Developing an Indicator Base Study for Social Sustainability: The Case of Walled City of Famagusta

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ABSTRACT

Despite of many investigations about environmental and economical sustainability, the social sustainability is largely neglected in different studies. In addition, the Walled City which is located in Famagusta, North-Cyprus has not witnessed serious social sustainability studies.

In line with the aim of this study to bring back livability of the Walled City, this research has carried out social sustainability as a tool for proposing new ways of bringing. For this reason, after reviewing of varies resources, it has extracted common social suitability criteria's. Unlike the vastly magnitude of social sustainability criteria's, it has selected only three social sustainability criteria which are mostly common to various studies. Social equity, social interaction, and sense of place criteria are the common criteria selected. To empirical results, the findings of the common criteria have been examined in the case of study.

Likewise, it applies quantitative and qualitative methods to make analysis and measure social sustainability. In addition, it has focused on the Walled City of Famagusta that contains nine different zones. In order to observe social sustainability in the Walled City, it has selected only three streets that are located in different zones. Therefore, the street one located in zone one & four, street two located in zone four & six and street three located in zone three are the case study streets.

The results indicate that among the three case studies, street two has not success in enhancing social sustainability for bringing livability back to the Walled City in line with the main objective. Nevertheless, the overall results demonstrate that the social

equity, social interaction and sense of place criteria have approximately positive impact on enhancement of social sustainability that can help bringing back livability to the Walled City.

Keywords: Social Sustainability, Walled City, Famagusta, North Cyprus

ÖZ

Çevresel ve ekonomik sürdürülebilirlik konusunda yapılan araştırmalara rağmen, sosyal sürdürülebilirlik farklı çalışmalarda çoğunlukla dile getirilmeyip, arta kalan taraf olmuştur. Buna ek olarak, Kuzey Kıbrıs Gazi Mağusa'da Suriçi Bölgesi de ciddi bir sosyal sürdürülebilirlik problemine mağruz kalmıştır.

Bu araştırma, Suriçi Bölgesi'nin canlılığını geri getirmek amacı ile yapılmış ve sosyal sürdülebilirlik yöntemleri kullanarak ortaya çıkarılacak yeni önerileri kapsamaktadır. Bu nedenle, farklı çalışmaların yeniden incelenmesinden sonra sosyal sürdürülebilirlik hakkında ortak kriterler ortaya çıkarılmıştır. Sosyal sürdürülebilirliliğin geniş olup birbirinden farklılaşmış olan kriterlerinden dolayı daha önce yapılan çalışmalarda ortak bir şekilde öne çıkan sadece üç sosyal sürdürülebilirlik kriteri ele alınacak. Bunlar; sosyal eşitlik, sosyal etkileşim ve yerduyum kriterleri olup, gözleme dayalı sonuçları bulmak için bu kriterler doğrultusunda seçilen çalışma alanı incelenmiştir.

Ayni şekilde nicel ve nitel araştırma yöntemleri kullanılarak, analiz yapımı ve sosyal sürdürülebilirlik ölçümünde kullanılmıştır. Ek olarak, Gazimağusa Suriçi'ndeki dokuz farklı bölge ele alınmıştır. Suriçi'ndeki sosyal sürdürülebilirliliği inceleyebilmek için farklı bölgelerde yerleştirilmiş olan 3 sokak ele alınmıştır. Bu nedenle, birinci ve dördüncü bölgede bulanan birinci sokak, dördüncü ve altıncı bölgede bulunan ikinci sokak ve üçüncü bölgede bulunan üçüncü sokak incelenecektir.

Üç sokak üzerinde yapılan çalışmalardan çıkan sonuçlar şunu göstermektedir; ana objektif doğrultusunda ikinci sokak sosyal sürdürülebilirlilik gelişimini başaramamıyıp Suriçi'ne canlılığı geri getiremedi. Bununla beraber, bütün sonuçlar göstermektedir ki; sosyal eşitlik, sosyal etkileşim ve yerduyum kriterleri sosyal sürdürülebilirliliğin gelişimi üzerinde pozitif bir etkisi vardır ve bu özelliği Suriçi'nin canlılığını geri getirmekte yardımcı olabilir.

Anahtar Kelimeler: Sosyal Sürdürülebilirlilik, Suriçi, Gazimağusa, Kuzey Kıbrıs

To My Family

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Chapter 1

INTRODUCTION

1.1 Introduction

Current technological development has led to a drastic change in how people interact and behave, which cuts across all ramifications of human life. Besides, its effects have reflected itself in all of the factors of sustainability, which includes social, environmental and economical sustainability. As a result, it has necessitated the need to create a balance between these three dimensions of sustainability (social, environmental and economical).

The concept of sustainable development introduced in 1980 which Sustainable development as a "concept developed alongside acute awareness that the ecological destruction and the 1980s 'retreat from social concerns' – manifested as poverty, deprivation and urban dereliction that blight many parts of the world – are untenable "(Carley and Kirk, 1998, WCED, 1987).

There are three basic components of sustainability, which are can be labeled as environmental, social and economic sustainability. The success of any society in achieving sustainable development is dependent on how they are able to synchronize and balance these three components. Because of the interaction between these components societies are not only concerned about their economic growth to the

detriment of their environment. They should be able to see economic growth also from the environmental perspective as well as the social dimension will help societies preserve the environment for the next generations. Furthermore, an environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems and prevention of depleting non renewable resources. An economically sustainable system must be able to produce continuous goods and services in manageable levels.

A socially sustainable system particular in social equity, with regards to resources, there must be fair in distribution and opportunity and social services health, education, gender equity, democracy and participation (McKenzie, 2004). Accessibility in social equity is very important. In attaining social equity, accessibility to the following is not negotiable: education, health, public transportation and housing - recreation facilities in this order. There are several ongoing discussions about the objectives of social sustainability, which is one of the pillars of sustainability and sustainable development. Chiu (2003) stated that the objective of social sustainability is "maintenance and improvement of the well-being of current and future generations". However, Littig and Griessler (2005) indicated that satisfaction of human basic needs is the main objective of social sustainability. From another perspective, Davidson and Wilson (2003) implied that the aim of social sustainability might cover culture, re-production and well being of humanity rather than confining itself to just the satisfy of human needs.

Chiu (2003) extended the discussion about social sustainability and opened a broad range of social sustainability perspectives. He described three different social sustainability perspectives as follow: The *development-oriented perspective* this

refers to a kind of required development of social sustainability, which contains social relationships, customs, and values.

In the second *environment-oriented perspective*, social sustainability required could be carried out when it satisfies the conditions of social, norms and preferences, which should take certain environmentally sustainable course of actions in terms of equality and resource distribution for the people. In the last and final *people-oriented perspective*, this is majorly concerned with certain required development discussions centered on maintaining social cohesion and inclusion.

Furthermore, from urban perspective, it is possible to define social dimension of sustainable development predominantly in physical and non-physical segments. The following Table 1 clarifies exactly what the included factors should be in each segment.

Table 1. Urban Social Sustainability

Non-physical factors	Predominantly physical factors
• Education and training • Social justice: inter- and intra-generational • Participation and local democracy • Health, quality of life and well-being • Social inclusion (and eradication of social exclusion) • Social capital • Community • Safety • Mixed tenure • Fair distribution of income • Social order • Social cohesion • Community cohesion (i.e. cohesion between and among different groups) • Social networks • Social interaction • Sense of community and belonging • Employment • Residential stability (vs turnover) • Active community organizations • Cultural traditions	• Urbanity • Attractive public realm • Decent housing • Local environmental quality and amenity • Accessibility (e.g. to local services and facilities/employment/ green space) • Sustainable urban design • Neighbourhood • Walkable neighbourhood: pedestrian friendly

Sources: Chan and Lee, 2008; Meegan and Mitchell, 2001; Turkington and Sangster, 2006; Jacobs, 1999; Bramley et al., 2009; Yiftachel and Hedgcock, 1993; Urban Task Force, 1999; Hopwood et al., 2005; Littig and Griessler, 2005; Burton, 2000a.

The issue of social sustainability is still undergoing in-depth review by researchers; however, this study is basically concerned with the implementation of social sustainability.

This study in line with previous researches, attempts to use social sustainability as a means of achieving a more livable society within the Walled City of Famagusta

North Cyprus is which is an islands located in the boundary of Eastern Mediterranean sea was founded in 300 BC on the old settlement of the Arisone period. This city because of its strategic location has suffered several conflicts especially the war in 1974 that led the to the North and South separation. One of the historic places North Cyprus is the Walled City, which is located in Famagusta city (Doratlı et.al, 2003).

Before 1974, the Walled City had witnessed different historic periods. Each period left its footprint within the city, which can still be seen today. These include the British and the Ottoman Empire's influence. They all caused some changes on urban pattern, civilizations, new buildings and expansion as well as the population expansion to the south part of the Walled City. The Walled City has some aspects that created the interest to carry out the research.

Some of the outstand ting things about the Walled City is the fact that it is recognized as one of the world heritage sites besides Cypriot architecture its historical and cultural significance are some of the things that makes this place important.

Currently, the Walled City is divided into nine zones (Municipality of Famagusta, 2005) which includes residential (3 zones), commercial (one zone) and combination of residential with commercial (one zone) zoones. In line with the aim of this study which is focused on the use of social sustainability in terms of provides livability and resuscitation to the Walled City, it has chosen a sample in street 1 (zone one and four), the street 2 (zone four and six) and street 3 (zone three).

1.2 Problem Statement

Even though the Walled City has experienced a series of renovations during recent decades, it has still failed to attract people either directly or in-directly to live within its walls. There are some important issues, which if addressed could attract people to live in the Walled City. Firstly, most houses of the Walled City are old and bringing them back to shape can be really challenging for the owners of theses buildings due to the cost implications. Secondly, due to the quest of people to meet up with today's

technological advancement they have gradually left the Walled City for other newly developed areas.

Nevertheless, these highlighted issues have negatively affected livability especially in zoon 3 & 4 during the past few years in the Walled City.

The challenge posed by such issues could eventually lead to the implementation of social sustainability policies that would alleviate the problems and while offering proper instructions to bring livability back to this built environment. Furthermore, most of studies on the Walled City were focused on environmental sustainability and physical attributes or even physical renovation in relative to social sustainability. Therefore, in order to achieve social sustainability in a society and livability within the Walled City, this study has assumed some major social sustainability criteria and used relevant indicators for measurement.

1.3 Aims and Objectives

Nowadays the majority of young people are willing to reside particularly in the parts of Famagusta City which are located outside of the Walled City. Social sustainability has been identified as an influential variable offering solutions that can convert the Walled City to an attractive and livable place once again. The aim of this research focuses on the study of social sustainability as well as observing its effect on the Walled City.

The objectives of this study are as follow:

- It attempts to investigate how social sustainability can enhance the livability of the Walled City.

- To determine the key factors of social sustainability that has substantially influenced the livability of the Walled City.

- To figure out empirical suggestions toward more integration and enhanced of social sustainability.

This study attempts to answer following questions:

1) What is social sustainability?

2) What are the key determinant factors of social sustainability?

3) To what extent is the architecture of the Walled City of Famagusta compatible with social sustainability factors?

4) How social sustainability can enhance residential livability of the Walled City?

1.4 Research Methodology

In order to analyze the role of social sustainability in bringing life back to the Walled City, The quantitative and qualitative tools have been employed. This study employs two different methods to achieve this. The first method is called "*content analysis*". This is basically a process of analyzing different materials and documentaries such as books, journals, magazines, and newspapers as well as the contents of all other verbal materials and published articles. Content analysis is mostly through qualitative analysis. Likewise, by specification of pre-determined key themes of social sustainability, which will be determined from the literature survey section, it will be assigned to codes for making analysis in case study. Therefore, by using

content analysis through journals and books and based on the literature reviews, among different social sustainability criteria that provided in Table 6, three important criteria which commonly applied by different studies will choose which demonstrate in Table 7. Subsequently, according to Table 7 uses different indicators through content analysis to measure each criteria separately.

The second method adopted for this research is observation, which is further broken down in to two subsets namely; participant and non-participant. Participant and non-participant kind of observation is mostly known to be used in the certain particular fields such as social sciences. The difference between both is whether the observer is willing to share the live of the people he observes. A participant observer is seen as someone who makes himself part of the group or she wishes to observe so as to gain an experiential knowledge to the information being sought for. While on the other hand, observer is seen as a non-participant observer when he or she seeks to gain information from a group of people without being involved in any way in the process. The observer tends to be a detached entity. Therefore, according to this definition this research is based on non-participant observation. It employs physical observations and analysis that includes the use of maps and photos.

1.5 Limitation

There are various areas of interest with regards to research in the Walled City, but this study limits itself only to social sustainability issue. Secondly, this study is limited to the Walled City of Famagusta in North Cyprus, and the third limitation is social sustainability comprised of three major common criteria which is an outcome of the literature review such as, “social equity”, “social interactions” and “sense of

place". Furthermore, it employs both qualitative and quantitative analysis and field study as well as limits itself to three selected streets in four different zones of the Walled City which includes zone one, three, four and six.

1.6 Summery of the Chapter

The chart 1 shows the procedures of this research. After the introduction part that gives the problem statement, aims and limitations, the literature review will define three major social sustainability criteria's. It will also discuss elaborately about measurement indicators of each social sustainability criteria. In the next part, explanations about the case study as assessed from social sustainability perspective will be given. Therefore to carry out the assessment, in the next step, it will determine the methodology that this study will apply. In the final step, after the assessment of social sustainability through specific methodology, it turns to report the results and indicating the conclusions.

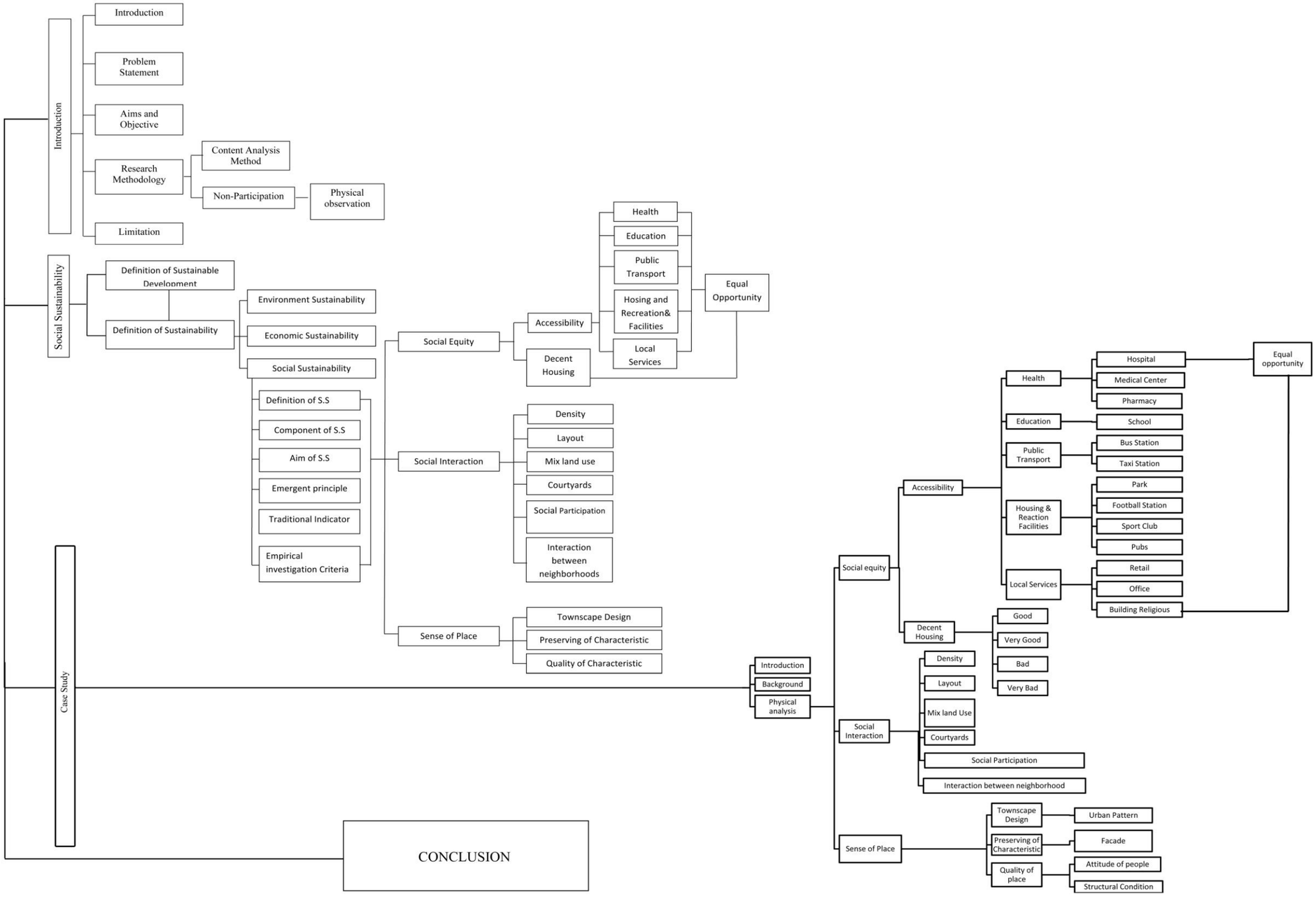


Chart 1. Overview of Study Structure

Chapter 2

SOCIAL SUSTAINABILITY

2.1 Definition of Sustainable Development

Sustainable development is necessary thereby, from past to future, governments and societies have committed moving toward achieving the sustainable development goals. Sustainable development is necessary thereby, from past to future, governments and societies have committed moving toward achieving the sustainable development goals. Majority of meaning of social sustainability is the based on definition, which provided in the Brundtland Report Development which stated that current needs should be achieved without compromising the ability of future generations to see their own needs (WCED, 1987, p. 40).

The link between biophysical, social and economic components is the natural concept of sustainable development. Hopwood et.al (2005) have mentioned sustainable development notion is based the links between "mounting environmental problems, socio-economic issues to do with poverty and inequality and concerns about a healthy future for humanity". Haviland (1994) explained the ability of continuing a society, ecological system and other system for future generation for indefinite period as a definition of sustainable development. Saunier (1999) specify as four areas to study from sustainable development view which is underlined a human development, conservation, management of natural resources and protection of environment. Polese and Stern (2000) quoted in Colontonio (2009) proposed fostering an environment that has consistency with culture and diversity of people,

encouraging social cohesion, improving quality of life and harmonizing development with evolution of civil society at the same time. In addition Mckenzie (2004) defines sustainability as a " *presupposes the necessity of development rather than focusing on strategies for the maintenance of current conditions* ". Furthermore, he points out from social development perspective, success of sustainable development defines by achieving highest growth in quality of living against with consideration of the highest level of environment protection. Quality of life improvement by combination of education, justice, community participations and recreations factors are contemporary definitions of sustainable development. Allen (1980) proposed, in general, covering and satisfaction of human needs with increasing level of quality, also consideration of maintaining ecological process (9) are the main aims of sustainable development. However, Strong (1990) and Saunier (1999) defined cultural differences and heterogeneity of people as challenges of sustainable development. It can break down the whole sustainable development to the two main sustainable and development components. Rebecca L.H, (n.d) refers to sustainability as the "ability of the natural environment, or the ecosystem, to accommodate human activities, especially those constituting economic development, in the long term".

