

A fundamental basis throughout the interviews c within this research has been the twelve barriers to sustainable building as discussed by Williams and Dair (2007). Remaining the only consistent question throughout the research process, professionals were asked what they deemed to be the greatest of the twelve barriers regarding sustainability at CQ, as discussed in chapter one. It should be noted that one participant failed to answer this question, and another deemed all barriers to be fair, lacking an explicit answer,

as noted in chapter two.

Figure 30

confirms that

barrier six – “the sustainability measure cost

too much” was considered to be the biggest

problem for CQ,

with 60% of

professionals deeming it to be a barrier. This has been an issue for many schemes which have previously been proposed for CQ such as the installation of an aquaponics system and renewable energy technologies. Williams and Dair (2007:142) explained that this is a prominent barrier as “the cost of providing environmentally friendly sustainable buildings and developments is significantly higher than for standard schemes”. This is particularly noteworthy as CQ is self-funded, with a very limited cash flow, a need for ongoing maintenance and requires a contingency fund. Thus, such high expenses, especially with a lack of tenant interest and some uncertainties cannot be justified. Barrier number one – “sustainability measure was not considered by stakeholders” was also considered to be a key issue by 60% of professionals. A theme throughout the interview process appeared to be that the individuals found the initial design of CQ to be poor, which is now affecting progress made on the site; reiterating the importance of technical sustainability (Williams et al, 2010).

It should also be considered that where the response number stands at one, this is not an explicit agreement with the barrier but a general acceptance that all twelve were fair. Thus, critically speaking, no participants felt that barrier four- “one sustainability measure was foregone for another” and barrier nine – “sustainability measure was not available” were overtly significant at CQ. Both barriers

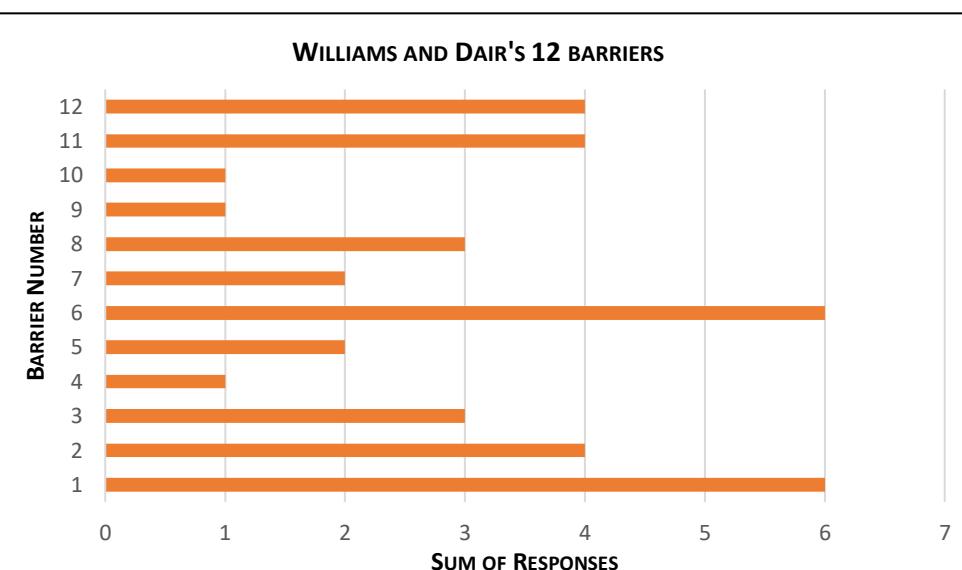


Figure 30: Interviewee responses to William and Dair's (2007) 12 barriers

suggest that sustainability measures are currently in place, and so this may explain why the response rates are low. This contradicts the literature, which states that both barrier four and nine were commonly recorded. In relation to section 1.1d, this research was conducted in an older building where sustainability was not considered whilst Williams and Dair were looking at relatively new neighbourhoods whereby sustainability was interwoven throughout the design process.

