An Overview on Happy City and Quality of Life related to Environmental Issues

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ABSTRACT

This thesis aims to review all the factors related to creating a happy city. From basis items, we considered the quality of life that is a multidimensional factor and for evaluating that, we need to observe its subjective and objective criteria. Quality of life has a direct link with well-being and level of happiness. having well-being and feeling happy is the main characteristic of a happy city. As the number of population increase, the number of people who are living in the cities will increase and the quality of urban and their condition should consider as well. In urban, for having happiness and well-being, we need to consider the facilities, objective and urban environment. Based on the concept of a happy city that was introduced by Montgomery (2013), there is a link between the quality of life and the urban quality of and happy city. This study by using secondary data and searching about quality of life and its indicators, quality of life and its dimensions and their relationship with happiness, show that how we can create a happy city. In addition, this study by focusing on environmental factors (natural and physical) show that how these indicators play a critical role in our lives and how we can improve and develop our city and transfer them to a happy city for happy people to enjoy their life.

In this thesis by comparing the happy city measurements and using some successful cities that are located in the top level of the happy cities in the world, we are going to achieve our goals.

The information of this thesis can help urban planners and designers to understand better the role of the natural and physical environment in evaluating the QoL and

feeling satisfaction and happiness in urban. This relationship showed that for having a happy city, the physical environment is critical.

Keywords: Environment, Natural Environment, Physical Environment, Urban Life, QoL, Happy City, Urban Quality of Life

ÖZ

Bu tez, mutlu bir şehir yaratmakla ilgili tüm faktörleri incelemeyi amaçlamaktadır. Temel maddelerden çok boyutlu bir faktör olan yaşam kalitesini ele aldık ve bunu değerlendirebilmek için onun subjektif ve objektif kriterlerini gözlemlememiz gerekiyor. Yaşam kalitesi, refah ve mutluluk düzeyi ile doğrudan bağlantılıdır. İyi olmak ve mutlu hissetmek mutlu bir şehrin temel özelliğidir. Nüfus arttıkça şehirlerde yaşayan insan sayısı da artacak ve şehrin kalitesi ve durumu da göz önünde bulundurulmalıdır. Kentte mutluluk ve esenlik için tesisleri, amacı ve kentsel çevreyi göz önünde bulundurmak gerekir. Montgomery (2013) tarafından ortaya atılan mutlu şehir kavramına dayalı olarak, yaşam kalitesi ile mutlu şehrin kentsel kalitesi arasında bir bağlantı vardır. İkincil verileri kullanarak, yaşam kalitesi ve göstergeleri, yaşam kalitesi ve boyutları ve bunların mutlulukla ilişkisini araştıran bu çalışma, mutlu bir kenti nasıl yaratabileceğimizi göstermektedir. Ayrıca, çevresel faktörlere (doğal ve fiziksel) odaklanan bu çalışma, bu göstergelerin hayatımızda nasıl kritik bir rol oynadığını ve şehrimizi nasıl iyileştirip geliştirebileceğimizi ve mutlu insanların hayattan zevk alması için mutlu bir şehre nasıl aktarabileceğimizi göstermektedir.

Bu tezde, mutlu şehir ölçümlerini karşılaştırarak ve dünyadaki mutlu şehirlerin en üst seviyesinde yer alan bazı başarılı şehirleri kullanarak hedeflerimize ulaşacağız.

Bu tezin bilgileri, kentsel planlamacıların ve tasarımcıların, yaşam kalitesini ve yaşam kalitesini değerlendirmede doğal ve fiziksel çevrenin rolünü daha iyi anlamalarına yardımcı olabilir.

Kentsel tatmin ve mutluluk hissetmek. Bu ilişki, mutlu bir şehre sahip olmak için fiziksel çevrenin kritik olduğunu gösterdi.

Anahtar Kelimeler: Çevre, Doğal Çevre, Fiziksel Çevre, Kentsel Yaşam, YK, Mutlu Şehir, Kentsel Yaşam Kalitesi