The development should be containing all types of activities and processes (complex of activities) that increase the environment to meet human needs and enhance the quality of life or increase capacity of people. The development contains both physical and non-physical issues such as, social security, education, health and cultural activities (Munro, 1995). One of the key aims of sustainable development is to enhance welfare and quality of life even for current and future generations. Masood, (2007) argued about four objective of sustainable development which are:

1.”*Social progress, which recognizes the needs of everyone*

2.*Effective protection of the environment*

3.*Prudent use of natural resources*

4.*Maintenance of high and stable levels of economic growth and employment”* (Masood, 2007).

2.2 Definition of Sustainability

Sustainability concept born out by combining environment movement of the 1960s and advocates of the basic needs 1970s (Colantonio, Dixon, 2009). There are several definitions for sustainability. Oxford dictionary (1991) defines sustainability as “ Able to be maintained at a certain rate or level sustainable fusion reactions or able to be upheld or defended sustainable”. Kilbert (1994), define as “the creation and responsible management of a healthy built environment based on resource efficiency and ecological principles”. According to the Biart (2002) quoted in Colantonio (n.d), determination of the minimal social requirement and identification of society challenges are taking to accounts as the aims of sustainability.

Sustainability contains three major Social, environment and economic sub-divisions. Gilbert, Stevenson, Girardet and Stren, (1996) proposed social sustainability as a measurement of evaluating social cohesion and a driver to participate towards same missions. Recognition of effective parameters on quality of environments for current and future and utilizing natural resources are accounted as a role of environmental sustainability. Feasibility, environmental and social sustainability monitored by economic sustainability. Kim and Rigdon (1998) states the the aim of economy

sustainability is " *helps for recycling materials and reduction of wasting energy and reproduces the new sources* ". Two different models exist in literature of sustainability to explain the interactions and roles of each element. The first model is (figure 1) called, interlocking circle, where each element play equal and substantial role in description and achieving equilibrium of sustainability. There is no privileged amongs elements and same interactions thereby, operation of each sphere cannot overshadow of operation other spheres.

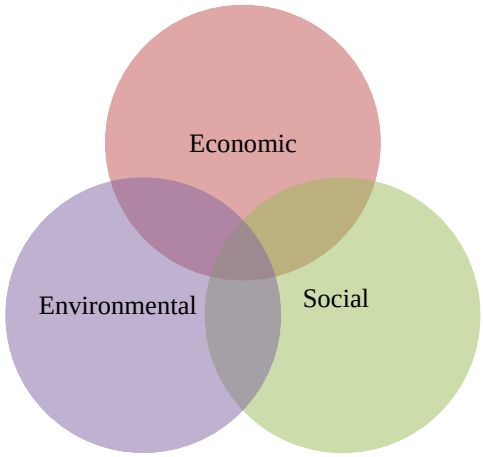


Figure 1. Interlocking Circles Model of Sustainability
Source: (Barron and Gauntlett, 2002)

Second model in figure 2, is called " *overlap*" which explains element of economy play a small proportion for achieving equilibrium, while environment element has a broader effect to obtain sustainable equilibrium in a society. However, Mak and Peacok, (2011) implied although the effective shares between components are not equal, but at a center point, all components end up which each other.

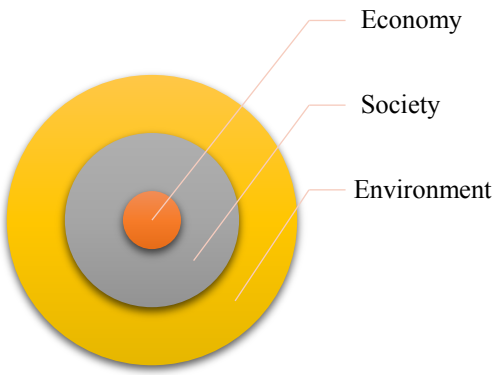


Figure 2. Concentric Circles Model of Sustainability
Source: (Barron, Gauntlett, 2002)

Sheate *et al* (2008) improved the concept of sustainability assessment through sustainability appraisal. This appraisal helps enhance decision making process. Stagl (2007) explained how to utilize assessment evaluations by implementing different techniques and methodologies. As summery, Gasparatos *et a*l (2007) suggest assessment of sustainability by five differernt and prominant principls.

1) Integration of socio-economic and environment issues.

2) Overlooking to impacts and concequences of current actions by cost and benefit analysis.

3) Involving and engaging to the public.

4) Equity consideration.

5) Acknowledgment of the existence of uncertainties concerning the result of our present actions and acts with a precautionary bias.

Figure 3 indicates a summary of overlooking to sustainable development components

explained by Sullivan, (2012). It shows that sustainable development contains three different components as social, environmental and economic. It describes existence of the common areas between socio-economic, socio-environment and environment economic. It implies the equitable element, as common area between socio-economic and bearable element is common area between socio-environment. Furthermore, viable element is common area between economy and environment. It means that in order to sustainable development, it should meet three major factors equitable, bearable and viable elements as a representative of common areas between social, economy, environment principles.

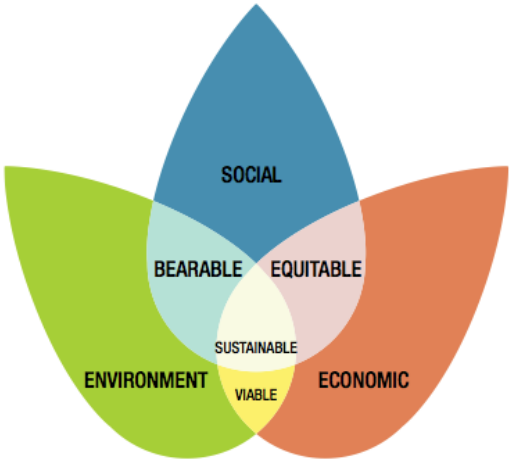


Figure 3. Interaction of Social, Environment and Economic
Source: (Adams, W.M., 2006) quoted in (Sullivan, 2012)

As WA state sustainability strategy (2002) proposed, creation of environment where people can express full potential and productivity, diversity of community, experiencing higher level quality of life by increasing health, housing and employment in parallel with reduction in waste and using less material are main pillars of sustainability. Polese and Stren (2000) proposed a broadly definition which focus on urban environments for social sustainability. They imply to combine the

economic (development) and social (civil and cultural society, integration of social) dimension of sustainability with respect to trade off between each of them. Furthermore , they rely to make a relationship between physical environments such as urban design, housing and so on with urban sustainability. To summerize, from holistic point of view, it can categerize three different elements for describe sustainability. These categorization are social, environemnt and economic. Lehtonen (2004) implied these categorization have either independent or dependent (interaction) relationship to explain about sustainability. It is possible to overlookeach element from another element such as social from economic or environment, economic from social and environment view and environment from socio-economic view wherby from independent point of view. Each elements have its own characteristic and logic. Therefore each elements are not qualitatively equa, but it is possible to exist in hierarchy of sustainability.

2.3 Environment Sustainability

The aim of environmental sustainability summarize in two areas. Firstly, attempt to improve human quality of life and ensuring sinks for human wastes are not exceeded in compared with sources. Initially, maintaining natural capital for future and utilizing resources are as fundamental goals. According to descriptions of two models and presence of interactions between each element, to obtain environmental sustainability, it has to meet four economic sustainability issues. Maintenance of renewable natural resources, non- substitutable and non renewable natural resources, substitutable but non renewable natural resources; and manufactured capital are fundamental issues that should be met up before achieving environmental sustainability (Goodland, 2003). In addition, from traditionally point of view, sustainable environment concentrate on energy efficiency, carbon emission and

moving toward to achieve ecologically sustainable where removing negative environment impact. Environment sustainability should able to maintain or improving of ecosystem to achieve long-term equilibrium (Nijkamp and Soeteman, 1988). Ecological sustainability should meet four basic principles.

1. Rates of pollution not further than the assimilative capacity of the environment.

2. Waste emission is not higher than the capacity of the local environment.

3. The rates of using of renewable resources not more than the rate of regeneration.

4. The depletion rates of non-renewable resources are not higher the rate invented and invested renewable substitutes (Caldwell, 1998).

From economic point of view, maintaining natural capital from both provider (input) and absorber (output) of economic are main and fundamental requirement of environmental sustainability (Basiago, 1998).

Environmental concerns from the building stage view includes two fold:

1. " *The impact of residential activities on the local and global environment*

2. The environmental quality of the living environment" (Rebecca L.H,non).

Environmental sustainability prevents harmful impacts on the environment by using efficiently of natural resources, renewable resources and protecting the soil, air and

water from contamination (Abidin and Pasquire, 2007). Sullivan, (2012) proposed the change of climate, depletion of resource, increasing level of population and urbanization as main drivers for achieving environment sustainability. Roufechaei, Abu Bakar and Tabassi (2013), implied variables such as using efficiently of energy, conservation, air pollution, land utilization and renewable energy should take to consider for construction of housing to make sustainable environment. Sustainability shows the objective of environmental design as follows:

- "Maximizing the human comfort

- Efficient planning

- Design for change

- Minimizing waste of spaces

- Minimizing construction expenses

- Minimizing buildings maintenance expenses

- Protecting (keeping) and improving natural values" (Masood, 2007).

The included indicators for environmental sustainability should contain assessment of environmental influence based on

1) Depletion rate of land resources

2) Ecological effects

3) Renewable and non-renewable resources which applied

4) Efficiency of energy

5) Maintenance and management of the completed properties (Rebecca L.H,non).

2.4 Economic Sustainability

"From an economic sustainability perspective, sustainability issues deal with a wide range of factors within both the local and global level" (Gloet, 2006).

Economic sustainability can be defined as a means of production that is aimed at meeting today's level of consumption without affecting the needs of tomorrow, given the environmental constraints and cost (Basiago, 1998; Khan 1995).

Kim and Rigdon (1998) proposed economic of resources, life cycle design and human design as principles of sustainable design and pollution prevention.

According to Abidin and Pasquire (2007), economic sustainability can increase profitable gain by efficiently managing available resources (human, material and financial). Besides, with regards to the built environment, building developers consideration should be made to ensure affordability of houses, housing life cycle cost, management of risk, complying with legislative rules, business empowerment, and life cycle cost (Bennet and James, 1999).

(Jucker,n.d) states that a sustainable economy is seen as one which steps up to its

responsibilities with regards to the entire process of production to consumption, which almost by necessity, means a local, renewable-input and recyclable-output economy. It will also have to be a democratically accountable and controlled economy, living up to the principles of empowerment and equity, which is a far cry from the totalitarian, top-down. The basic challenge standing in the way of achieving economic sustainability is the need to balance the benefits derived from economic activities with economic cost. It holds it that the input cost, extraction as well as the processing cost are very important (Chiu,n.d).

2.5 Social Sustainability

Ballet et al, (2003) quoted in Lehtonen, (2004), define socially sustainable development as one that ‘‘guarantees for both present and future generations an improvement of the capabilities of well-being (social, economic or environmental) for all, through the aspiration of equity on the one hand as intergenerational distribution of these capabilities and their transmission across generations on the other hand’’. By defining the role of sustainability by Roufechaei, Abu Bakar and Tabassi (2013) Sustainability enable to provide accessibility for good education, creating wellbeing and consultation in a community. Boyko et al (2006) believed before any sustainability undertaking activities, factors such as crime and pool health have more privilege. After that for obtaining well being society objective, human feelings such as safety, comfort and satisfaction that proposed by Lombardi (2001) and human contributions such as knowledge, motivation, skills and health that proposed by Parkin (2000) are important issues which involving for achieving well being society.

There are different definitions to explain about social sustainability concepts and the roles. Ghahrmnpouri et al., (2013) define " *Social sustainability is a dynamic concept with a high possibility of change over time (from year to year/decade to decade) in a place*". Vallance, Perkins and Dixon, (2011), show one of the main objectives of social sustainability is to fulfill basic needs of society, whilst other researchers identify the importance of maintaining desirable ways of living or protecting traditional cultural of a society as a role of social sustainability. Chiu (2002,2003) after consideration of housing context in Hong Kong can segregate the role of social sustainability to the conceptualization, social limits and ecological limits sections. He also takes well-being and improvement of current and future generation by consideration to describe the definition of social sustainability.

Likewise, Godschalk (2004) after modifying Campbell social sustainability components, adding livability parameter to the role of social sustainability. Furthermore, different scholars have implemented different Criteria's to determine social sustainability identifications. Sachs (1999) considers three Equity, homogeneity and employment determinants. In further, explanation, Sachs describes human rights, democracy, health, security and education as equity parameters, equal distortion of income as homogeneity parameter with aim of establishing homogeneity between poor and rich people and equitable access to social services as parameter of employment. In further, it explains elaborately about different authors' criteria that have considered identifying the social sustainability. Moreover, Littig and Griebler (2005) refer to empirical definition of social sustainability as satisfy set of human needs, social justice and human dignity. Davidson and Wilson (2009) proposed new definition of social sustainability that they define as " *a life-enhancing condition within communities, and a process within communities that can*

achieve that condition". In empirical definitions, Sachs (1999) point out social sustainability should base on equity and democracy. He explains appropriation of all human rights, political, civil, socio-economic and cultural by all the people.

Figure 4, shows social sustainability and sustainable development dimensions. Development sustainability that explained before, containing economic, social and biophysical environmental elements. The role of social sustainability classifies to development, maintenance and bridge components. Development component that itself including tangible and intangible, attempt to describe the need of people in a society. In addition, maintenance component emphasize of what people needed in a society beside of bridge component that again itself breaking down to transformative and non-transformative (Vallance, Perkins, Dixon 2011). As a result, the relationships between the different dimensions of sustainable development and 'sustainability's' are still very much unclear. However, many discussions have been done to define the social sustainability and sustainable development relationships.

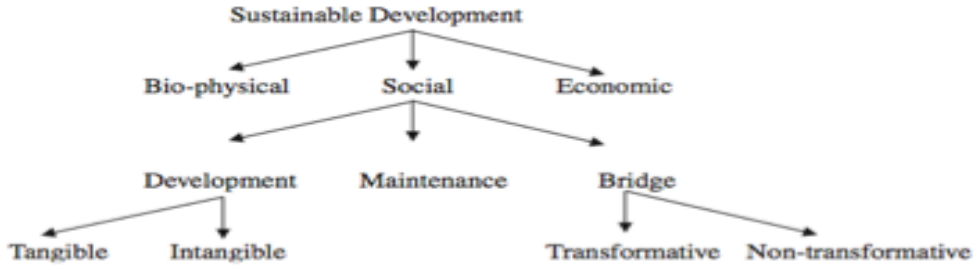


Figure 4. The Strand of Social Sustainability
Source: (Vallance, Perkins, Dixon 2011)

2.5.1 Components and Aim of Social Sustainability Framework

After definition of social sustainability in previous section, the determination of social sustainability components is crucial. Figure 5 explains the four different components of social sustainability as a core, plus adding two economic and environment components as subsidiaries. The four components of social sustainability framework are:

1) Amenities and social infrastructures

2) Social and cultural life

3) Voice and influence

4) Space to grow (Kadir and Jamaludin , 2013).

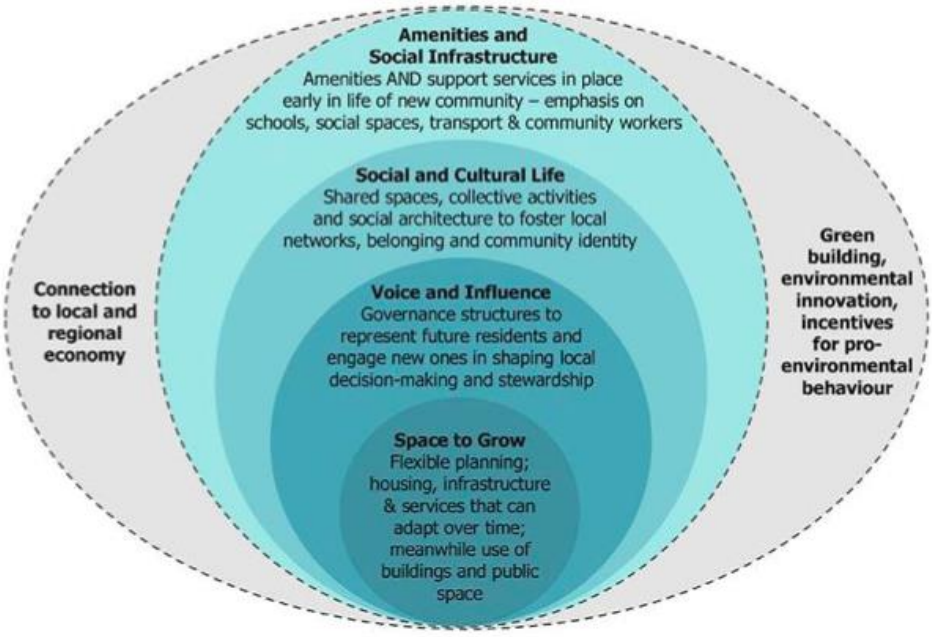


Figure 5. Illustration of Design for Social Sustainability Framework, Young Foundation Source: (Woodcraft, Hackett, Caistor-Arendar, 2011)

Establishing amenities such as school and social spaces and creation of attractive and convivial places with the aim of gathering people, in overall lead to increase social and aggregate income. Also governance structure and flexible planning are other features of main social sustainability cores. By (Gossett et al., 2009) suggestion, environmental issue can help a society to provide equal opportunities to all people and achieving higher quality of life and sense of place. Even though quality of life is hard to measure, however due to the becoming critical dimension of social sustainability it is important to determine empirically. However, it is noteworthy to separate in practice the meaning of quality of life over time varying. Providing quality of life should not achieve at the expense of future generation and ignoring future human rights (DETR, 2000:3).

Governance principal, voice and influence structure with providing freedom of choices and allowing taking part in design process and planning to all residents can

influence social sustainability. Flexible planning and houses (space to grow core) to encourage visit ability and social interaction, also making public areas and buildings help to increasing interaction within society.

Social sustainability with objective to maintain balance between elements that explained in figure 1 such as equity, it will try to provide equal accessibility for the future generation. In a recent development by social sustainability, level of awareness in corporate governance, human rights and labor rights components has substantially changed. WACOSS (2002) in proposed social sustainable model, indicate the main aim of social sustainability as follow:

1) Equity that provides for current and future generation.

2) Diversity that allowing eliminating limitations to diversify community.

3) Interconnectedness opportunity for inside and outside of community for connection in different level.

4) Increasing quality of life for different type of people in a community and fulfilling basic needs of people.

5) Establish governance structure and democratic process.