Another intriguing contradiction from the literature, is that Williams and Dair (2007) found that barrier number eleven – “stakeholder was not included or was included too late in the development process to implement sustainability measure”, and barrier twelve- “stakeholder lacked information, unawareness or expertise to achieve sustainable measure” were infrequently recorded. When considering CQ, both of these barriers were thought to be significant by 40% of interviewees. This may be dependent upon who is considered as being a stakeholder. The broad term ‘stakeholders’ permits for somewhat of a subjective approach as to who is being considered, an individual may specifically consider the management board whilst another may consider the residents. Consequently, this can result in varying approaches whilst reflecting upon this barrier. However, both barriers eleven and twelve relate to the development process, whilst also introducing a lack of knowledge. The significant agreement with the aforementioned barriers may be relatable to the time of construction for CQ, which began in 2002, as well as the time of Williams and Dair’s research, as suggested in chapter one. The deployment of DeYoung’s (1993) information technique may be required whereby interventions are held informing individuals on the environmental problem that they are exposed to.

In conclusion to the twelve barriers as discussed by Williams and Dair (2007), there are no barriers which interviewees powerfully disagreed with, and all show relevance within research. However, research shows that the most considerable barrier for CQ is the lack of funds and the high costs of implementing sustainability mechanisms on site as well as a lack of thought for sustainability in the development process.

3.3C ETHNOGRAPHIC DATA:

Unexpectedly, during the research process, changes to the board of the directors unfolded. Within interviews it became apparent that those with a vested interest in perusing sustainability at CQ were concerned for whether this would continue in the future (*figure 31*). This suggests that there is a predicament in that the future of CQ being sustainable is dependent on those who are leading the site. Thus, one can ponder whether the entirety of successful sustainability strategy lies within hierarchical power of neighbourhoods.

"Sustainability wasn't one of their main concerns... the new directors immediately did things which are causing damage to the ecosystem."

"I think the new directors are less concerned with environmental change."

"Sustainability will not be a priority."

Figure 31: Collation of interviewee quotes regarding the change in the board of directors

It also became clear through this research process that some individuals feel that CQ lacks social sustainability (*figure 21*). This privation of social cohesion can be related to the change in the board of directors as well as a string of issues in implementing sustainability at CQ, such as a lack of participation and interest. This absence of social unity may also be to blame for the deficiency in survey respondents, which ultimately suggests that the residents of CQ do not prioritised community involvement. This in turn, may be relatable to the high turnover rate and the detachment from ownership by tenants who rent property. If this is the case, according to the criteria set out by Bramely et al (2010), CQ is not socially sustainable, and will not be wholly sustainable until this is rectified.

"I don't think it has much of a social life at all, so can't really be sustainable. We are talking about something that isn't really there."

Figure 32: Interviewee quote on lack of social sustainability

3.3.0 SUMMARY:

Knowledge based questions highlight that residents of CQ understand the concept and the importance of sustainability and are open to improving neighbourhood sustainability. Professionals agree that the greatest issues for CQ are limited funding and a lack of consideration for sustainability within the initial design of the site. It is also obvious that there is a detachment from responsibility and an apparent lack of social cohesion.

CONCLUSION & RECOMMENDATIONS:

Overall, results indicate that respondents of the online survey have no objection to CQ becoming sustainable and would support decisions favouring sustainability. Professionals consider the fundamental issues to be the lack of funding, and the poor initial design of the site, subsequently restricting the facilitation of such features. Although there appears to be an openness to sustainability, there is an absence of proactive behaviours from residents regarding sustainable action. This is crucial in the failure of previous schemes, and effects the progression of strategies which have been formerly proposed.

CQ's sustainable future is uncertain, with ex-board members holding apprehensions that sustainability will be disregarded by the new board. Despite this, earlier efforts of CQ cannot go unnoticed, there is encouragement of sustainable transport; a focus on recycling; and efforts made in urban food production, all of which embrace the three pillars. Evidentially, CQ have attempted sustainability, although generally, success has been limited.