To my dear niece, Melorin

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INTRODUCTION

1.1 Overview

Due to the rapid changes and growth of cities, their living conditions are attracting more attention. As Mecer (2012) mentioned in his research, any changes in our lifestyle need attention because they may increase happiness and decrease stress. The lack of happiness leads people to experience more pressure and this issue has a direct impact on the quality of life (Bókony et al., 2012). Past studies proved that many factors can impact happiness, such as health or even activities (Dolan et al., 2008). As Radwan (2014) explained, happiness is a feeling that when you experience something, it is precisely the same as your expectation. It gives you satisfaction (Ferreira et al., 2010) and it comes from the surrounding environment. Afterall, the cities can reflex or influence the happiness of their citizens. However, Happiness is a complex and multifaceted subject studied and researched in areas such as psychology and sociology for many years (Seraj EL Din et al., 2013). Previous studies measured happiness with different factors that have related to the quality of life. For example, well-being (Welsch, 2009), satisfaction (Menz and Walsch, 2010), and pleasure (Raphael et al., 2001). However, the environmental aspects would also be a factor in measuring happiness (Ballas and Dorling, 2013). Based on environmental planning and design philosophy, any changes in cities have a direct impact on people behavior and they may increase or decrease the happiness and interaction of the residents (Montgomery, 2013). Also, Montgomery (2013) claimed that a happy city, which is a result of the

interaction of happy people is a green and zero-carbon city that protects people. Past studies proved that green spaces have a positive relationship with the welfare and happiness of people. These places positively act and reduce the level of stress (Mitchell and Popham, 2008). Moreover, Florida (2008) found that the physical environment has a strong influence on the interaction of people and level of happiness. For several years now, the United Nations has been promoting happiness standards and ranking countries accordingly. In this ranking, various indicators such as per capita GDP, the level of social support, public trust, political systems, the existence of corruption, education, health and longevity indicators, freedom of life and choice, generosity, etc. are considered; Indicators that consider happiness more on a national and large scale than on a small scale.

1.2 Problem Statement

Researches related to happiness is completely changed. Happiness is not only related to psychology, but urban designers and planners are focusing on more measurable factors and dimensions of happiness in order to create better and more livable places for the citizens. Gehl (2010) argues that the lack of attention to urban life and its development over the past decade has made it increasingly clear that liveability and happiness in society has been neglected.

As Chen and Zhang (2018) mentioned the environment and its quality impact on happiness. In addition, they mentioned that we need to understand better about the relationship of physical environment as a main dimension of quality of life and happiness. This thesis by focusing on environmental factors and its quality tries to give a comprehensive view about the role of happiness in urban quality of life and relationship between environmental factors in urban quality of and happy city.

1.3 Aim, Objectives and Research Questions

Based on above information, this study by focusing on objective criteria related to environmental factors is going to analysis the quality of life and its factors and investigate a comprehensive perspective about the relationship between environmental factors in urban and happiness in cities.

By answering the following questions, we reveal how quality of life could increase the satisfaction of people that is necessary for making a happy city. This thesis illustrates (1) how environmental factors which are related to natural and physical increase the quality of life: (2) how quality of life based on objective criteria positively impact on citizens' happiness and satisfaction: (3) the relationship between satisfaction of people and creating a happy city, and (4) what are the main indicators of happy city?

This thesis contributes to theory and practice as follows. First, there is limited study work on environmental factors and quality of life (Samavati and Rajabpor, 2017; Mirzaee et al., 2016; Chen and Zhang, 2018), hence, this research can add some valuable information based on the relationship between environmental factors and quality of life.

Second, as quality of life is known as the main factor for happiness, this study reveals how these environmental factors increase the happiness and satisfaction of citizens. This information illustrates the potential of such a city for being a happy city and help urban designer to find about the strengths and weaknesses of each city case.

1.4 Methodology

This study is focusing on Quality of Life and is based on qualitative research through Literature view. By using this information, and secondary data, the environmental factors (natural and physical) will be defined through reviews of Literature of quality of Life and Happiness. This study is going to illustrates the factors which are related to quality of life, urban quality of life and factors which are related to transferring a city towards a happy city. Based on secondary data, this research shows how environmental factors (natural and physical) can impact existing happiness and well-being of residents. This research uses different available data from current Happy city Indexes such as World Happiness Report and Happy City Indexes, to analyze and compare the measurement tools and indicators and evaluate examples in order to reveal why some cities are ranked higher in the Happy City Rankings.

1.5 Research Design

This thesis is completed during the pandemic and lockdown. The data was collected based on past researches and studies. By using the secondary data, this study focused on environmental factors which impact on quality of life. The study in the first step, review the related literature and works of other researchers on happiness, well-being, happiness, quality of life, urban quality of life, happy city and successful happy countries. Then through different example studies and sources of data, analysis and review of documents it intends to find universal indexes for happy cities. This study is qualitative using secondary data in nature, therefore, as such the sources of data is important for its validity and reliability. This thesis is classified into four chapters. The first chapter deals with the introduction. In the second and third chapter, theoretical framework includes the study and definition of literature and classifications, defining the importance of the city as a happy social space and the concept of a liveable city,

concepts to build a liveable city and improve the QoL while protecting residents and people are discussed. In the last part of this chapter, the research deals with the main field: The main characteristics of QoL and happy city in terms of functional, physical and social characteristics that are considered under the concept of happy city. Finally, in the last chapter, findings, conclusions, and recommendations are presented.