2.5.2 Emergent Principles of Social Sustainability

"Human well-being, equity, democratic government and democratic civil society are posited as primary constituents of Social Sustainability "(Kristen & Craig 2009). In other hand, McKenzie (2004), explain about the determination of Social Sustainability. He emphesized equity and accessibility between and with in generations, political participation, sense of community and integration of culture are main consideration issues."A socially sustainable system must achieve adequate provision of social services, distributional and gender equity, participatory and pluralistic democracy and political accountability" (Jonathan, 2000).

Table 2 discusses emergence principles of social sustainability in different periods. As a glance, human well being, Equity, democratic government and democratic civil society are basic elements, which explain elaborately in below. Many authors have introduced different definitions for social- well being. To obtain social well-being, Prescott-Allen (2001) implied the possibility of attainment through fulfillment of basic needs, political, economic. Enjoying of people, health, economic development are main indicators of social well being (Haq 1999). However, Social and human well-being are not the same. Social well-being refers to the community of people, whereas human well-being refers to the individual and focuses on the fulfillment of basic needs. The ability to meet needs, productivity, security and human rights are main objective of human well-being (Prescott -Allen 2001). (Polese & Stren, 2000) measured equity of a community with the degree to which inequalities are reduced. Furthermore, (Hart, 1999, WACOSS, 2000) implied Communities and government are main sectors for provision of equitable rights and opportunities. (WCED, 1987) suggested that inequity is the basic elements, which lead to damage of environment, and therefore it is possible to consider equity as main concern of sustainability. In

another point of view, equity in political and economic opportunities is a basic human right, and distributing unequal of income is a challenge. The movements and expansion of democratic governance has incepted in 1990s by promoted United Nations. In order to living sustainably people requires to continually monitor social, economic and environmental conditions. Hence, access to information, full inclusion, participation and collaboration are requirement for sustainable living.

Table 2. Emergent Principle of Social Sustainability (Source: Magic&Shinn, 2009) Queted in (Dillvard & King, EDS)

	Human-Centered Development			Sustainability		Community Well-Being 1990
	Basic Needs 1976	Human Development 1990	Freedom 1999	Agenda 21 Rio Declaration Forests Principles 1992	Montreal Process LUCID 1998 Mt. Hood 1998	
Human Well-Being	Objective 1: Basic Sustenance - Nutrition; Education; Health; Sanitation; Water Supply; Housing	Productivity Empowerment	Protective Security Social Opportunities	A21 – Sec. I: Social & Economic Dimensions Rio – Healthy, Productive Life; Eradicate Poverty Forest – Social, Economic, Ecological, Cultural & Spiritual Needs	MP – C6: Cultural & Spiritual Needs & Values; Employment & Community Needs LUCID – Institutional & Community Capacity; Social & Cultural Values Mt. Hood - Community Livability	Livable Communities - education and health care; access to public goods and services; employment; transportation; housing
Equity	Equitable Economic Opportunity	Economic Equity Political Equity	Economic Opportunities	A21 – Sec. I: Social & Economic Dimensions Rio – Reduce Living Standard Disparities	LUCID – Social Equity; Social & Cultural Values Mt. Hood - Social & Cultural Values	Equal Access Social Justice
Democratic Government	Objective 2: Social Infrastructure Producer, Rule of Law, Financer	Political Freedom	Transparency Guarantees Civil Rights Political Freedom	A21 - Sec. IV: Governance, Rule of Law Rio – Environmental Laws Forests – Policy Inclusive and Protective of People	MP – C7: Institutional Framework LUCID – Institutional Capacity; Collaborative Stewardship Mt. Hood – Institutional Adequacy	Community Inclusion in Public Policy Democratic , Efficient & Equitable Complement & Facilitate Communities
Democratic Civil Society	Objective 3: Democratic Participation Self Determination, Participation National and Cultural Identity	Empowerment Political Freedom	Civil Rights Political Freedoms	A21 - Sec. III: Democratic Participation Rio - Citizen Participation; Indigenous, Women, Youth Forests- Wide Participation	MP – C7: Public Participation LUCID – Community Capacity; Collaborative Stewardship Mt. Hood - Collaborative Stewardship; Community Resilience	Informed Public Dialogue & Decision-Making Collaboration Social Integration and Inclusion

The primary role of civil society is to ensure the functioning of government should be according to the will of its people. However, if government may deviate from the principles, the civil society can intervene to re-direct and hold government accountable (Magis and Shinn, 2009).

2.5.3 Traditional Indicators of Social Sustainability:

Indicators of sustainability are different from traditional indicators of economic, social, and environmental progress. Natural resources with providing materials for production help to stockholder profit and jobs. Also job with impact on poverty can enhance to reduce crime as whole in a society. Materials, air and water quality with no doubt can effect on health of people in community. Therefore, lower quality of air or water and unhealthy process to produce can create expenses cost and reduction of profits for stockholders as overall (Hart, 2014).

Since figure (6) explained about major traditional indicators of sustainability, the following table (3), discusses about key themes of social sustainability from traditional toward emerging age. Although traditional and cuntemporary key themes are not the same with certainty, but the core of key themes are the same. Basic needs such as housing or environmental health converting to the demographic change that including age, mobility. Human right and gender which were important on the traditional age have changed to the health and safety. Happiness and quality of life are fulfilling social justice key themes in tradition. Furthermore, social capital is much more emphesizing in emerging age in compared with traditional counter part.

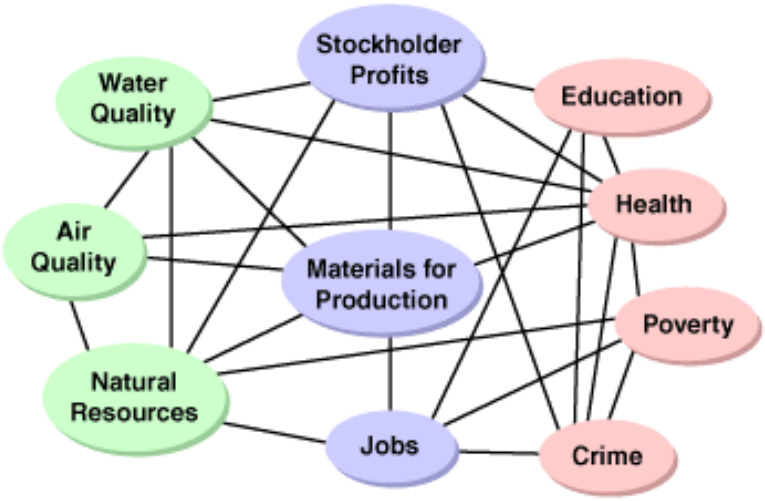


Figure 6. Traditional Indicators of Sustainability
Source: (Hart, 2014)

Table 3. Key Themes of Social Sustainability: Traditional and Emerging
Source: (Colantonio, n.d)

Traditional	Emerging
Basic needs, including housing and environmental health	Demographic change (aging, migration and mobility)
Education and skills	Social mixing and cohesion
Employment	Identity, sense of place and culture
Equity	Empowerment, participation and access
Human rights and gender	Health and Safety
Poverty	Social capital
Social justice	Well being, Happiness and Quality of Life

2.5.4 Empirical Investigation of Social Sustainability Criteria

According to Barron and Gaunlett, (2002) based on (WACOSS, 2002), demonstrates the principles-elements relationship of social sustainability. They suppose equity, diversity, quality of life, interconnectedness and demography as principles. Likewise, they explained about association of relevant elements with social principles. Table (4) explains deeply about the role of each element in direction of concept of principles. Likewise, it attempts to explain about proposed principles by Barron and Gaunlett (2002) brifly.

1) From Equity view, the community should provide equitable chances, income and accessibility of services for poor, rich, and vulnerable and invulnerable members.

2) Diversity put efforts to promotes and encourage members of the community to getting involve in participation, planning and design.

3) Quality of life in a community try to meet fundamental needs and improving quality of life between different layers of people such as individual, group and organization

4) Interconnectedness promotes connectedness within and outside of community with providing systems and structures. Although connectedness will occur with different shape such as formal and informal.

5) Democracy and governance which people can monitor the government functions and allowing to intervene if government perform opposite of civil society principles.

Table 4. Principles of Social Sustainability and Elements.
Source: (Base on Barron and Gaunlett, 2002)

Principles	***Elements***
Equity	*Human rights, equal,opportinity,overcomming disadvantage and indigenous rights.*
Diversity	*Inclusiveness and valuing difference.*
Quality of life	*Subjective: subjective well being (including things like people's sense of belonging, sense of self worth); objective living conditions (such as levels of education, health, housing); and opportunities for personal and social development.*
Interconnectedness	*Quantity of social processes (participation and links with organizations and systems). Quality of social processes (the extent to which interactions are based on trust, shared norms). Structures governing social processes (leadership and mechanisms for resolving conflict). Community infrastructure (public and civic institutions, planning and physical infrastructure and community services amongst other things).*
Democracy and governance	*people's ability to access information, knowledge and expertise and their ability to participate in decisions that effect their lives as well as the effectiveness, integrity and accountability of processes and structures also incorporates justice and legal rights components.*

Many investigations have done by different authors to indicate the body of social sustainability from urban point of view. According to table (5), Davidson and Wilson (2009) refer to perspective of social sustainability. Likewise, Colantonio (2008 a,b) and McKenzie (2004) discussed about key themes of social sustainability. Authors such as Yiftachel and Hedgecock (1993), Ancell and Thompson Fawcett (2008), Bramlet et al. (2006), Chan and Lee (2008) described jointly about dimension to assist local communities. Bramley et al. (2006) demonstrated interactions in the community, community participation and stability; pride and sense of place and security are the main influential components to determine. Panel (E, F) which shows in table (5) also explains about the goals of social sustainability and significant success factors, which argued by Barron (2002) and Chan (2008) respectively.

Table 5. Social Sustainability Related in Urban Development, Source: (Mak and Peacock, 2011)

(B)	***Perspectives of Social Sustainability***	
	Development-oriented perspective: development is socially sustainable when it keeps to social relations, customs, structures and values.	Davidson and Wilson (2009)
	Environment-oriented perspective: development is sustainable when it meets social conditions, norms and preferences required for people to support ecologically sustainable actions regarding resource distribution and intergenerational equality.	Davidson and Wilson (2009)
	People-oriented perspective: emphasis on maintaining levels of social cohesion and preventing social polarisation and exclusion.	Davidson and Wilson (2009)
(C)	***Key Themes to Social Sustainability***	
	Key themes show how basic needs and equity are consistently as fundamental pillars of social sustainability: • *Identity, sense of place and culture* • *Empowerment, participation, access* • *Health and safety* • *Social capital* • *Demographic change* • *Social mixing and cohesion* • *Well being, happiness, quality of life*	Colantonio (2008a), Colantonio (2008b)
	Concerns how individuals, communities and societies live with each other.	Colantonio (2008a)
	Incorporated equity of access to key services (including health, education, transport housing and recreation), as well as equity between current and future generations.	McKenzie (2004)
(D)	***Dimensions to Assist Local Communities***	
	The urban environment as a space within which social needs are to be fulfilled, and implies that the physical form in urban developments should make the fulfillment of these needs viable.	Yiftachel and Hedgecock (1993)
	Individuals within the society need to work together and interact with the built elements in order for societies to be socially sustained.	Ancell and Thompson-Fawcett (2008)
	Social equity or sustainability of community: concerned with the continued feasibility, health and performance of "society" itself as a communal entity: • *Interactions in the community/social networks* • *Community participation* • *Pride and sense of place* • *Community stability* • *Security (crime)*	Bramley et al. (2006)
	Urban developments in order to be socially sustainable should create a harmonious living environment, reduces social inequality and divides, and improves quality of life in general.	Chan and Lee (2008)
(E)	***Goals of Social Sustainability***	
	• *Equity*: Equitable opportunities and outcomes • *Diversity*: Promotion and encouragement of diversity and value of difference • *Interconnectedness*: Community processors, systems and structures that promote connectedness within and outside the community • *Quality of life*: Insurance that the communities basics needs are met • *Democracy and governance*: Democratic processors, open and accountable governance structures	Barron and Gauntlett (2002)
(F)	***Significant Success Factors***	
	• *Provision of social infrastructure*: Public facilities for basic needs, open spaces facilitate social gatherings and public interaction, provision of accommodation for different socioeconomic groups. • *Availability of job opportunities*: Provision of employment and the working area offers a place for social contact and interaction, to improve the feeling of social well-being of citizens. • *Accessibility*: Aspirations to live, work and participate in leisure and cultural activates without travelling too far, and to be housed in areas of convenience to access certain places in daily lives, with the freedom of movement. • *Townscape design*: Pedestrian-oriented streetscapes, visual images of street furniture, and interconnectivity of street layouts • *Preservation of local characteristics*: Preservation of heritage items, local characteristics and distinctiveness in existing community networks has to be conserved. • *Ability to fulfill psychological needs*: Safe and security is an essential element in every neighbourhood, senses of belonging in the community	Chan and Lee (2008)

According to Martin (n.d), the terms that come up most frequently are equity, diversity, cultural heritage, strong communities, health and safety. These five terms can be seen as the backbone of social sustainability, and any attempt to quantify social sustainability must include them.

According to the Table (6), there have been very few attempts to explain social sustainability and different authors have implemented different criteria to define social sustainability. In this regard, each author derives to own definition. Therefore, it is not easy to use general definition for description of social sustainability.

Table 6. Key Themes of the Social Sustainabiliy Source: (Edited by Author)

Author	criteria
Chambers &Conway, (1992)	Equity, livelihood, capability to withstand external pressures, safety nets.
Sachs, (1999)	Equity, democracy, human rights, social homogeneity, equitable income distribution; employment; equitable access to resources and social services.
DFID, (1999)	Equity, inclusion, poverty, livelihood.
UNDSD, (2001)	Equity, health, education, housing, security, population.
WACOSS, Barron, Gauntlet,(2002)	Equity, diversity, interconnectness, quality life, governence, democratic.
Spangenberg, (2004)	Income, communication, and participation, education, social contacts, social security, distribution of income and assets.
McKenzie, (2004)	Equity to access : (health,education,transport,housing,recreation).
Choguill, (2008)	Citizen participation, social interaction, feeling of belonging, interpersonal relations among the neighborhood residents, collective action, mutual support, access to facilities and amenities, safety.
Colantino (2008); Davidson & Wilson (2009)	Identity, sense of place, culture, empowerment ,participation ,access, Health , Safty , social capital , demographic change , social mixing and cohesion , well-being , happiness , quality of life.
Bramley, (2006); Dempsey, Power, Brown, Watkins, (2011)	Social equity, access to facilities and amenities, affordable housing, social interaction/social network, safety and security, satisfaction with home, sense of place, stability (turnover), participation in collective group and civic activities.
Glasson& Wood, (2009)	Social networks, community contribution, a sense of place, and community stability and security.

Magis&Shinn, (2009)	Equity , Human well-being , democracy governence , democratic civil society.
Colantonio, (2008);Cuthill, (2010)	Equity; inclusion, adaptability; security, Social Justice; social/community well-being; human scale development; engaged governance; social infrastructure; community and/or human scale development; community capacity building; human and social capital
Woodcraft, Hackett, Caistor-Arendar ,(2011)	Amenties and social infrastructure, social and culture life , voice and influence, space to grow.
Dave, (2011)	Access to facilities and amenities; amount of living space; health of the inhabitants; community spirit and social interac- tion; safety; satisfaction with the neighborhood.
Dempsey et al., (2011)	Social interactions; participation; community stability; pride and sense of place; social equity; safety and security
Weingaertner & Moberg, (2011)	Accessibility; social capital and networks; Health and well-being; social cohesion and inclusion; Safety and security; fair distribution (income, employment); local democracy, participation and empowerment; cultural heritage; education and training; equal opportunities; housing and community stability; connectivity and movement; social justice; sense of place; mixed use and tenure; attractive public realm.
Colontino ,(n.d)	Identity, Sense of place , culture, Empowerment, Participation, Access, Health, Safty, Social capital, Demographic change, Sociale mixing, Social cohesion, Well-being, Happiness, Quality of life.

Measurement of social sustainability has been interesting of investigation of many studies. According to the Table (6), there have been various factors that can be applied to measure social sustainability. Different studies refer mostly to the criteria such as, Democracy, Safety and Security, Social cohesion, Social Justice, Social equity, Social interaction and Sense of place. However, this study to measure social sustainability put some restrictions to choose sample criteria. Firstly, in order to choose sample criteria, it will select those ones that are repetitive and commonly have implemented in different social sustainability measurement studies. Secondly, it will select the criteria which can be covered both by Non-physical and pre-dominantly physical factors (Table 1). Therefore, the criteria that can satisfy the mentioned conditions are desirables. Subsequently, social equity from accessibility and decent housing perspective which are pre-dominantly physical factors also social interactions and sense of place which are Non-physical factors that are commonly applied in authentic studies will use. Likewise, it is crucial to figure out how can sample selected social sustainability criteria can be measured. According to the literature review of social sustainability measurements and findings of different studies, it will use different indicators to measure each sample criteria. Table (7) indicates the overview of social sustainability criteria and relevant measurement indicators. In line with the overview of the Table 7, to measure social equity, the accessibility, decent housing and equal opportunity indicators, to measure social interactions, the density, layout, mix land use, courtyard, social participation and neighborhood interactions indicators also to measure sense of place, the town scape design, preservation of characteristic and quality of place indicators are selected indicators which strongly suggested by researchers and scholars.