WHY HAVE PAST PROPOSALS BEEN UNSUCCESSFUL IN ENCOURAGING SUSTAINABILITY AT CQ?

It is apparent that there are a number of issues regarding sustainability at CQ. As revealed in the professional interviews, in accordance with Williams and Dair (2007), not only is CQ's poor initial design fundamental in failing sustainability mechanisms; there are financial limitations to implementing sustainability measures on site. This exacerbated a major basis for the failure of previous sustainability suggestions which never escalated, such as that from Farm Urban and Simple Energy Solutions. Poor initial design is especially considered within the lake (Laguna Science Report 2016) and can be linked to the reduced water quality, and subsequent failure of schemes involving planting as suggested by Laguna Science; emphasising the intricate relationship between the built and natural environment. These two fundamental limitations are a vicious circle in that poor design cannot be rectified without funds and funds cannot be generated easily. Thus, one can question whether, without external funding or development investment, whether these issues can ever be overcome to pursue sustainability at CQ.

UNDERSTANDING RESIDENTIAL ATTITUDES:

Another ostensive concern at CQ is the lack of social cohesion limiting sustainability (Dempsey et al, 2009). Although residents have no clear objection to sustainability, there is a lack of proactive behaviour when introducing measures to encourage sustainability; such as the raised beds. This is also evident within the lack of engagement in survey participation and restrictions to site access during

the course of this research. Within literature, it is apparent that without social cohesion and community interaction, holistic sustainability cannot be successfully achieved. However, it should be remembered that this potentially greatly affected by the high turnover rate, as suggested by Bramley et al (2010) and the high number of leasehold tenants on site, who appear to detach themselves from the community, as well as a lack of knowledge on the existing schemes, which are only detailed in the annual reports.

REALISTIC FUTURE SUGGESTIONS:

With these key considerations in mind, alongside issues highlighted within chapter three the following suggestions can be made:

1. Education/ Participation:- Sign posting sustainability features, such as the orchard and raised beds will ensure that all residents are aware of the openness of the features and where they are located. This will engage residents with features and encourage interaction within the community.
2. Direct marketing to the community around the site informing residents on site activity. This could be used to promote community days or ‘garden parties’ which can educate residents on sustainability features and stimulate involvement with schemes .
3. Adding benches to the outdoor area will encourage residents to enjoy the site and stimulate interaction as well as improving residential health (Swanick et al, 2003; Maas et al, 2006) and awareness of outdoor features.
4. Funding: - Sourcing alternative methods of financing sustainability mechanisms, at no, or a lower cost than self-funding features could enable a sustainable future for CQ. This would support technological sustainability at a low cost. Funding may also be achieved through improving the quality of the casemates; subsequently increasing rental opportunity, which in the long term would generate income greater than their maintenance costs.
5. Waste: - All new residents should be given a dry recycling bag upon arrival, alongside a leaflet explaining the importance of recycling and how to use the bag deploying DeYoung’s (1993) information technique. This will support home- based sustainability and prevent the dumping of large materials in the recycle and refuse areas, which should also have an information board ensuring that residents are disposing of waste correctly. In following this, the aesthetic of the site may be improved, providing residents with a sense of pride, thus supporting social cohesion (Bramley at al 2010).

These suggestions would promote sustainability features outside of CQ's annual reports and encourage residents to engage easily with sustainable behaviours whilst informing them on the approaches and their importance. The suggested methods also are of a low cost, which makes them achievable for CQ, who do not have a high disposable income.

In conclusion, CQ has failed to become sustainable through a mix of technological and social issues. Therefore, CQ should pursue strategies to resolve site issues to facilitate a sustainable future; crucial to reducing anthropocentric effects on the planet. One of the most unexpected yet obvious contemplations within this thesis is the significant impact social cohesion has on the fulfilment of sustainability criteria, which in CQ's case requires a considerable amount of work. Further research on may consider the integrity of social cohesion in sustainability; to what extent neighbourhood hierarchy influence sustainable behaviours or the financial exclusivity of sustainability.