Chapter 2

QUALITY OF LIFE

2.1 Overview

Quality of life has a significant impact on advancing our goal of having a happy city as includes the satisfaction and happiness of individuals in the areas of health, family life, household activities, marriage, friends, living in a particular country, paid work, living space, housing conditions, leisure, standard living (Oates et al., 2008). In the following chapter the concept of QoL will be introduced by focusing on the Urban environment.

2.2 Defining Quality of Life (QoL)

Quality of life (QoL) is a multi-layered and complex and wide term and discussed throughout diverse disciplines. It is introduced as a main aspect of urban development as improving the QoL in urban space plays a crucial role for planners and governments (Lotfi and Soleimani, 2009). As defined by Andrews, QoL is ‘a feeling of well-being, fulfilment, or satisfaction on the part of residents or visitors to a place’ (Andrews, 2001, p.202).

Quality of life is multidimensional and complex as it is impacted by environmental factors and individual factors comprise of two parts: objective and subjective. As such, factors such as resources, aims and goals of life enhance it (Cummins, 2005). The quality of life has a relationship with daily life of residents, it can increase with clean air, clean water, wonderful places, security and even food. In addition, in economics it

is introduced as a measure of power that individual use for enjoying his/her life and help residents to recover all life's challenges (Business dictionary ,2012). In previous studies, quality of life is tied with sustainable development and whereas these two factors complete each other (Marshall and Banister, 2007).

Costanza defined QoL as a subjective and objective component and argued that QoL is a concept that relates to objective needs of each person (such as security and etc.) that satisfy people based on their subjective perceptions (such as happiness and well-being) (Costanza et al., 2008). Overall, scholars believe that the quality of life should present both parts at the same time. In another study, Pukeliene and Starkauskiene (2011), note that the concept of QoL covers all aspects of multifaced factors related to people in place and understanding all the relative issues are vital for its measurement.

Nevertheless, QoL can be divided into two main levels: Individual and social level (Delhey et al., 2002; Veenhoven, 2009). Based on the literature in the individual level we have objective life conditions, and we have subjective well-being. On the other hand, in the social level we have objective part we should consider the elements and factors with their quality that make livability social and in subjective we consider the people perspective related to these livability factors. These two factors are discussed in detail below:

Individual quality of life

According to Veenhoven the individual level of QoL four main areas have to be considered (Veenhoven 2000, 2005 and 2009). He mentioned that in QoL external factors and internal factors are important as well as changes and outcomes. It means that in the dimension of the change we have to measure the livability of the

environment as an external factor and the Life ability of a person as an internal factor also in outcome we should measure the Utility of life as an external outcome and Satisfaction with life as an internal outcome. Based on a study of Dowrick in 2007. each person based on the quality of system and environment that he lives, is able to measure his condition and his perspective about these conditions and all to gather show the quality of life. However, the environmental situation such as economy and education, social activities and quality of nature always cannot make all individual satisfied. so, in this part, we also should consider the ability of each person for life. Sen mentioned in his study (1993) that for measuring the quality of life at the individual level we need to measure the ability of each person for using and achieving his development and psychical quality of life. Veenhoven in all his research identified utility of life as issues that are related to the behavior of each person, norms and ethic and general material issues. in each field, there is a different meaning for this factor. for example, in society, the relationship between individual is important. in this part, the main happiness is related to people who are related to an individual, not himself. And the last one is related to satisfaction of each person about his life which is related to individual perception about the environment and all his experiences (Table 1).

Social quality of life

When we look at the quality of life on the social scale, the dimensions and external and internal factors are changing to the aspect of the environment which are shaping society. This includes the physical, social and political. The second part is related to functional that explains the ability of the social for keeping and maintain the environment. Both these areas are talking about the social needs that explain the quality of life and how people have a chance in their social living to achieve the

opportunities, Veenhoven (2009). In this level about the outcomes, as Veenhoven (2005) explained the social level external dimension is related to contribution to civilization and we should consider the innovation and changes in social life. And the last one is related to all believes and norms that shape people in a society and keep them in a country.