Table 7. Common Criteria, Source: (Edited by author)

Social Equity (Chambers, Conway, 1992), (Sachs, 1999), (DFID, 1999), (UNDSD, 2001), (WACOSS, Barron, Gauntlett ,2002), (McKenzie, 2004), (Davidson , Wilson, 2009), (Colantino, 2008), (Bramley, 2006), (Magis, ,Shinn,2009), (Colantonio, 2009), (Cuthill, 2010), (Dempsey et al., 2011)	**Accessibility : (health, education, public transport, housing and recreation facilities, local services),** (McKenzie, 2004), (Dempsey et al., 2011), (Barton, 2000a, Burton, 2000b), Emma (2005), (Winter and Farthing, 1997), (Smith, 2000), **Decent housing** (Dempsey et al., 2011), (Okewole and Aribigbola, 2006), (Aribigbola, 2011).**Equal opportunities** (Okewole and Aribigbola 2006), (Ott,n.d), (McKenzie, 2004)
Social Interaction (WACOSS, Barron, Gauntlett, 2002), (Choguill, 2008), (Bramley, 2006), (Glasson and Wood, 2009), (Dave, 2011), (Dempsey et al., 2011), (Weingaertner, Moberg, 2011), (Davidson, Wilson, 2009)	**Density, Mix land use & layout** (Dempsey et al., 2011), (Easthope and McNamara, 2014), (e.g. Jenks et al. 1996; (Burton 2000), (Bramley & Power 2009), (Williams et al. 2000), (Jacobs 1961), (Talen 1999), **Courtyards & Social participation (**Forrest, Kearns, 2001), (Putnam, 2000), (Talen, 2001), (Littig, Griessler, 2005), (Davidson, 2009), (Woolcock, 1998) **Neighborhood Interactions** (Unger and Wandersman, 1985), (Appleyard, Lintell, 1972), (Weenig, et al., 1990), (Crenson, 1978),(Mann, 1954), (Warren, 1981), (Warren, Warren, 1975),
Sense of place (Choguill, 2008), (Colantino, 2008), (Davidson, Wilson, 2009), (Bramley, 2006), (Glasson and Wood, 2009), (Dempsey et al., 2011), (Weingaertner, Moberg, 2011), (Colontino, n.d), (Woodcraft, Woodcraft, Hackett), (Caistor-Arendar, 2011)	**Townscape design** (Yung and Chan, 2012), (Oktay 2004), (Porta & Renne (2005), (Lee, 2003), (Li & Brown, 1980) (Vandell et al., 1989), (Chan &Lee, 2008)**Preserving of characteristic** (Fung, 2004), (Chan & Lee, 2008), (Henderson, 2008), (Ku, 2010).**Quality of place** (Talen, 1999), (Kearns & Forrest, 2000), (Chan and Lee, 2008), (Thwarts et al., 2007), (Vitterso et al, 2001), (Serag El Din et al., 2012), (Vitterso et al, 2001), (Hashemnezhad et al., 2013), (Jorgensen 2001),

2.5.4.1 Social Equity

(Chambers and Conway 1992, to Dempsey et al, 2011) have believed social equity is one of main determinant of social sustainability. However, in order to measure this determinant, authors have suggested different indicators such as: accessibility, health, equal opportunities and so on. By study of McKenzie (2004) equity has categorized in two parts of equity of access to main services and equity between generations. He has mentioned health, education, transport, housing and recreation as elements to indicate equity of access. Undoubtedly, accessibility has a significant share in measuring of social equity (Barton, 2000a, Burton, 2000b). Dempsey, et al., (2011) implied instruments such as services and facilities, provision for walking and cycling and the public transport routes can be good indicators to explain the nature of accessibility. However, Emma (2005) proposed that beside of accessibility, equity is complementary indicators that both can enhance social sustainability. From social equity view, to make a sustainable society, it should increase the level of access for those currently experiencing social exclusion. An empirical research conducted in the west of England singled out the eight most important and mostly used services and facilities when locally provided (Winter and Farthing, 1997). These resources and facilities which are highly essential in our daily lives are; food shop, newsagent, open space, post office, primary school, pub, supermarket and secondary school. Other services to which theorists claim as essential include doctor/GP surgery (Barton, 2000b; Urban Task Force, 1999), chemist, café/restaurant/takeaway (Burton, 2000a), bank or building society (Barton *et al.*, 1995) and community center (Aldous, 1992). There seems to be general agreement in the literature on the services and facilities that are highly important and should be most accessible by the local residents, as opposed to the optimal distance at which the services should be

provided ,(Dempsey, 2008b). The following list shows ‘local’, that is, nearby services and facilities as opposed to more ‘regional’ services such as hospitals.

- Doctor/GP surgery
- Post office
- Chemist/pharmacist
- Supermarket/malls
- Bank/building society
- Way side shops
- Primary school
- Café /Restaurant /eateries
- Pub
- Library
- Sporting facilities
- Social center
- Facility for children
- Public spaces.

In another research by (Smith, 2000) accessibility to services and facilities is considered highly important in improving social sustainability. The citizens want to live, work, and participate in leisure and cultural activities without taking distance into consideration. According to Che Musa (2000), he carefully noted that the people would like to reside in areas where there will be adequate facilities and employment opportunities for different family members in their locality. Everybody should have proper and convenient access to certain places in their daily lives, without

discrimination of any sort. Freedom of movement from place to place is recognized as a basic human right and should not be compromised.

Decent housing revealed the commonly used yardsticks in measuring of housing quality to include structural condition, neighborhood quality, residents perception of neighborhood safety, level of public services provided, access to work and other amenities, room density and housing affordability (Okewole and Aribigbola, 2006). In other words, housing quality basically depends on the physical condition of the building and other facilities and services that make people live comfortably. On the other hand for example, access to decent housing is dependent on two major factors; the condition of the physical housing forms, and the services provided by the relevant housing association/local authority. Furthermore, affordable housing (and tenure) is another factor that may hinder residents from living in, and moving out of, different neighborhoods and areas (Dempsey, et al., 2011). Social equity: Social view of housing relates to a situation in which all citizens have access to housing without limitations as to one's socio economic background or status in society (Aribigbola, 2011).

The importance of viewing housing accessibility from the standpoint of social equity is to ensure that every member of the community has equal opportunity to choose their own accommodation according to their ethics or affordability level is instead of favouring some certain 'chosen' segments of the society (Okewole and Aribigbola 2006). Most ethicists would agree to a definition similar to this : Sustainability means that people have equal right to find, on the average, equal opportunities for realising their concepts of a good human life present and future persons have the same right to find, on the average, equal opportunities for realizing their ideas of a

good human life both now and in the future. It also demands that consider economic, social, and ecological development should be equal (Ott,n.d).

For example Sach (1999), Spangenberg (2004) and Weingaertner & Moberg (2011) implied that equitable income distribution (economic equal opportunity) is important determinant of economic sustainability. Nevertheless, Mckenzie (2004) indicated the equity of access (equal opportunity) to the key services is important determinant of social sustainability.

2.5.6.2 Social Interactions

Social interactions, sense of place or identity are another determinant, which can enhance a social sustainability. (WACOSS, Barron, Gauntlett, 2002 and Dempsey et al. 2011) for social interaction criteria and (Choguill, 2008 and Woodcraft et al, 2011) for sense of place and identity criteria, they have all proved the validity of these criteria's in different case studies.

Talen (1999:1369) argues that there are two yardsticks in measuring the social aspects of urban areas. These are "level of neighboring" and "sense of place". Talen explains that research on level of neighboring focuses on measuring levels of social interaction. Social interaction refers to all types of interactions that occur between people. These interactions can be verbal or non-verbal, friendly or threatening, and brief or long-lived, that is, they can occur in various forms. Social interaction can occur between individuals and groups and interactions can be oppositional or cooperative. Social interaction is an essential and vital part of human life. For example, Research by Holt-Lunstad et al. (2010:14), demonstrates people with adequate social relationships have a 50% greater likelihood of survival compared to those with poor social relationships.

Where there is no social interaction, people living within a society are seen as living in separation, with little or no sense of communal harmony, without having any attachment to the place (Dempsey, 2006).

According to While Fischer (1982) supportiveness of networks can be overstated, arguing that having social and mutual support is a very important way of improving people's value and identity as well as the society. This social network grows from weak to strong, such that one can identify the other by sight even to close intimacy like in family. It further argues that this weak connection can be as important as the strong intimate ones, particularly as it relate to the size and number of people living within the neighborhood, and it is also influenced by the various social openings available (Skjaeveland *et al.*, 1996). Dempsey et al., (2011) suggest different kind of indicators such as density, layout, mix land use and social participation for social network and perspective of life, and place for last criteria, which are proxies to measure mentioned criteria.

In many cases, urban consolidation is achieved through the development of medium and high-density communities in urban renewal sites in brownfield redevelopment areas (Easthope and McNamara, 2014). The relationship between residential density and social sustainability has received much academic attention, especially in debates about the 'compact' city' (e.g. Jenks et al. 1996; Burton 2000; Bramley & Power 2009). More than supposed benefits of environmental and economic sustainability, compact and mixed-use urban forms are arguably more socially sustainable because they typically improve access to services (Burton 2000), reduce levels of social segregation and inequity (Jenks et al. 1996, Burton 2000, Williams et al. 2000), increase vitality and social interaction (Talen 1999), and improve safety due to

higher levels of passive surveillance (Jacobs 1961).

Social capital needs a physical medium, which might be a workplace or a sporting facility, a park or a residence for a family barbeque (Davidson, 2009). Starting with a broad knowledge of social capital from Woolcock (1998) as "embracing the norms and networks facilitating collective action for mutual advantage". Involving in local activities is described as one of the domains of social conversation (Forrest and Kearns, 2001) and a dimension of social civilization related to social network integration (Littig and Griessler, 2005). These standard also enclose political participation, such as electoral turnout, even though it has been debated that 'in some respects voting is not a typical mode of political participation', because it is sharing in an undemanding form (Putnam, 2000, p. 35). Demands have been made that participation is associated with density and land use mix in the way that mixing land uses and increasing density may provide residents with a greater variety of activities in which to participate (Talen, 2001). This is also associated to the level of accessibility of community facilities, which may have an influence on involving in particular activities.

Despite this existing turn away from the prominence of the neighbourhood for social interaction, researchers continue to undertake studies on neighbourhood social interaction. In some neighborhoods, extensive interactions may perform a intricated role through organizations and services in the larger community. Social interactions are the social activities that neighbors engross in, including borrowing tools, visiting, and asking for assistance (Unger and Wandersman, 1985). It is reflected by the existence of friends and intimacy on the block or the neighborhood (Appleyard and Lintell, 1972). A social interaction definition includes unstable such as social support

and social interaction. Differentiation between social support and social networks provides a knowledge of the content and types of social interactions that develop among neighbors. Social support means mainly to the rate of interactions among residents (Weenig, et al., 1990). Social networks include connections to others regardless of the supportive content of the network. Examples of social networks include neighborhood and block organizations (Crenson, 1978). social support is defined as supportive, interpersonal relations. Such support includes individual (emotional) support, instrumental (functional) support, and informational support. Personal (emotional) support decreases social separation and increases social belonging (Mann, 1954). Instrumental support is defined by the exchange of goods and services among neighbors. Neighbors provide informal instrumental aid, especially in cases of emergencies, property systematic, and intervention by questioning strangers (Mann, 1954; Unger and Wandersman, 1985; Warren, 1981; Warren and Warren, 1975; Weenig, et al., 1990).

2.5.6.3 Sense of Place

Sense of place is described as the attachment of people to have particular geographical location (Stedman 2003). People should feel that some part of the environment belongs to them, individually and collectively, some part for which they care and are liable, whether they in ownership or not (Oktay, 2002). The sense of place has direct relation with mental consciousness of a place and included the particular characteristics that make it different in compared with other places (Tuan 1980). Another face to social sustainability is a positive sense and connection to a particular place (Nash and Christie, 2003). Furthermore, it has all along been argued that the physical setting of a place, the activities performed around it and projected meanings are closely related (Gehl, 2001and Lynch, 1960). The philosopher Relph

(1976) correctly said *'to be inside a place is to belong to it and to identify with it'*. Thus this can be a lot about the physical environment as it is about the people that live there. Rapport (1990) stated that the physical environment projects meanings that can be felt across the globe between people that observe similar and cultural origin and distinct person across board.

According to the different studies about measuring of sense of place this study will consider the townscape design, preservation of characteristics and quality of place which those are more relevant indicators to capture sense of place. The general typical of townscapes as it is known for is essentially recalled with universal passion for its visual quality derives greatly from their visual quality, whereas less prestigious areas need a greater degree of everyday familiarity to gain character or personality (Yung and Chan, 2012). Poor townscape design practices destruct uniqueness of places and hamper improvement of a sense of belonging among the residents. Oktay (2004) stated that streetscapes could encourage outdoor interaction among the citizens. According to Porta and Renne (2005), visual images of streets and platform, and interconnectivity of street layouts have impacts on social sustainability of places. Further more, the citizens are more satisfied when the visual appearance is nice and building configurations in terms of density, height, mass and layout are properly designed (Lee, 2003; Li & Brown, 1980; Vandell et al., 1989). According to Chan and Lee (2008) Townscape design are containing such as streetscapes, visual images of street, and interconnectivity of street layouts.

Historical buildings should be preserved properly for enjoyment of future generations (Fung, 2004). It bears witness to changes in time and it is left by former generations identifying who we are, what we do and how we live in the past. Apart from sustaining historical structures and features, local characteristics/distinctiveness

of an area should be respected and existing community network has to be conserved (Chan and Lee, 2008). According to the Henderson (2008) claims those historic buildings from the past, that may not necessarily be monumental in nature, can project strong symbolic meaning into the society as they contribute to its heritage and identity of the place. In a pursuit for identity, people often rely on both individual and collective memory, these memories are drawn from either their personal experience of the place or one general gotten from a collective experience of the people that have live there at one time or another (Ku, 2010).

Pride and sense of place are intimately connected to the built environment; this is because these emotional feelings can be influenced by the quality of the place (Talen, 1999). Such a sense can be created through the built surrounding environment, this can be achieved for example through the existing ways of life of the people which is reflected in their behavioral pattern (Kearns and Forrest, 2000) such as an unwritten rule like ensuring that the garden is kept clean and lawn mown (Dempsey et al., 2011). Quality of place is a multi-disciplinary concept that is to say, it is a multi-dimensional idea. According to the Serag El Din et al., (2012), the environmental quality of place can be one of the yardsticks to measure the quality of a place. In town planning and urban design considerations are often made with regards the unique quality of a place and the sense of belonging it gives to the occupants of the buildings (Chan and Lee, 2008 and Thwarts et al., 2007). However, less distinct areas needs a higher level of daily familiarity so as to attain individualization (Rapoport, 1990). Place, in some studies, mentioned to the quality of place or personal valuable Judgment about physical properties of place which is used in contrast with "placelessness" (Vitterso et al, 2001). Individual and collective behaviours of people in a place affect the sense of place and also sense of place is

affected by individual behavior and social values and attitudes of people (Hashemnezhad et al., 2013). In Jorgensen (2001) studies on the theory of "attitude", he defines three yardsticks for measuring the sense of place which is including emotional, cognitive and behavioral dimensions. People's notion about there environment are sign of emotional dimension, their perception about space influences their cognitive dimension.

It can use physical and non-physical factors for measuring quality of life (Dempsey et al., 2011). Physical factors are such as decent housing, access to opportunities, high quality public services, good quality, good transport connections. Likewise, non-physical factors can encompass safety local social networks, social inclusion and spatial integration, cultural heritage, a sense of belonging and identity, and well-being. Areas that mostly relate to urban development mostly relate as well physical factors; to the city and its buildings, and the built environment etc. this has to do with connecting places in such a way that allows for easy movement.(e.g. pedestrian friendly design, good transport links), mixed use buildings, the quality of the local environment and basic infrastructures (i.e. accessibility to green natural environment, quality of air, etc.), urban design (e.g. use of day lighting, pleasing and safe public environment), availability of good housing (e.g. mixed tenure, residential stability versus high turnover), sense of belonging. It could also be said that, instead of systems of their own, they can be seen as means of fostering social sustainability ideas in to the urban environment. Which will further lead to proper connectivity and circulation solutions.(like creating new pathways) may provide better accessibility (Weingaertner and Moberg, 2011).

2.6 Summary of the Chapter

Following chart (2) is summary of the literature review. After definition of sustainability and explaining about the categories of sustainability such as environment, economic and social sustainability, it will be discuss about social sustainability that is main objective of this study. At this stage, it explained about various definitions of social sustainability and components, aims, emergent principles of social sustainability. Also, it discussed about traditional indicators and empirical investigations of social sustainability. Finally, after evaluation of different indicators, it defines three common indicators that can capture social sustainability as a whole. These indicators are social equity, social interactions and sense of place. To measuring of each indicators different factors will consider. For "**social equity"** factors such as, **accessibility** from (**health**, **education**, **public transportation, housing and recreation facilities**, **local services**), **decent housing** and **equal opportunities** will consider. Also for "**social interactions"** factors such, **density**, **layout**, **mix land use**, **courtyards**, **social participations** and **interaction between neighborhoods** will take in to the account. Furthermore, factors such as **townscape design**, **preserving of characteristic** and **quality of place** will consider measuring sense of place. The results of all reports shows by tables in the next chapter.

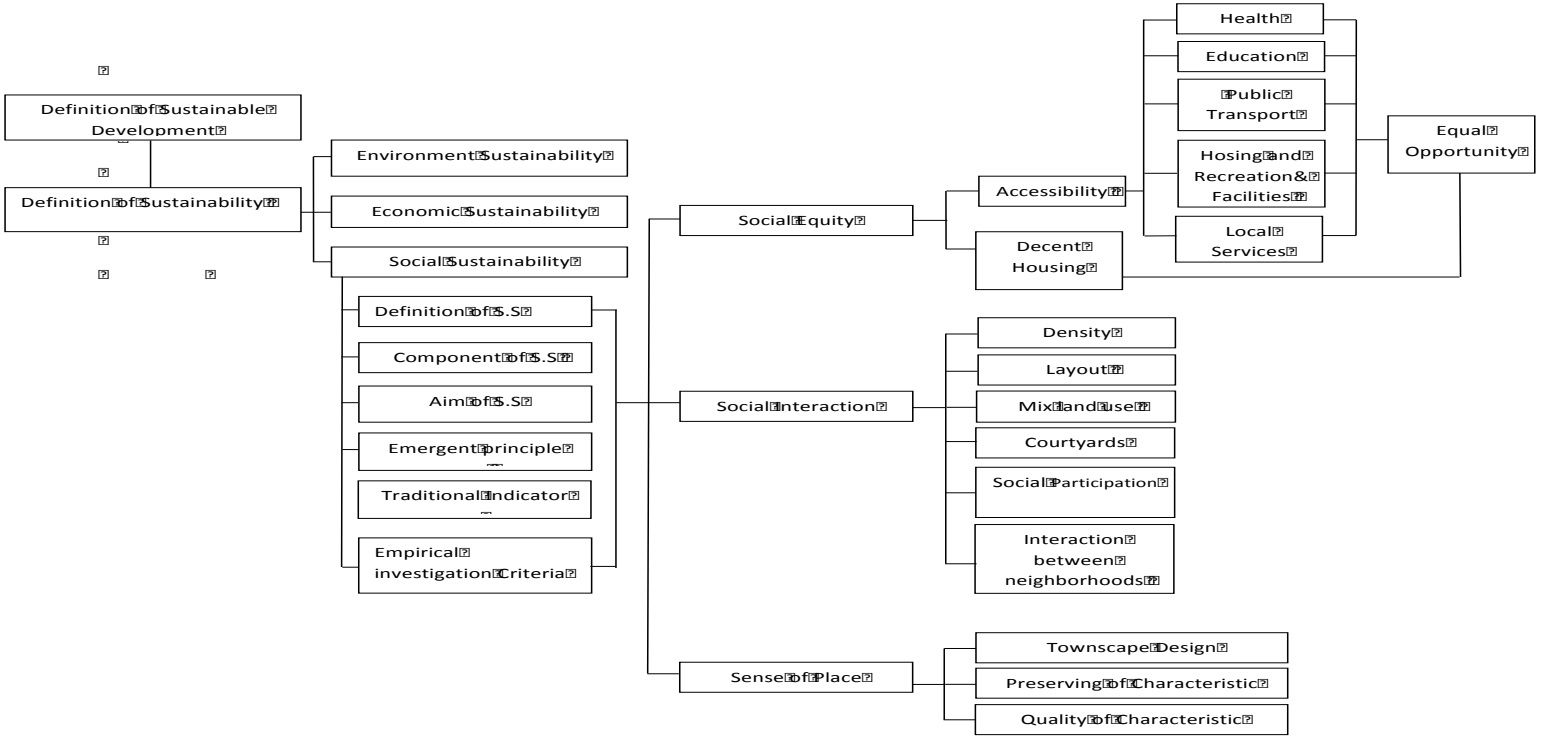


Chart 2. Summary of the Chapter Two

Chapter 3

Evaluation of Social Sustainability in the Walled City of Famagusta

3.1 Introduction

This chapter will explain about the Walled City where located in Famagusta city, North Cyprus and overview the history and background of it. It also practices the social sustainability criteria for the Walled City that explained in table 7, in literature review section.