APPENDICES

*ALL CONTACT INFORMATION REMOVED FOR ANONYMITY

**ALL INTERVIEW TRANSCRIPTS AVAILABLE UPON REQUEST

Appendix 1: Participant Information Sheet

"Learning Lessons for Sustainable Futures in Urban Residential Communities: The Case of City Quay, Liverpool."

Participant Information Sheet

You are invited to participate in a research study which looks at making City Quay more sustainable in the future. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask me if you would like more information or if there is anything that you do not understand. I would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

1. *What is the purpose of this study?*

This is an undergraduate dissertation project. Working with City Quay; the project aims to discover why past proposals regarding sustainability have not been successful at City Quay, to understand whether the resident's attitudes impact this and to raise realistic suggestions for the future.

2. *Why have I been Chosen to take part?*

Chosen participants have a strong and situated knowledge of City Quay, and often, past suggestions which have been raised. This will allow for a deeper consideration as to what has gone wrong and why.

3. *Do I have to take Part?*

Participation is voluntary and you are free to withdraw at any time, without explanation and without incurring disadvantage.

4. *What will happen if I take part?*

- ✓ Interviews are a vital part of my research in understanding why past suggestions have not been implemented successfully.
- ✓ Sophie Doyle will be the sole researcher on this project.
- ✓ I hope to conduct one interview per participant which will be used within my data collection, the permitted voice recordings will be discarded after 12 months.
- ✓ With your permission, anything that is stated during this interview will be used as quotes within my project write up.

5. *Are there any risks in taking part?*

I do not envisage any risks in taking part with this research.

6. *What if I am unhappy or there is a problem?*

If this is the case; please let me know via contacting me or my Supervisor. Contact details below.

7. *Will my participation be kept confidential?*

With permission, name and job role will be used within the project. This information may be used anonymously if preferred.

8. *Will my taking part be covered by an insurance scheme?*

Participants taking part in a University of Liverpool ethically approved study will have cover.

9. *What will happen if I want to stop taking part?*

You can withdraw at any time, without explanation.

10. *Who can I contact if I have further questions?*

Please see the bottom of this page for the contact details of myself, and my supervisor.*



Appendix 2: Participant Consent Form

PARTICIPANT CONSENT FORM

"Learning Lessons for Sustainable Futures in Urban Residential Communities: The Case of City Quay, Liverpool."

Researcher: 201073358

1. I understand the purpose of the study and have had opportunity to consider my contribution and ask questions before beginning.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without any given reason, without my rights being affected.
3. I understand that under the data protection act, I can at any time ask for access to the information that I have provided and request the destruction of said information.
4. I agree for this interview to be voice recorded and destroyed 12 months after.
5. I agree for quotes to be used within the write up of this study. (This can be with participant names or anonymously to their own discretion.)
6. I agree to take part in the study.

Participant Name

Date

Signature

Appendix 3: Residential Survey Questions

2/8/2018

City Quay Residential Survey

City Quay Residential Survey

Thank you for taking part in this voluntary survey. Your contribution will go towards research for my Geography dissertation at the University of Liverpool and towards future changes at City Quay.

1. 1. For how long have you lived at City Quay?

2. 2. How old are you?

Mark only one oval.

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

3. 3. Are you aware of the term 'sustainability'?

Mark only one oval.

- Yes, and I have a good understanding of the term
- Yes, I have heard of it, but I am unsure as to what it means
- No, I am unaware of this term

4. 4. Do you use the raised beds at City Quay to grow or pick produce for yourself?

Mark only one oval.

- Yes
- No, this facility does not interest me
- No, I was unaware of this facility

5. 5. Do you make use of your blue recycling bag?

Mark only one oval.

- Yes
- No
- I do not have one (see question 14 to get your free bag delivered to your apartment)

6. 6. Are you aware that City Quay has been working on becoming more sustainable, including research into renewable energy?