Overall, there are some similarity and differences between these two levels. At the individual level, we are considering QoL in the nation while, in social part is related to QoL of the nation, totally in individual part we are facing with some macro and micro issues while in the level of social most of the factors are macro. At the individual level, we are focusing on the satisfaction and happiness of individual in a nation while on the social level productivity of society is more important (Table 1).

Table 1: Level of quality of life and its types, sources: Veenhoven (2009) and Delhey et al., (2002)

	Objective	Subjective	External	Internal
Individual level	Living conditions	Well-being		
Changes			Liveability of environment	Life ability of a person
Outcome			Utility of life	Satisfaction with life
Social level	Liveability of society	Perception of liveability of society		
Changes			Political condition	Functioning
Outcomes			Civilization	Morale

2.3 Group and Factors that Impact QoL

Based on the studies by Hagerty and his group in 2001 and Veenhoven in 2005, because of the complex nature of the QoL still, we don't have clear factors for measuring it, however, many groups and factors are tested and introduce. Based on the

study of Hagerty and his group in 2001, external and internal environment factors are important. Country development and political condition and economy shape people life and aloe them for looking the QoL. An individual uses these factors for having a better physical and psychological and develop his personality and clarify his well-being that is the internal environment in QoL. Concussively, we assume that there are two main group factors that impact QoL. External environment and internal environment (Cummins, 1996). Morover, Pukeliene and Starkauskiene (2011) mentioned that in the external environment, there some issues that cannot control by public policy such as weather condition or even location and location of the country and some factors which can control by policy such as security and stability of political and economic. However, in another group that is related to the internal environment, a person has more ability to control it such as leisure, education, health condition and even family relationship. In addition, in the study of Lindstrom and Ericsson (1993), they divided these factors into four main groups which are global that is related to macroenvironment and political and human rights, external factors that are related to housing and work and also standard of living in a country, the third one is interpersonal factors which consider factors that impact on the relationship of an individual and family, friends and himself, and the last group of factors are related to personal which is related to a physical and psychological condition.

Measuring the factors is not easy and we have to consider the relationship between them because maybe they impact negatively on the other one and results change. Totally for measuring these factors we should use a systematic approach and groups and related factors should consider. Based on past studies there are four main group that influence the QoL. These groups are supported by different fields. These main

groups are physical well-being, social well-being, material well-being and emotional well-being.

Physical well-being is known as a key factor that supported by studies of Felce and Perry (1995) and Haugan (2014). Based on these studies all factors that are related to health condition and security of individual and level of his/her independency is in this group. Haugan (2014) mentioned some factors such as level of energy, quality of sleep and rest, the ability of each person for his/her daily activities, work capacity and level of medicine supplement. these factors also influence the emotional condition of each person and his perception of life. Physical well-being has a direct relation with leisure and entertainment and the hobby of each person (Schalock, 2004).

Social well-being is the largest factors which have a related to all activities and social connection of each person, it covers all factors that impact social relationship such as family relation, leisure and outside activities, creating a balance between work and family and life. In a study of Magsamen-Conrad and his partners (2014), they mentioned that personal relationship and social support also should be considered.

Material well-being is an important group of factors related to economic.it is related to the macroeconomic situation of a country which can impact on quality of life. Easterlin in his study in 2001 mentioned that the financial income that is includes the income and living condition even the rate of unemployment impact the perception of each person related to QoL. However, based on some studies in economics and psychology, such as Layard in 2005 or Kahneman and his group in 1999, they proved that the relationship between income and level of happiness is not direct. Layard (2007) mentioned that maybe people with a high level of income were happy and

satisfied at first but when they compare themselves with their social environments such as other friends or family, it can be changeable.

Stebbins in his book in 2015, mentioned about emotional well-being and its dimensions such as happiness, joy and pleasure, hope and optimism which are highly related to perception of individual and has direct relation with QoL. He also mentioned that these emotions have a direct relation to social activities and leisure.

As mentioned above, QoL is evaluating by subjective perceptions of citizens about the objective criteria and comparing them, so environmental criteria could evaluate by three main subjective factors: personal, social and psychological (Mc Crea, 2007).

Personal subjective: Each person has his own characteristic and judgment idea and view. For any urban objective, each person has its own comparison and depends on his mood and attribute, the evaluation of individual is different (Mc Crea, 2007).

Social subjective: the environmental factors have a direct connection with society and the people activities and their lifestyle. Community and social perception can evaluate the QoL (Ramkissoon et al., 2018).