Cyprus which located in the south of Turkey, is the third larget island in the Mediterranean sea. Famagusta is the second largest city in Northern Cyprus where it cointained the historical place of the Walled city (Doratlı et.al, 2003). Following figures (7,8,9) shows the geographical location of Cyprus and location of the Walled City in the Famagusta.

Figure 7. Location of Cyprus, Source: URL1

Figure 8. Location of the Walled City, Source: URL 2

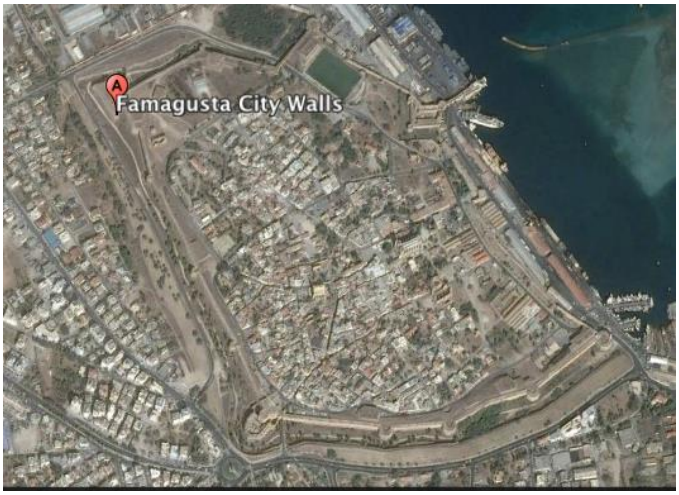
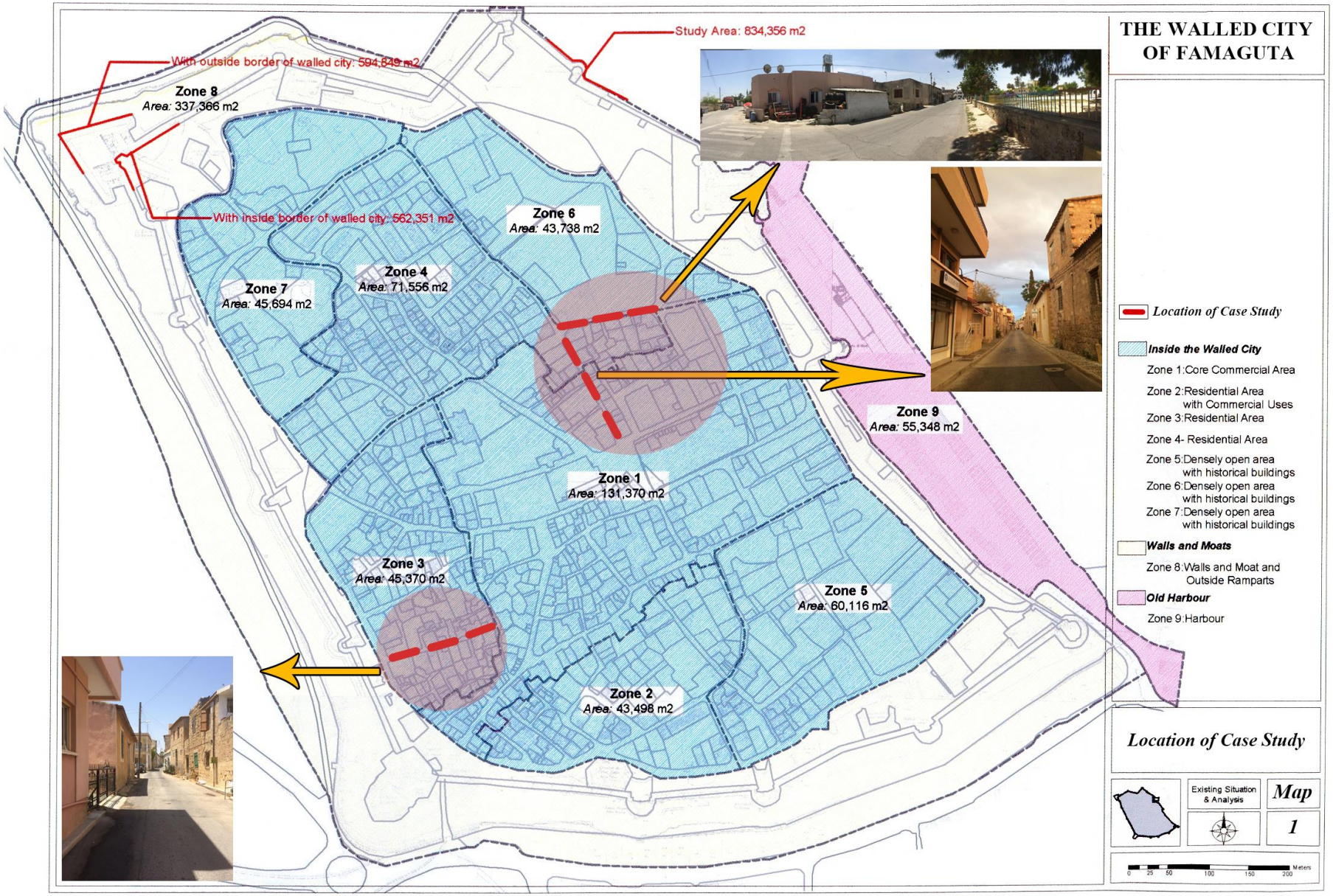


Figure 9. The Walled City, Source: URL 2

The Walled City, which is located in the Famagusta, has been choose as a case of study with the aim of increasing livability chance with utilizing social sustainability concept. The Walled City has divided in to the 9 zones (Municipality of Famagusta, 2005) that containing commercial, residential and combination of commercial and residential. Between theses zones, three streets in zone one and four (Street number one), zone four and six (Street number two) and zone three (street number three), has been choose as case of study which explaining in more detail in physical analyses section (map 1). It is worth to note that street number of two is located between zone four (one side) and zone six (another side).

After determining the social sustainability criterias and explanations about case study streets, it should define the type of methodology that will implement. This study for analyzing social sustainability, it takes three major criteria's in the account. Likewise to measure each criterion, it has to considered different indicators or proxies that each one requires implementing different type of methodologies. These criteria's are social equity, social interaction and sense of place. For measuring social equity it has considered indicators such as, perspective of accessibility to health, education, public transportation, housing and recreation facilities, local services, decent housing and equal opportunity. Also factors such as density, layout, mix land use, courtyards, social participation and interaction between neighbors are assumed for measuring social interactions. In addition, factors such as townscape design, preserving of characteristic and quality of place are important proxies to measure sense of place. A Part from content analysis that focus on analyzes of books, documents, magazines or articles and newspapers contents, it has implemented qualitative and quantitative analysis. Maps, pictures and photos considered as qualitative analysis and database



Map 1. Location of Case Study, (Based on Municipality of Famagusta, 2005)

collections and evaluations are examples of quantitative analysis. For some cases to collect database, it has used physical observations- non participated (physical observations). To obtain high accurate observations database, different days and moments has tested. The overall results for quantitative part depict in different tables with percentage where as it shows qualitative findings on maps and pictures.

3.3 Background of the Walled City

The Walled City that located in Famagusta, Norht Cyprus is multi-cultural cities only around the Mediterranean region. The rest of this study explains elaborately about the Walled City history as follows: 1) Lusignan period, 2) Venetian Period, 3) Ottoman period, 4) first and second British periods, 5) the city between 1960-1974 (period of Republic of Cyprus) and after the war and independency of North Cyprus in 1974 (Doratlı et.al, 2003).

In the Lusignan period (1192-1489), civilization and socio-economic welfare was crested. It is possible to mention some important settlement such as natural harbor, an Othello Tower and a fortress. The city included the colonies of Near East every race (Luke, 1965) and has been recognized as an alive port of trade, activation of social life and construction of more than three hundred churches. In the Venetian Era (489-1571), the Cyprus administration much more focused to change nature of physical appearance and settlements layout the city to the militaristic position (Gunnis, 1973). Therefore, the Famagusta surrounded by fortification all around which including land and sea gate (Ravelin, Porta del Mare), citadel and dozen bastions. In addition, the main axis of the city was forming between the link between two gates and the city was made up with shops and mostly terrace houses. Some

evidence (original tissue and remarkable architectural) proved the existence of other axis from northern to southern of the Walled City that crossing the main axis.

Ottomans in 1571 conquered the Walled City. During this period (1571-1878), the Walled City has been used as a political exiles and a militaristic base that those attitudes affected the socio- economic life and physical and spatial form. In this period, it was concentrating to construct new structures and modification and transformations of existing buildings and structures through addition of second floors. In addition, the main axis, grand façade (Dreghorn) and main piazza from Venetian era preserved however, the Venetian Palace was destroyed. The Cathedral was converted into a mosque (Lala Mustafa Pasa Mosque), adding additional shops along the main axis, merchandise activities, school, baths, and fountains are important events that occurred (Cobham, C. D., 1969; Onal, et. al., 1999; Numan, et.al. 2000). The city was extremely low populated, with empty spaces and a few kitchen gardens at the end of the Ottoman Period, (Luke, 1965) and the central piazza surrounded by Turkish Coffee shops, and designed new market and a small bazaar (Cobham, C. D., 1969; Numan,et. al., 2000).

During (1878-1960) the island became a colony of British Empire. Ottomans before hiring the island to the British in 1878, they attempted to expand the Walled City towards the south. After the transition of the island to the republic of Cyprus, the administration of the city was separated into the two different municipalities. Turkish Government controlled inside of the Walled City and all outside areas of the Walled City that controlled by Greek government. In 1974, after the war, the island separates d into two different regimes (Turkish and Greek government).

3.4 Physical Analyses

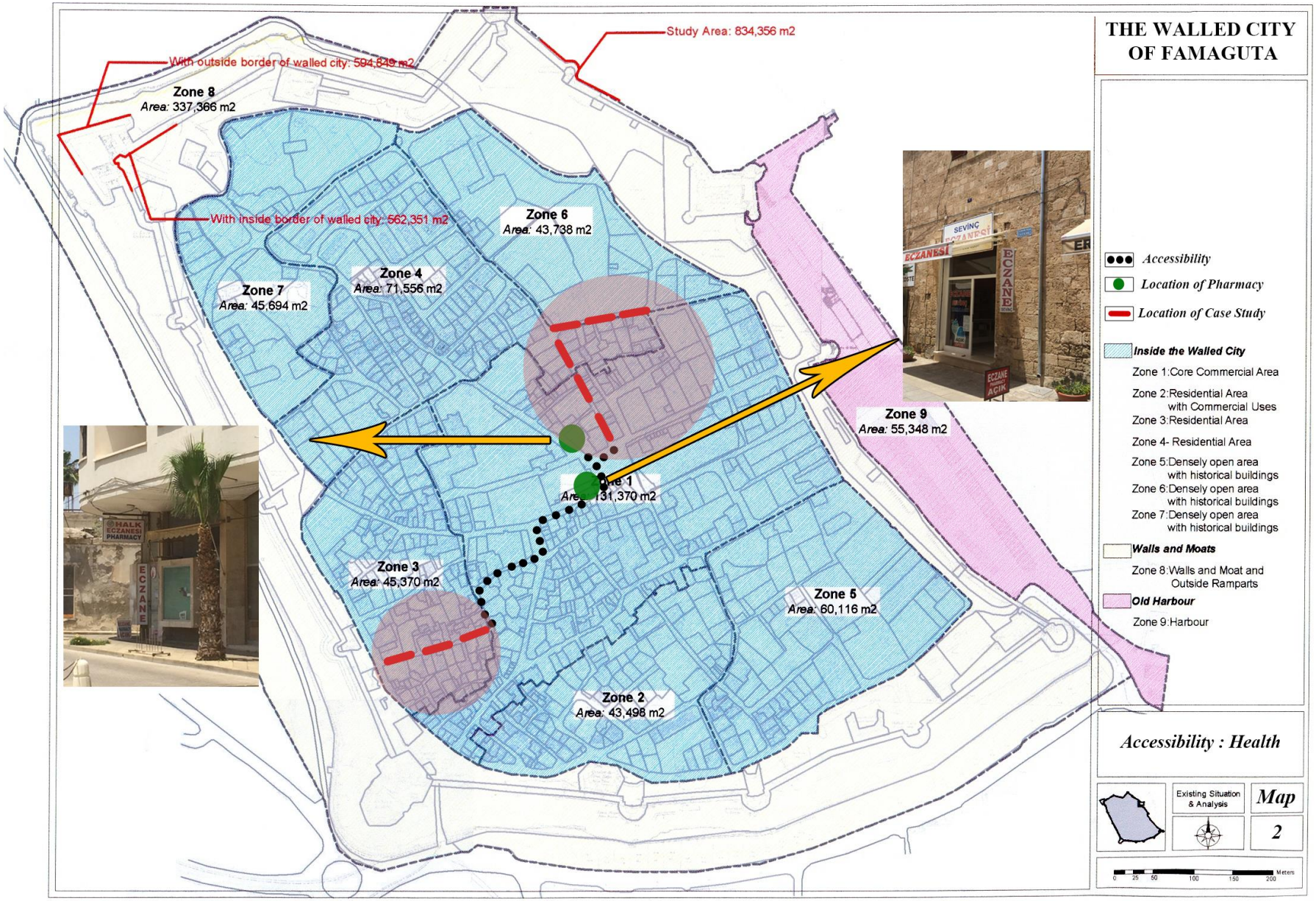
According to the summarized social sustainability criteria's in the literature review, table 7, social equity, social interactions and sense of place are the major determinants of social sustainability. In this section will attempt to discuss in more detail each determinant.

3.4.1 Social Equity from Accessibility View

Base on table 7 in the literature review to measure social equity, this study is using accessibility indicators to evaluate equities. Furthermore, to analyses accessibility, factors such as health, education, public transportation, housing and recreation facilities, local services, and equal opportunities has to be considered that explained in more detail.

3.4.1.1 Accessibility to Health

To analysis of accessibility, health factor is pervasive concept and itself breaking down to different sub-sections. This study will consider hospital, public medical center and pharmacy as representatives of health factor to analysis of social equity from accessibility view. Map (2) shows clearly the Walled City divided into the nine zones, which as explained before in the filed study. Unlike of expectations, in the Walled City and the case study streets particularly, probability of people accessibility to the hospital and public medical center is nearly zero so that people must to left the Walled City to meet medical needs. It has existed the two pharmacies that close to zone one (commercial zone).

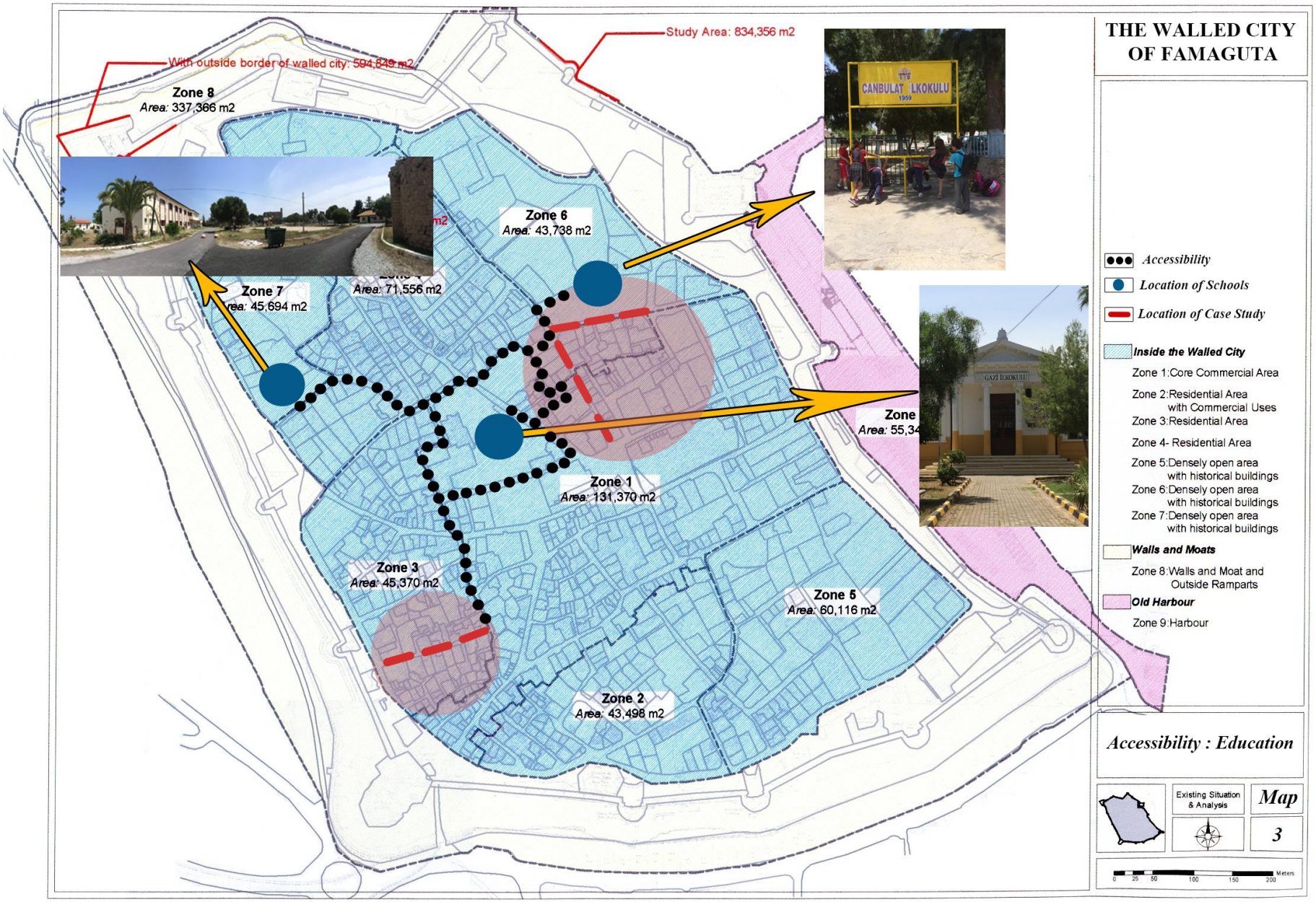


Map 2. Accessibility to Health, (Based on Municipality of Famagusta, 2005)

3.4.1.2 Accessibility to Education

Education is another accessibility factor that at this study measured by number of schools. Inside of the case study, there is one school, which located in zone six. However, out of the case study zones, there are two other schools that located in zone seven and one. From demographic view, the two of them allocated for primary school purposes and the other school located in zone seven devoted to provide education services for disable children between the ages of 4-16 years. Map (3) demonstrates the location of the schools and closeness of them to the case study streets clearly. The high frequency of schools in the Walled City can respond strongly to the people education needs. In overall, education accessibility is not serious issue for young age children who living in the Walled City. But, there is no high school to render educational services for middle age in the Walled City.