Mark only one oval.

- Yes, I keep up to date with all the schemes City Quay look into
- I am aware of some schemes but not all
- No, I did not know City Quay want to become more sustainable

7. 7. Would you like to see wind or solar power being used at City Quay?*Mark only one oval.*

- Yes, both
- Wind
- Solar
- None
- I do not know what wind or solar power are

8. 8. Should City Quay have an accessible electric car charging port for residents; and if so, would this impact the decision whether you purchased an electric car in the future?*Mark only one oval.*

- Yes, but this would not impact my future decision
- Yes, and this would impact my future decision
- Yes, but i do not drive
- No, i do not think that this is necessary

9. 9. Do you think that City Quay should be prepared to fund the maintenance of the water feature? (this would also help to enhance biodiversity)*Mark only one oval.*

- Yes
- No

10. 10. Would you rather have an ornamental lake with green water, or a lake which has blue water and encourages biodiversity?*Mark only one oval.*

- Green, Ornamental Lake
- Blue, Diverse Lake
- No lake at all

11. 11. The wildflower meadow at City Quay is the only of its kind in urban Liverpool, would you like City Quay to continue to fund the maintenance of it?*Mark only one oval.*

- Yes
- No
- Unsure

12. 12. Would you like to learn more about sustainability and what it means for City Quay?*Mark only one oval.*

- Yes
- No
- Unsure

13. 13. If any, what social media do you use?*Tick all that apply.*

- Facebook
- Twitter
- Instagram
- None
- Other

14. 14. Do you have any other comments? If you need a free recycling bag delivered to your home, please leave your apartment number

Thank you for your contribution.

For the purpose of this study, the term sustainability will be:

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Our common Future: 1987.) This regards social, environmental and economic pillars of sustainability

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 Google Forms

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SKILLS SUMMARY:

SKILLS	How used/enhanced during dissertation
1. SUBJECT-SPECIFIC KNOWLEDGE	Utilising knowledge acquired from previous studies as a basis for work. This has been enhanced through in depth and specific reading around sustainability and its context for neighbourhoods.
2. SUBJECT-SPECIFIC SKILLS	These have allowed me to understand readings, taking into consideration what is viable and what is not. Technical language has aided my understanding and thesis. Subject specific skills also allowed me to make use of a land use map and SWOT analysis applicable to City Quay.
3. GENERAL SKILLS AND ATTRIBUTES	Communication skills have been enhanced through my research in discussing topics with a vast array of people. My commercial awareness, organisational skills and time management skills have also been enhanced through planning research and writing times.
a) SELF-MANAGEMENT	Managed time to ensure that all data was collected with time for thorough analysis and subsequent discussion to ensure the project was submitted on time.
b) POSITIVE ATTITUDE	Maintaining a positive attitude throughout has allowed me to overcome issues within my dissertation and use what could have been seen as a limitation to my advantage. This also allowed me to build a good rapport with interviewees.
c) PROBLEM SOLVING	This research has been based on problem solving in identifying issues and curating approaches to overcome them. Problem solving was also utilised within data collection and ethnographic issues.
d) TEAMWORKING	I have worked as part of a team with City Quay when the site was accessible to provide suggestions for future improvements.
e) COMMUNICATION AND LITERACY	Communication was essential to ensure that research data was collected. This was then reinforced through the write up of this project. Literacy has remained key through this, ensuring that I use written communication effectively.
f) APPLICATION OF NUMERACY	Survey answers have been calculated as percentages and displayed on graphs.
g) APPLICATION OF INFORMATION TECHNOLOGY	All of the data collected and written up for this project has been done so through computers/ mobile phones.
h) BUSINESS AND CUSTOMER AWARENESS	Gained a deeper understanding as to how to hold myself in a professional environment and how to write in a manner that is impartial.
i) ENTREPRENEURSHIP/ ENTERPRISE	Forming suggestions displays a sense of enterprise.