Psychological subjective: from the psychological well-being, evaluating the objective criteria is proved by Campbell (1974).

2.4 Dimensions of QoL

Based on many studies in different field and by considering the objective and subjective perception of individual these indicators are introduced for measuring the QoL. All these items are related to well-being and supported by past studies.

Work condition and income

This dimension is a measure based on three important sub-dimensions, which are the number of employees and the quality of employment and other activities that are showing the unemployment rate and other jobs (unpaid work). This dimension has a direct relationship with job and work and because our daily life is engaging with this activity, this dimension has a piece of essential information for measuring the quality of life. Safety and type of jobs are important indicators in QoL and the number of unemployment is an important factor.

Salary and income support people to achieve their needs and help them to provide opportunities Li-Ping Tang (2007). These opportunities have a relation with their wishes and support their future hope. The work condition and their job help people to save money and be resistant to cover any crisis. This dimension also covers issues related to the rate of economic activity (stable salary and income that support individual needs), working condition (part-time and full time) especially related to part-time jobs that have some positive and negative result on individual life, for example, a part-time job can support a balance between family life and leisure or social activities but on the other hand, it means less income and less opportunity for having a better life condition that mentioned in a study by Lyonette and his group in 2010, social support (Zdun-Ryżewskaand et al., 2018) rate of unemployment in a country Scheidel (2010). In addition, Ruzevicius (2014) in his study found that working life has a direct relation with QoL.

Housing conditions

In material-living condition, there are three main parts such as consumption, income, and material conditions (poverty and housing). Each part has its own role and they

complete each other for measuring the quality of life. For example, income has a key role in other indicators and it shapes the framework. For this item, many factors are considered, such as national income. In consumption indicator, is showing the real situation of each family, and cover by economic safety. Last but not least, is related to poverty and housing, which show information about money-based and it has a critical role in measuring the quality of life.

RashidahZainal and his partners in 2012, proved that housing condition has a significant but small relationship with QoL in Malaysia. They mentioned that totally housing conditions means all physical conditions that related to safety and security of people living area and this dimension is connect privacy and secure space for personal activities in addition this factor give the protection feeling. overall, these feeling has a connection with family. the cost of housing, condition of environment such as traffic noise and number of people in the area and type of houses are important as well (Streimikiene, 2015).

Health

In the part of health, we should know that this issue has an important effect on the social and future of social. Physical and mental problems with poor health can decrease the well-being of society. In this dimension, we can measure it by three main sun-dimensions such as outcome indicators of health like life expectancy, the number of healthy years for; life and diseases, unhealthy behavior such smoking rate, alcoholic rate and healthy behavior such as consumption of vegetables and fruits, access to healthcare and the number of that also is an important indicator Health-related issues and quality of life is one of the most important dimensions and these dimensions supported by many studies. health-related is an individual perception about mental and

physical condition, level of energy, mood and emotion (Golabi et al., 2016; Armstrong et al., 2016; Havens et al., 2017; Lajtman, 2021; Felipe Varona, 2021; Wang et al., 2021). Health has a direct relation with work, family life and activities and leisure.

Education

Education acts a vital role in each society and its impacts on the progress of people, their future, their skills and their knowledge. This dimension is measuring based on four main indicators. The number of educated people and the number of schools and education centers are important as the opportunity of learning for adult (domestic and internationally) and self-assessed. This dimension has an important role in the quality of life. This dimension has an important role in the quality of life.it helps people to have a better social life. It has a direct relation with development and brings too many opportunities for people about their future, work condition and a higher level of income (Ross and Van Willigen, 1997). The system of education and accessibility of that for people is significant for having the better living condition. Edgerton and his group (2012), mentioned in their study that educational impact at least in seven main areas of life such as life achievement and future goals, in development of factors related to material well-being and elements related to the standard of living, it can positively increase the resiliency in people and also have a direct influence on emotional well-being, there is a link between health and education, in addition, there is a link between education and social relationship, and future safety in social.

Security

This dimension is talking about the economic and security of the people in society. In this part, we are measuring the quality of life-based on the safety and security of people which is related to the number of crimes and physical safety of people when they are

doing their activities. The next indicator is related to the safety of the economy, which has a direct relation with quality of life. Marcau in 2015, proved that the personal security has an impact on measuring the QoL. Overall, in this dimension some factors can influence on quality of life such as traffic accidents (Elvik, 2000) and personal security in social (Lynch and Atkins 1988). All these factors support the social activities and relationship of them with quality of life is proved.