Following figures are describing the situation and geographical location of each school that explained in above. Figure (10) shows the primary school of zone six that located in the street 2. In addition, figure 11 and 12 consecutively shows the primary school and the other school for the purposing of providing education service for disable children.



Map 3. Accessibility to Education, (Based on Municipality of Famagusta, 2005)

Figure 10. Kanbulat School in Zone Six, Source: (Davoodi,2014)

Figure 11. Gazi School in Zone One, Source:(Davoodi,2014)

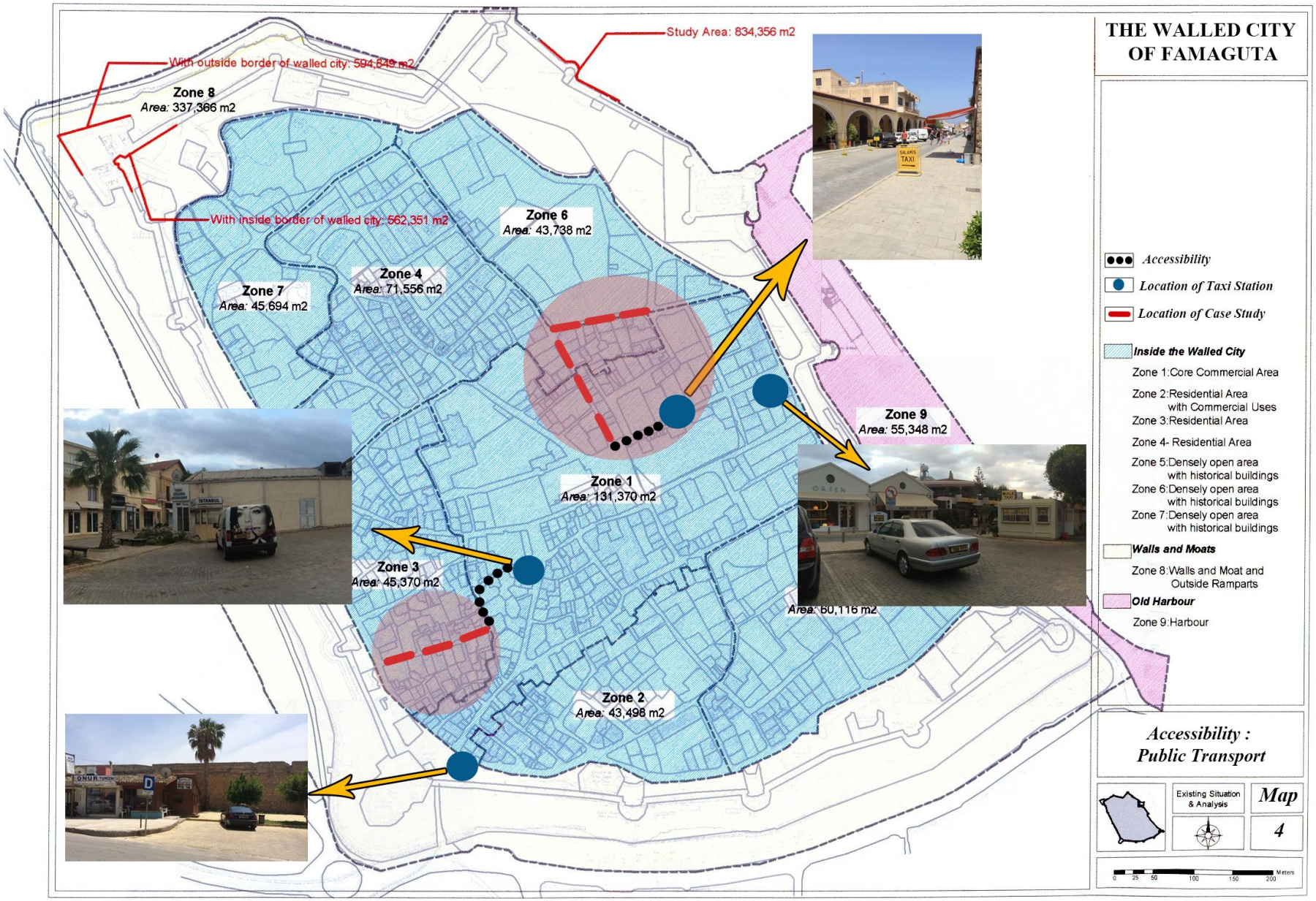
Figure 12. Gazimagusa School in Zone Seven, Source: (Davoodi, 2014)

3.4.1.3 Accessibility to Public Transportation

Public transportation accessibility is another important factor to evaluate social equity. To measure public transportation, this study has considered taxi station and bus station as relevant measuring indicators. Map (4) shows there is four taxi stations that located in the zone one (case study street 1) closely. However, the possibility of bus station is zero that can be justified with narrow street structures. Figure 13, 14 shows the most taxi stations that are located in commercial place (zone one).

Figure 13. Taxi Station, Source: (Davoodi,2014)

Figure 14. Taxi Station, Source: (Davoodi, 2014)

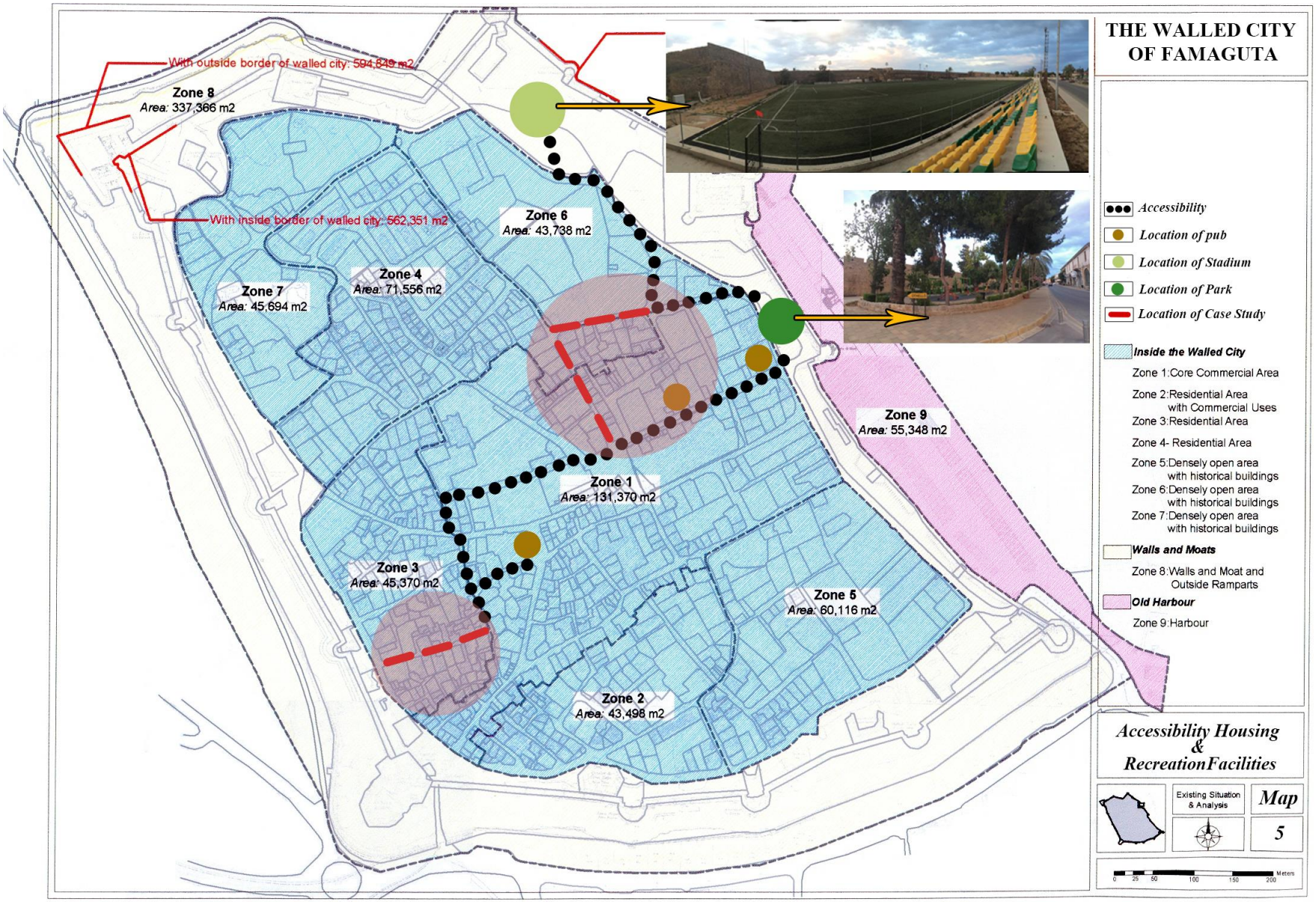


Map 4. Accessibility to Public Transportation, (Based on Municipality of Famagusta, 2005)

3.4.1.4 Accessibility to Housing and Recreation Facilities

In the line with evaluation of social sustainability, the next measuring accessibility indicator is housing accessibility for recreation facilities. To practice for measuring this one, this study has considered park, football stadium, sport clubs and pubs. Zone eight contains one park and football stadium. From housing accessibility view, among case study zones, the zone four is close to such recreation facilities. In addition, there are a lot of pubs in zone one that helps to facilitate socialization of people. Figure (15, 16) demonstrates available pubs in zone one. Unlike, mention recreation facilities people of the Walled City concern about the shortage of sport clubs. Map (5) indicates housing accessibility to the recreation and facilities for the selected case study streets.

Figure 15. Pub, Source: (Davoodi,2014)



Map 5. Accessibility Housing and Recreation Facilities, (Based on Municipality of Famagusta, 2005)

Figure 16. Pub, Source: (Davoodi, 2014)

3.4.1.5 Accessibility to Local Services

Accessibility to local services is important to assess social equity. For this purpose, it used the proxies of retail, office and religious building for measuring local services. From retail view, according to the map (6), between zone four and zone one that street number one is located, it can observe the retails is at the first and end of the street. Also, in the street two that located between zones four and six, it has not retail to see from accessibility point of view. Also there is not high frequency of offices in different zones so that there are only two offices that located in street one (one office) and street three (one office).

In addition, to see religious building accessibility, although there are many churches, constructed many years ago, but for the different reasoning behind it, they have converted in to the different functions or destroyed. At this time, there is only one mosque called, Lala Mustafa Pasha, shows in the figure 17.

Map 6: Accessibility to Local Services (Base on Municipality of Famagusta, 2005)

Figure 17. Lala Mustafa Pasha Mosque, Source: (Davoodi, 2014)

3.4.1.6 Decent Housing

According to the Table (7) in the literature review, after qualitative analysis of social equity from accessibility perspective, the other major determinate of social equity is decent housing factor. This factor discuss about the structural conditions of current housing in the Walled City. The structural positive conditions can help to social sustainability enhancement and vice versa. For measuring, it categorizes structure of housing to the four subsections as, very good, good, bad and very bad. Map (7) shows structural conditions of the Walled City with the mentioned above subsections. Apart from the map (7), for better understanding, the following figures (18,19,20) are provided to show some examples about very good, good and bad structural conditions.

Map 7. Decent Housing, (Based on Municipality of Famagusta, 2005)

Figure 18. Very Good Structural Condition (Street 1), Source: Davoodi,2014)

Figure 19. Good Structural Condition, (Street 2) Source: (Davoodi, 2014)

Figure 20. Bad Structural Condition (Street 3) Source: (Davoodi, 2014)

3.4.1.7 Equal Opportunities

In accordance with above explanations about different items of social equity, for analysis of equality of opportunities, this study attempt to compare the closeness of each accessibility parameters to the each case study streets. For this reason it uses Google map to find out the walking distance to evaluate closeness between each of them. The Table 8 shows the overall results for social equity from accessibility and decent housing perspectives. It indicates each indicator from positive and negative perspective. Positive perspective capture those indicators that exist in the case study streets and negative perspective capture those indicators that do not exist in the case study streets.

Hence, the all results reported in table 9 as follow. From health accessibility view, street 1 has more opportunity of access with lower walking distance to the pharmacy with only one minute. From education accessibility view, street 2 has more opportunities in relative with other streets with only one minute walking distance.

From public transportation perspective, street 1 is more close to the taxi station with only two minutes walking distance. For recreation facilities, the walking distance for pub are closely the same for whole streets but street 2 with three minutes and street 1 and 2 with five minutes walking have highest opportunities to access to the park and stadium consecutively. In the local services view, except than religious building category, for retail and office view, the all streets have same opportunities with the same walking distance. But for the religious building view, street 1 has more opportunity of access with only two minutes. From the decent housing perspective, the results as follows. The street 1 and 3 have more decent housing opportunities in compared with other streets so that the street 1 with 26.31% and street 3 with 55.56% have highest percentage to contain very good and good decent housing. Furthermore, street 3 with 22.22% for bad structure and street 2 with 37.5% for very bad have lowest opportunities among other streets for decent housing.

Table 8. Accessibility & Decent Housing in Three Selected Streets (Source: Edited by Author)

Social Equity	Accessibility														
	Health			Education		Public Transport		Housing & Recreation Facilities				Local Services			
	Hospital	Medical Center	Pharmacy	Primary School	High School	Taxi Station	Bus Station	Park	Stadium	Sport Club	Pub	Retail	Office	Religious Building	
Positive Perspective			✓	✓		✓		✓	✓		✓	✓	✓	✓	
Negative Perspective	×	×			×		×			×					

Social Equity	Decent Housing			
	Very Good	Good	Bad	Very Bad
Positive Perspective	✓	✓		
Negative Perspective			×	×

Table 9. Distance and Decent Housing Analysis:[1] (Source: Edited by Author)

Social Equity	Accessibility														
	Health			Education		Public Transport		Housing & Recreation& Facilities				Local Services			
	Hospital	Medical Center	Pharmacy	Primary School	High School	Taxi Station	Bus Station	Park	Stadium	Sport Club	Pub	Retail	Office	Religious Building	
Street 1	---	---	1 min	3 min	---	2 min	---	4 min	5 min	---	4 min	1min	1 min	2 min	
Street 2	---	---	3 min	1 min	---	4 min	---	3 min	5 min	---	3 min	2 min	2 min	4 min	
Street 3	---	---	4 min	4 min	---	3 min	---	8 min	11 min	---	3 min	2 min	1min	5 min	

Social Equity	Decent Housing				
	Very Good	Good	Bad	Very Bad	Total
Street 1	5(26.31%)	6(31.57%)	3(15.81%)	5(26.31%)	19
Street 2	1(12.5%)	3(37.5%)	1(12.5%)	3(37.5%)	8
Street 3	2(11.11%)	10(55.56%)	4(22.22%)	2(11.11%)	18

[1] Note: All Numbers in Parentheses Presents as Percentage.

3.5.2 Social Interaction

The social interaction is the second social sustainability criteria that explained in detailed in the literature review, table (7). To measure the social interaction criteria as same as social equity in previous part, it takes to consider different indicators. Theses indicators such as density, layout, mixed land use, courtyards, social participation and interaction between neighborhoods.

3.5.2.1 Density

Social interaction can be function of many determinants such as density. Generally, high-density urban texture has lower possibility for interaction among people rather than low-density urban pattern. For quantitative analysis of density, it has applied three subsections as one floor, two floors and three floors. Map (8) demonstrates the density urban pattern distribution in the Walled City. Also the following figure 21 shows the density urban texture in street 3.

Figure 21. Density in Street 3, Source: (Davoodi, 2014)

Map 8. Density, (Based on Municipality of Famagusta, 2005)

To conduct density analysis, there can be considered two methods. It maybe uses the distribution of number of floors and calculations of density area by area of voids. According to Table (10), street 2, has highest percentage of share to have only one floor among others. Furthermore, street 1 and street 3 are very similar to include two floors. However, the finding shows only street 3 with 11.11% has devoted the maximum share to contain three floors.

From another perspective, the total number of floors containing one and two floors in street 1 is equal to the nineteen that is very similar to the street 3 with total eighteen numbers of floors. But street 2 has only containing seven numbers of one floor and one number of two floors. Furthermore, Table (11) shows separately the area of void, area of solid, total area, total square meter and density for each streets of the case study.

Table 10. Number of Floors. (Source: Edited by Author)

No. Of. Floor / NO. Street	One	Two	Three	Total
Street 1	10(52.63%)	9(47.37%)	-	19
Street 2	7(87.5%)	1(12.5%)	-	8
Street 3	8(44.44%)	8(44.44%)	2(11.11%)	18

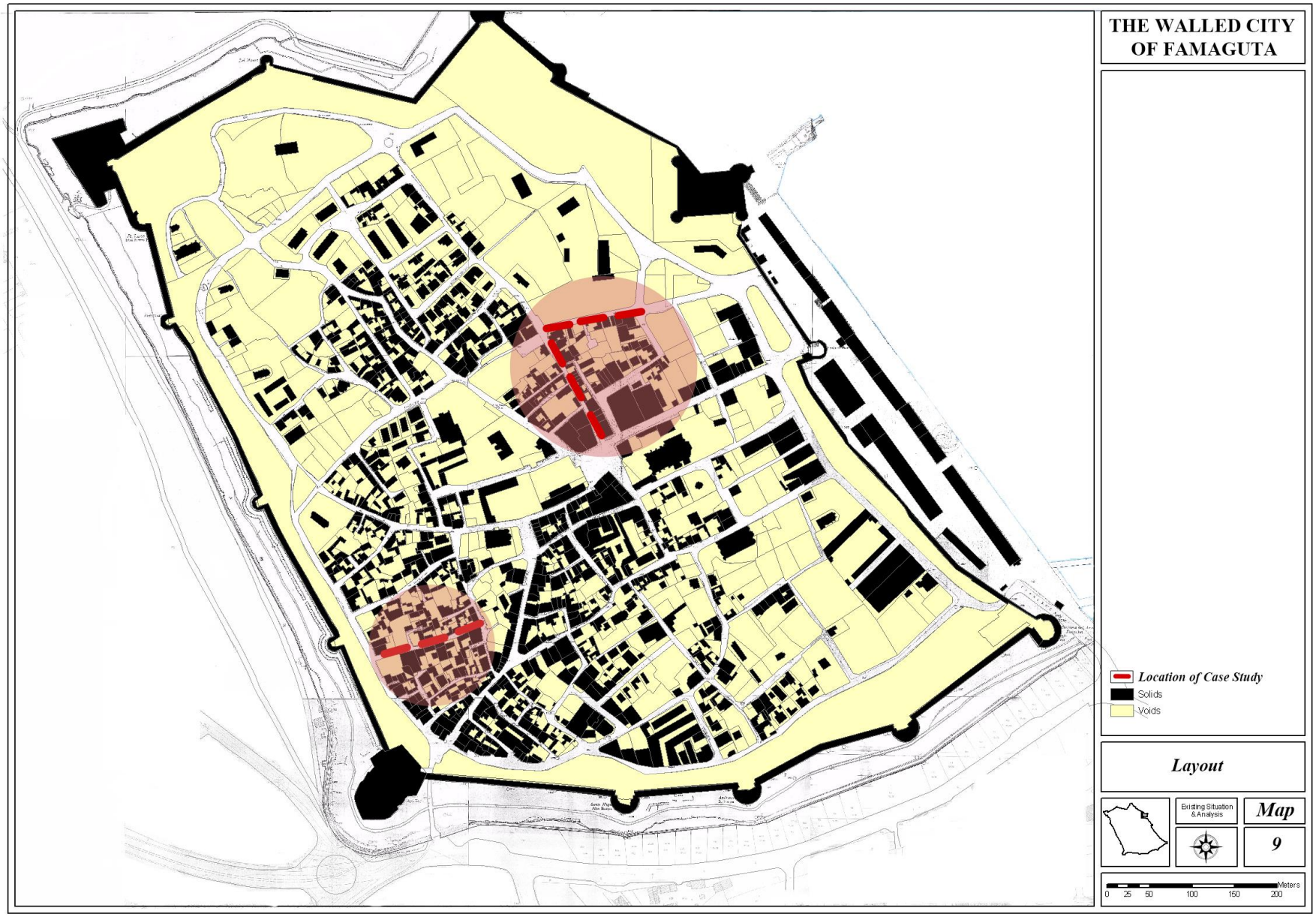
Table 11. Density (Source: Edited by Author)

Density (m^2) / No.Street	Area of Void	Area of Solid	Total Area	Total square Meter	Density
Street 1	984.2(46%)	1154.8(54%)	2139	1801.8	84%
Street 2	3933.4(88.81%)	495.6(11.19%)	4429	495.6	11%
Street 3	1035(60%)	690(40%)	1725	989	57.33%

3.5.2.2 Layout

Figure ground or layout indicator also can play important role to show social interaction. It is possible to use solids and voids areas to evaluate layout. According to the map (9) the dispersion of solids and voids areas in the street 1 and street 3 are balance and similar. Furthermore, in street 2, unlike the right hand side of the street, on the left hand side, the dispersion of solids and voids areas are nearly the same. Figure 22,23 indicates the void area of right hand side of the street 2. The balance dispersion of solids and voids areas is critical point to analysis of social interactions.

Figure 22. Area of School in Street 2, Source: (Davoodi, 2014)



Map 9. Layout, (Based on Municipality of Famagusta, 2005)

Figure 23. Area of School in Street 2 ,Source: (Davoodi, 2014)

3.5.2.3 Mix land use

The other indicator to measure social interaction can be mix land use. This indicator defines by variety of functions. These functions such as residential, retail and leisure, office, open space, mix uses, public utilities and community services. The map (10) shows clearly how well these functions distributed in the Walled City. By considering such functions, it is possible to measure type of involvement such as job interaction, neighbor interactions or outdoor activity interactions. The table 12 shows the analysis of each function in the case study streets. For instance, for the street 3, the residential interaction dominated over the other interactions. Therefore the possibility of neighbor interactions is mostly highest in compared with other streets. To carry out the quantitative analysis of mix land use it should take the different functions into the account. Table 12 demonstrates the comparative analysis between each function in the case study streets. In residential function, street 3 with 70% is the maximum number of residential building and street 1 with 40% is the minimum number of residential building. The function of mix uses distributes similarly between street 1 and street 2 with 25%. However, it is possible to attribute retail and leisure function with 25% and 5% to the street 1 only. The figure 24 refers to the leisure building that located in the street 1. Between case study streets, office

function and open space function can attribute to the street 1 with both 5% and street 3 with both 5%. Likewise, Public utility function with 20% and community service with 12.5% located in street 3 and 2 respectively.

Figure 24. Leisure Building in Street 1, Source: (Davoodi, 2014)

Map 10. Mix Land Use, (Based on Municipality of Famagusta, 2005)

[2]Table 12. Mix Land Use Analysis. (Source: Edited by Author)

Mix land Use	Residential	Mix Uses	Retail	Office	Public Utilities	Leisure	Open Space	Community Service	Total
Street 1	8(40%)	4(20%)	5(25%)	1(5%)	-	1(5%)	1(5%)	-	20
Street 2	5(62.5%)	2(25%)	-	-	-	-	-	1(12.5%)	8
Street 3	14(70%)	-	-	1(5%)	4(20%)	-	1(5%)	-	20

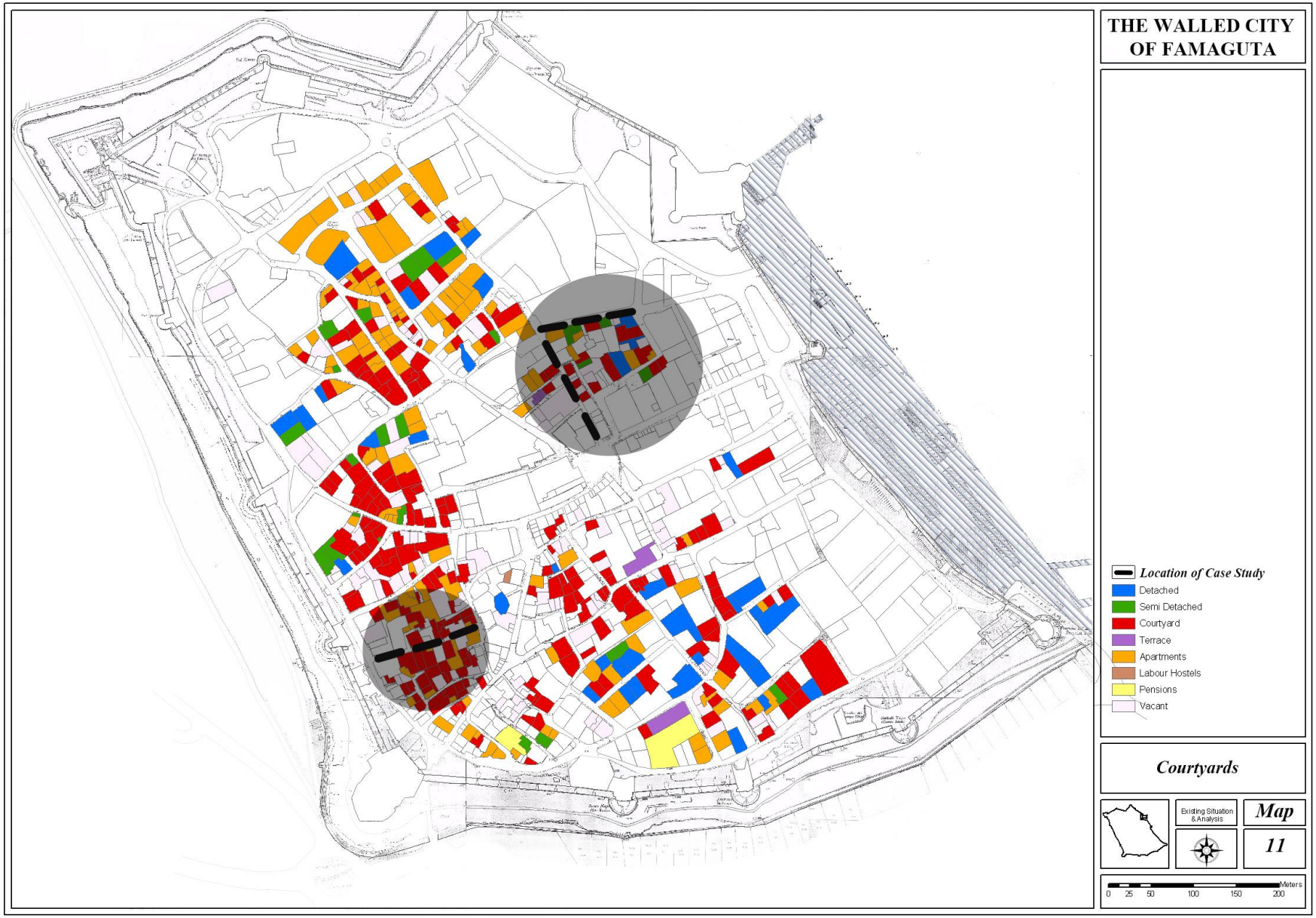
[2] Note: All Numbers in Parentheses Presents as Percentage.

3.5.2.4 Courtyards

The other important determinant of social interactions can be recognized by courtyard. This is private open space that surrounded by walls. According to the map (11) that specifies the existing courtyards in the Walled City, it is possible to obtain some results that presented in table 13. The courtyard analysis indicates street 1 by 21.06% and street 2 by 12.5% have relatively less than courtyards compared with street 3. Street 1 from total nineteen houses, only four houses, street 2 from overall eight houses only one houses and street 3 with total eighteen houses only eight houses have courtyard opportunities. The courtyard essentially helps to create enjoyable moments like as barbeque or gathering with neighbors, family or friends that boost up socializations and interactions. This type of communication is popular among Cypriot people and is very close to Cypriot culture.

Table 13. Courtyard Analysis (Source: Edited by Author)

Courtyards / No.Street	Houses With Courtyards	Houses Without Courtyards	Number of Total Houses
Street 1	4 (21.06%)	15 (78.94%)	19
Street 2	1 (12.5%)	7 (87.5%)	8
Street 3	8 (44.44%)	10 (55.55%)	18



Map 11. Courtyard, (Based on Municipality of Famagusta, 2005)

3.5.2.5 Social participation

The social participation can be one of the measurements of social interaction. There are a lot of events such as traditional events, New Year ceremony, summer festival, sport tournament that take place in the Walled City during a year. These events can be considered as good examples of social participation. Generally, these events take place in open space such as in front of the Lala Mustafa Pasha mosque. The following map 12 and figure 25 describe the location and situation of open space features and locations.

Figure 25. Social Participation Place, Source: (Davoodi, 2014)

Map 12. Location of Social Participations, (Based on Municipality of Famagusta, 2005)

3.5.2.6 Interaction Between Neighborhoods:

Generally, Interactions between neighbors is a common issue and coincide with Cypriot people culture and lifestyle. They are willing to gather and enjoy with each other with Turkish coffee and other traditional meals. In order to see the interactions, it examined for different moments and during different days and particularly weekend days to observe the tendency of neighborhood interactions. Furthermore, to obtain better information, I visited case study streets both in morning time between (8 to 10) AM and evening time between (5 to 7) PM. The following figures 27,28,29,30 shows how the neighbors socialize with each other. The observations show street three and street two are relatively similar and neighborhood interactions are more compared with street one. Because of higher density of retail buildings the neighborhoods interaction in street one will be lower.

Figure 26. Interaction Between Neighborhoods**,** Source: (Davoodi, 2014)

Figure 27. Interaction Between Neighborhoods, Source: (Davoodi, 2014)

Figure 28,29. Interaction Between Neighborhoods, Source: (Davoodi, 2014)

Figure 30. Interaction Between Neighborhoods, Source: (Davoodi, 2014)

3.5.3 Sense Of Place / Identity

As discuss in the literature review section about social sustainability criteria's in the table 7, the last one to measure social sustainability can be sense of place. Social identity can be divided in to various subsections. It is possible to implement these subsections to measure and explain better social identity. These indicators are townscape design, preserving of characteristic and quality of place. Each indicator will discuss with more details in rest of this section.

3.5.3.1 Townscape Design

The visual appearance of a town or urban landscape can be positive influence to making sense of place from people perspective. This study overviews the Walled City urban patterns and compare within different periods. Chan and Lee, (2008) consider the townscape design as "a uniqueness of a place and sense of belonging among the residents ".

3.5.3.1.1 Urban Pattern of the Walled City

As long as explained in the history of The Walled City in previous part, the ottoman period was formed after the Venetian period. At this period, the appearance and urban patterns of the Walled City changed in line with Venetian period urban pattern compatibility (Doratlı.et.al, 2003). However the urban pattern of The Walled City changed dramatically at the British period. At this period, with neglecting traditional pattern, new buildings constructed in empty land or instead of demolished old buildings (Luke, 1965, p 96). Likewise, new roads and individual buildings appeared and constructed in opposite of traditional tissue (Doratlı.et.al.2003). Figure 31,32,33,34 shows the continuum of urban pattern developments in different periods. In overall, the Walled City urban pattern was vernacular organic. The streets were narrow and irregular also, people were populated in the south part of The Walled City.

Figure 31. Urban Pattern of The Walled City in The Lusignan Period ,Source: (Doratlı.et.al, 2003)

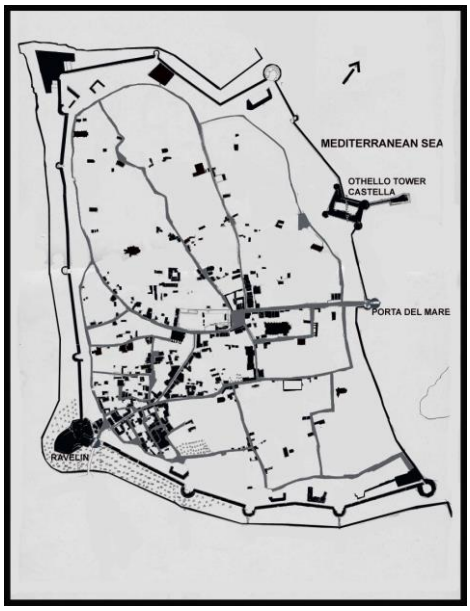


Figure 32. Urban Pattern of The Walled City in The Venetian Period) Source: (Doratlı.et.al, 2003)

Figure 33. Urban Pattern of The Walled City in the Ottoman Period Source: (Doratlı.et.al, 2003)

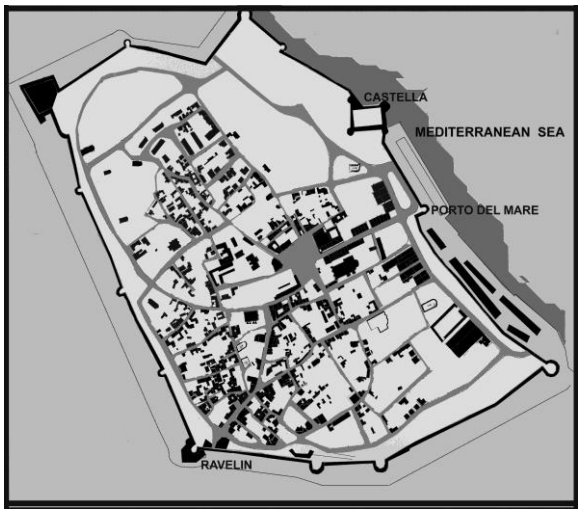


Figure 34. Urban Pattern of The Walled City in the British Period Source: (Doratlı.et.al, 2003)

3.5.3.2 Preservation of Characteristics

Generally, historical places or cities are symbols and representative of history and culture of each county. Therefore, it is very important to preserve heritages, monuments and historical places. Preservation can help to remind current and future generations about the toughs, behaviors of previous generations. It helps to learn future generations about their identities, cultures and backgrounds. Maintenance and preservation of historical places enhance the culture and keep alive identity and characteristics of a nation. The preservations have broad range and it cannot limit to specific type. Preserving of façade one of the important dimension of preserving. This study explains about the facades of the Walled City buildings in Ottoman and British periods and attempt to link with case study streets. It is important to observe whether facades of buildings are preserved or not.

The ottoman period façade characteristics were random and adapted to the local climate and culture. Adobe or stonewalls were mainly the materials that used in façade buildings in ottoman period (Ozay, 2004). The facade characteristics of the house were broad eaves, carved doors and high windows. Likewise arched gates, enclosed wooden balconies over the facades, bay windows or *Cumba*, high ceilings and thick adobe walls are other features of housing at the ottoman period. The *cumba* allowed the insider persons of building to see outside people without standing up and to view who knocked at the door. Moreover, it could provide shelter for passing people in the street (URL 3).

The British period divided in two different sub periods. Firstly between (1878 -1930) years and the other was between (1930-1960) years. In the British period, new materials and techniques for first time implemented in Cyprus. In the British period,

doorways have flat stone and mimic of Roman column. Also, there was a balcony with iron framework above the door and general features of building materials were yellow limestone and adobe (Ozay, 2004).

According to Mesda, (2011) "Mostly narrow and long window sizes began to expand as the reinforced concrete its amenities and balcony ledges even under the wooden beams used instead of the yellow stone".

Open courtyards substituted with semi open entrance (veranda), terraces and garden. In addition, like as first British period, usage of yellow limestone and roof structure applied (Ozay, 2004). Likewise, the number and size of windows on the ground floor increased and the *cumba* nearly converted into balcony.

After defining Ottoman and British façade buildings and according to the map (13) can be able to evaluate façade buildings in the case study streets.

Map 13. Façade Evaluation, (Based on Municipality of Famagusta, 2005)

The Table 14 shows the results of facade indicator between case study streets. According to facade evaluation, street 1 includes eleven buildings with preserved facades and eight buildings with contrary deformed facades. Likewise, street 2 contains five buildings with preserved facades, one building with completely facade and two buildings with contrary deformed facades. In addition, street 3 includes eight houses with preserved facades, four buildings with partially deformed and six buildings with contrary deformed facades. So, comparative analysis shows street 2 with maximum 62.5% preserved facades, street 3 with maximum 22.22% partially deformed facade, street 2 with maximum 12.5% completely facade and street 1 with maximum 42% contrary deformed facade have highest percentage value among other streets.

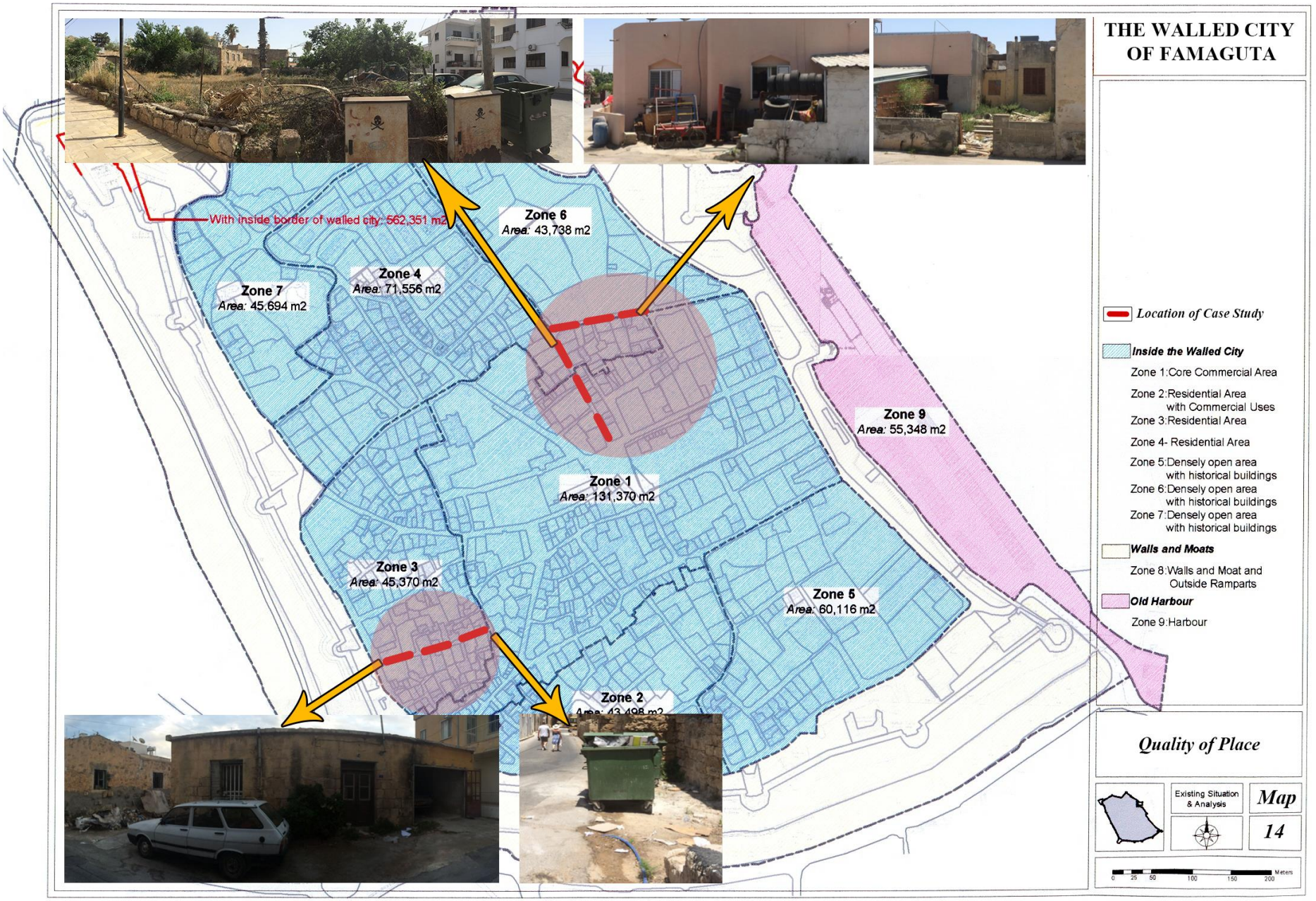
Table 14. Facades Evaluation (Source: Edited by Author)

Facades	Preserved	Partially	Completely	Contrary	Total
Street 1	11 (58%)	-	-	8 (42%)	19
Street 2	5 (62.5%)	-	1 (12.5%)	2 (25%)	8
Street 3	8 (44.44%)	4 (22.22%)	-	6 (33.34%)	18

3.5.3.3 Quality of Place

In line with the Table (7) in the literature review section, the other important component for measuring sense of place can be quality of place. This indicator cannot directly to measure. Therefore, people attitudes towards protecting their public and private environments and structural conditions are good factors for measuring sense of place. People by keep cleaning of their living environment shows their belongings and sense of identity. People by taking responsibilities such as keep cleaning or whatever that stimulate them to feel belongings to the area, or nation can indicate the symptoms of sense of place.

According to the map (14), it seems, there are some weakness points about people attitudes and behaviors to attempt cleaning and protecting their environments in case study streets. In most case study streets such as figures 35,36,37,38,39, private and public environment are unclean and dirty.



Map 14. Quality of Place, (Based on Municipality of Famagusta, 2005)

Figure 35. Quality of Place (Street 1), Source: (Davoodi, 2014)

Figure 36. Quality of Place (street 2), Source: (Davoodi, 2014)

Figure 37. Quality of Place (Street 3) Source: (Davoodi, 2014)

Figure 38. Quality of Place (Street 3) Source: (Davoodi, 2014)

Figure 39. Quality of Place (Street 3), Source: (Davoodi, 2014)

In addition, structural conditions may relate to the quality of place concept. It assume that in very good and good structural conditions people are more willing and motivations to keep the private and public environments be cleaned. The structure of conditions for the streets case study will show on the map (15).

Map 15. Structural Conditions, (Based on Municipality of Famagusta, 2005)

According to table (15), the summation of bad and very bad structural conditions in street 1 is about 42.12%. Likewise, the statistical results show the summation of very bad and bad structural conditions in street 2 and street 3 are close to 50% and 33.33% respectively. Despite of map analysis, these statistically results prove that the streets of Walled City, especially in this case study suffer from quality of place. It means sense of place criterion is challengeable issue among other criteria's from perspective of social sustainability. Therefore, for boosting social sustainability issue in the Walled City, it is possible to maneuver to enhance sense of place or in another words; it can concentrate more on quality of place.

Table 15. Sructural Condition (Source: Edited by Author)

	Very Good	Good	Bad	Very Bad	Total
Street 1	5(26.31%)	6(31.57%)	3(15.81%)	5(26.31%)	19
Street 2	1(12.5%)	3(37.5%)	1(12.5%)	3(37.5%)	8
Street 3	2(11.11%)	10(55.56%)	4(22.22%)	2(11.11%)	18

3.6 Summery of the Chapter

At the first stage, it introduced the case study location is in the Walled City which in Famagusta, North Cyprus. The methodology is content analysis and physical observation then explained about the background of history. In the next part, three common social sustainability criteria's has analyzed by physical analysis. According to the chart (3), for each indicator, different measurements will use. For the social equity criteria, the indicators such as accessibility from (health, education, public transport, housing and recreation facilities, local services and decent housing has considered. Furthermore, the second main social interaction criterion has overviewed by indicators such as density, layout mix land use, courtyards, social participation and interaction between neighborhoods. Likewise, the last major sense of place criteria has evaluated by townscape design, preserving of characteristic and quality of place.

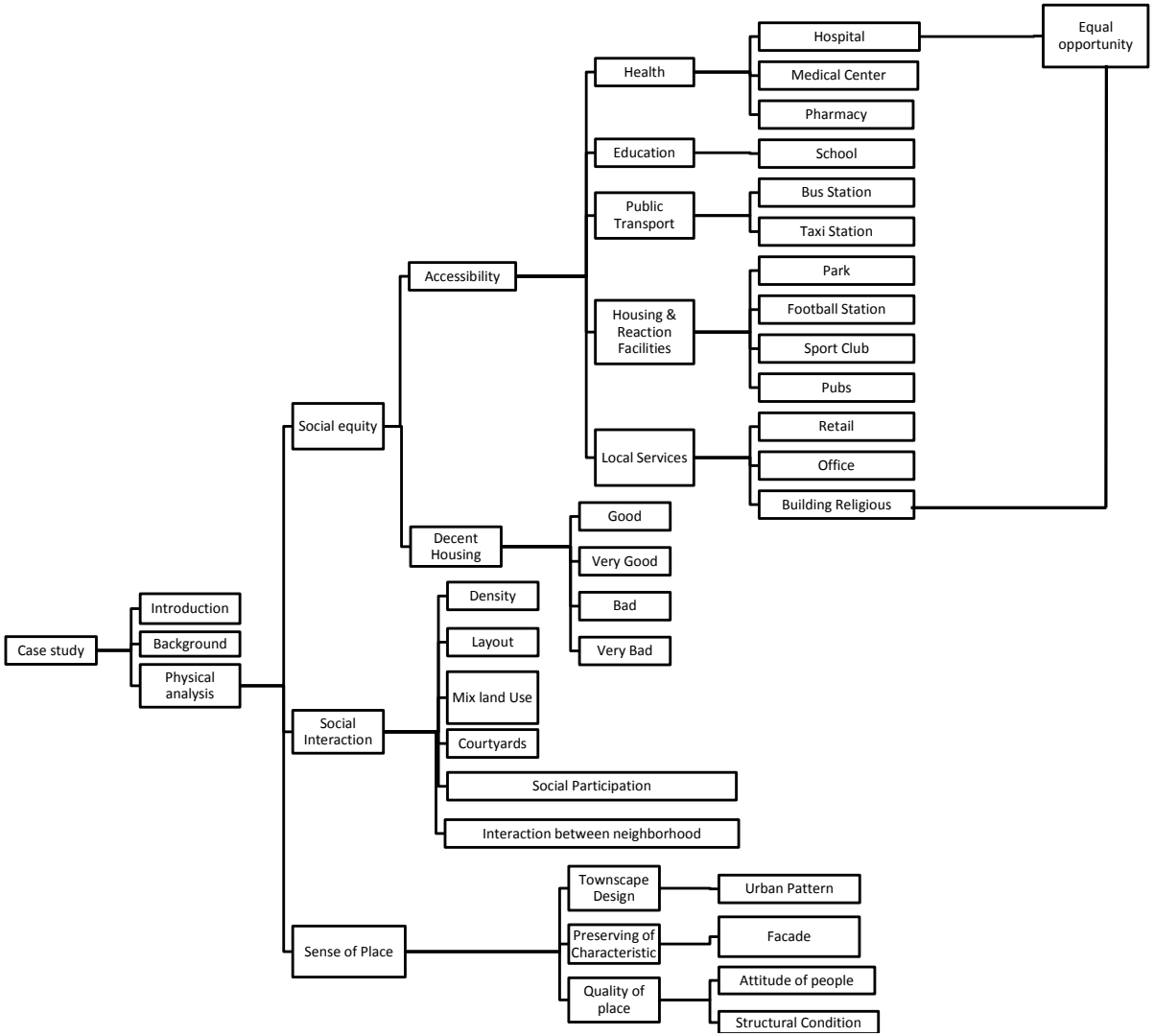


Chart 3. Summary of the Chapter Three

Chapter 4

CONCLUSION

Social sustainability is one the important dimensions of sustainability that has attracted by many studies over the last decade. Due to the importance of social sustainability as a tool to make livability and limited focused on the Walled City by different studies, this research has attempted to find out a framework by social sustainability for making livability of the Walled City. To obtain this aim, it has examined three commonly criteria to measure social sustainability in the case of the Walled City.These criteria will choose by meeting two conditions, which explain completely in the literature review and both Table (6& 7). These criteria should satisfy both physical and non-physical condition and commonly usage conditions by different studies. Positive or negative effects of social sustainability criterias can guide policy makers to enhance negative criterias and reinforce positive ones. The results of this study can be effective for the required historical places social sustainability enhancement.

This study classifies the findings into three different parts. First, social equity analysis shows that accessibility to health, medical center and bus station, which are age-independent, can be significant negative effects to unbalance social equity. However, high school, sport club, which are age-dependent, can have a less negative effect to social equity disequilibrium. On the other hand, accessibility to local services, park, pharmacy, primary school and football stadium can have substantial positive influence and help maintain a balanced social equity in the Walled City. In a

further analysis of social equity for decent housing, the results confirm street 3, by double frequency of very good and good housing to very bad and bad housing, has maximum decent housing compared to street 2 and street 1. In addition, street 1 with a ratio around 1.5 and street 2 with a ratio of 1 have the maximum frequency of very good and good housing after street 3. The overall decent housing analysis shows that this indicator has relatively positive effect to provide social equity. As a summary of the first part of the analysis, accessibility is the most effective determinant to provide social equity in Walled City society. Table (16) indicates the overall findings of social equity analysis.

Table 16. Indicates the overall Findings of Social Equity Analysis (Source: Edited by Author)

Social Equity	**Accessibility**	Case Study Streets (1,2,3)	Health	Hospital	No Access	
				Medical Center	No Access	
				Pharmacy	Access	
			Education	Primary School	Access	
				High School	No Access	
			Public Transportation	Taxi Station	Access	
				Bus Station	No Access	
			Housing & Recreation Facilities	Park	Access	
				Football Stadium	Access	
				Sport Club	No Access	
				Pubs	Access	
			Local services	Retail	Access	
				Office	Access	
				Religious building	Access	
	Decent Housing	Street 1	Very Good	26.31%	57.88%	Ratio
			Good	31.57%		
			Bad	15.81%	42.12%	1.4
			Very Bad	26.31%		
		Street 2	Very Good	12.5%	50%	1
			Good	37.5%		
			Bad	12.5%	50%	
			Very Bad	37.5%		
		Street 3	Very Good	11.11%	66.67%	2
			Good	55.56%		
			Bad	22.22%	33.33%	
			Very Bad	11.11%		

In the second part of the analysis, the overall findings shows that street 2 is in a very critical situation and the lowest percentage of contribution to social interaction. According to the density urban texture hypothesis, street 1, with 84% density, has the lowest percentage of contribution to interaction. Among the studied streets, street 2, with 11% density and covering mix land use indicators, partially has an acute situation for social interaction. According to the importance of courtyards in Cypriot culture, street 1 with a ratio of 3.65 and street 2 with a ratio of 7 have suffered from buildings without courtyards. Therefore, between the studied streets, street 1 and street 3 have higher percentage of contribution to social interactions. However, street 3 with 57.33% balanced density and a balance of housing with or without courtyards with a ratio of 1.25 has highest percentage of contribution. Table (17) indicates the overall findings of social interaction analysis.

Table 17. Indicates the Overall Findings of Social Interaction Analysis (Source: Edited by Author)

			Density		Layout	Mix Land use		Courtyards			Social Participation	Interaction Between Neighborhoods
Social Interaction	**Street 1**	Number of Floor	1	52.63%	Balance	Residential	40%	With	21.6%	Ratio	Such as New Year Festival. Etc. location is In front of the Lala Mustafa Pasha mosque and in the one main street, which showed in Map12.	Yes
			2	47.37%		Mix uses	20%					
			3	-		Retail	25%					
		Density	84%			Office	5%					
						Public utilities	-	Without	78.94 %	3.65		
						Leisure	1%					
						Open Space	5%					
						Community Service	-					
	Street 2	Number of Floor	1	87.5%	On the left side the balance of solid and void is critical.	Residential	62.5%	With	12.5%	Ratio	Such as New Year Festival. Etc. location is In front of the Lala Mustafa Pasha mosque and in the one main street, which showed in Map12.	Yes
			2	12.5%		Mix uses	25%					
			3	-		Retail	-					
		Density	11%			Office	-					
						Public utilities	-	Without	87.5%	7		
						Leisure	-					
						Open Space	-					
						Community Service	12.5					
	Street 3	Number of Floor	1	44.44%	Balance	Residential	70%	With	44.4%	Ratio	Such as New Year Festival. Etc. location is In front of the Lala Mustafa Pasha mosque and in the one main street, which showed in Map12.	Yes
			2	44.44%		Mix uses	-					
			3	11.11%		Retail	-					
		Density	57.33%			Office	5%					
						Public utilities	20%	Without	55.5%	1.25		
						Leisure	-					
						Open Space	5%					
						Community Service	-					

The last category of the analysis evaluates sense of place in different dimensions. With preserving of dimensional characteristics, the findings show that the studied streets are approximately similar in facades preservation. Therefore, the preserving of characteristics has relatively positive effects on maintaining sense of place between local residences. Furthermore, the quality of place analysis of structural conditions implying the ratio of very good and good to very bad and bad are relatively more than one. This shows that structural conditions are not sever issues for maintaining sense of place. In other words, structural conditions have positive effects on the sense of place. Nevertheless, the second evaluation of quality of place or in other words the "attitudes of people" has no positive impact on sense of place. In local residences of Street 2 and street 3, with lesser involvement in collaborations to clean semi open space, open space such as front yards can portray a negative image from the Walled City and lead to degradation of the sense of place. In contrast, people's behavior in street 1 was approximately moderate. Existence of lower class residents, higher retail and mix land use can justify such behavior. Positive and negative effects on quality of place represent dichotomy in the response of quality of place to explain sense of place .The findings of townscape design dimension, in the studied streets implies similarity of urban pattern between studied cases. Irregular, organic, and narrow streets are similar features among the studied street cases. Table (18) indicates the overall findings of sense of place analysis.

Table 18. Indicates the Overall Findings of Sense of Place Analysis (Source: Edited by Author)

Sense of Place	**Preserving of Characteristic**				**Quality of Place**					**Townscape Design**	
	Street 1	**Facade**	Preserve	58%	**Structural Conditions**	Very Good	26.31%	Behavior of people	Acceptable	**Urban pattern**	Irregular
			Partially	-		Good	31.57%				Organic
			Completely	-		Bad	15.81%				Narrow street
			Contrary	42%		Very bad	26.31%				
	Street 2		Preserve	62.5%		Very Good	12.5%		Not acceptable		Irregular
			Partially	-		Good	37.5%				Organic
			Completely	12.5%		Bad	12.5%				Narrow street
			Contrary	25%		Very bad	37.5%				
	Street 3		Preserve	44.44%		Very Good	11.11%		Not acceptable		Irregular
			Partially	22.22%		Good	55.56%				Organic
			Completely	-		Bad	22.22%				Narrow street
			Contrary	33.34		Very bad	11.11%				

Statement of Findings

According to the findings of this study, there are some critical issues that could be, to some extend, enhanced for the social sustainability and livability of the Walled City . According to table 7 that shows social equity, social interaction and sense of place are able to measure social sustainability in a society. Social equity criteria can be improved by fulfilling local residents' needs. Shortage of hospital and medical center in the Walled City are serious issues for the local people. Therefore, health that is the first need in Maslow pyramid, should be the first priority that policy makers should suggest. Even though, old people are respective and satisfying their needs, such as park, is very important. However in line with the livability objective of the Walled City, providing such facilities like as high school and sport clubs can move the young people to return back to the Walled City. Therefore, fulfilling needs of young people can become the second priority suggestion for policy makers.

In addition, the findings of social interaction imply that street 2, with negative density and mix land use, courtyards perspectives can become sever issues that negatively affect social sustainability. One of the appropriate ways to solve the problems of the street 2 can be using multi-dimension school land. It is possible to provide open school land use after working hours to create interactions. Policy makers by providing plans such as gathering events can make social interaction positively better in street 2. According to Cypriot culture, the courtyard is a very popular place and is used for interaction and communication between people. By providing public green open space such as parks, it can solved the issues in the Walled City.

Likewise, according to the findings of sense of place criteria, quality of place in a whole can be an important issue that can negatively affect the social sustainability of the Walled City. Increment of awareness, organization of local people's behavior, municipality collaborations and application of more human resource are the suggested resolutions to maintain private and public spaces clean.

Also, this study has attempt to highlight social sustainability problems that solving them lead to make livability of the historical places such as the Walled City. By reinforcing the weakness points and strengthen the strong points from social sustainability findings, it is possible to make the Walled City livable and returning population back gradually.

As far as social sustainability is an important issue and only a few studies have been carried out for the walled City, For further studies, this research is not going to evaluate social sustainability. However, it is only a framework for other investigations.

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