Leisure and cultural activities

For having a quality of life, people need social interaction and this relationship between people is a key factor, which could measure by the power of leisure and activity of people in society. In this dimension, two main indicators are considered. The first one is related to the being in leisure activities that are measuring by quality and quantity of the time that people spent in cultural and sports activities and the level of their satisfaction. The second indicator is related to the type of interaction of people in society and how they positively impact each other. In this dimension, social support and voluntary activities are also considered.

This dimension because of its role in maintaining the society and network of social connection is an important factor in the quality of life. Iwasaki (2007) proved that there are some major mechanisms that can impact QoL such as the positive emotion and feeling that a person is experienced by leisure, the positive impact of leisure in personal identification, the link between cultural and social connection and their impact on QoL and the role of leisure on development of each individual. In addition, in his study, he mentioned that leisure has a direct link with resilience and can decrease the level of stress and anxiety in society.

Transportation system

Another dimension related to quality of life is transportation system and mobility in a county Kim and Ulfarsson (2013). For many people this system is a critical issue because support their daily activities, connection between different area and access to shopping, work, education and nature (Hagerstrand, 1974; Lee and Sener, 2016; Frank, 2000; MingWey and Huang, 2018).

Environmental factors

The environment is a vital factor for our living. The natural environment and its impact on our daily life are ignorable. The quality of that and the protection of resources is the main issue for all countries. Based on past studies, researchers showed that the natural environment could increase the level of quality of life because it has a direct impact on health and economy and social quality. From the objective view, we can measure it based on the level of pollutions and conditions. And from a subjective view, we can measure it based on the perception of the individual and the level of their satisfaction.

The quality of the natural environment and area of living is another important dimension that shapes the living condition of people and impact on quality of life (Streimikiene, 2015). The surrounding area of living is a critical element for shaping our activities and the level of pollutions and quality of them have a significant impact on the perception of individual about quality of life. Green area and land uses are critical for shaping people's living area. Air pollution or other pollution can play an important role in QoL. Access to green area and nature has a direct relation with quality of life. As a key factor, the quality of the environment is proved and a study showed its strong impact (Holman and Coan, 2008). In this part, we can also mention the

indicators of environment that have an impact on quality of life such as quality of the environment, the behavior of people related to the environment and level of using the services of environmental services (Streimikiene, 2015).

Governance and basic rights

Public policy and human rights are important keys to the quality of life.in this dimension, three main indicators are considered and each of them could increase the satisfaction of people. The first one is about trust in government and institutions that build the rules and laws and support human life. The second one is related to public services that are based on the quality of life and the last one is equal chance and opportunities for all citizens in society. This dimension is covering trust in society and support human rights (Eurofound, 2017).

Overall experience of life

Overall, for measuring the quality of life, we must consider three main parts. The first part is about life satisfaction. This part is covering all issues that make people happy and satisfied with their life. The second part is covering all factors that impact of emotional and feeling of each person about his/her life. The last part is covering the conductive to happiness that is giving life meaning and purpose, this part can cover all psychological functions (Eurofound, 2017).

2.4.1 Measuring QoL - Indexes

Many tools have been established to assess the QoL in different communities. Economists were the first to do this indirectly, because of their powerful tools for measuring, based on their own assumptions. In the following some major indexes and tools for measuring QoL will be introduced.

Gross Domestic Product (GDP)

Gross Domestic Product (GDP) was the first indicator developed by economists based on the following assumptions to measure social progress, implicitly and quality of life (F Efficace, P Fayers, A Pusic et al., 2015):

1. Man is a creature who lives by economic logic

2. Economic logic dictates that man become competitive and maximizing

3. If the economic conditions are favorable, the quality of human life will improve by itself. Because in a prosperous and developed economy, the basic needs of human beings will be met.

Critics say neither these assumptions are correct, nor has economic development in the specific sense improved the satisfaction of the residents.

People in developed countries have achieved economic prosperity but do not feel that their lives are of good quality. Therefore, the growth of GDP, which represents economic growth, cannot be considered a measure of improving the quality of life of the people.

On the other hand, the high rate of consumption of natural resources - a correlated variable of economic growth - does not seem to improve the level and quality of life of the people, while it is possible to provide a good life for the people without additional consumption. To solve this problem, other indicators were developed that included social variables (F Efficace, P Fayers, A Pusic et al., 2015).

FISH index

The FISH index was developed in the 1970s and with 16 variables, it pays more attention to social health, or HDI, which is the human development index 5, and with a comprehensive view tries to pay attention to a variety of criteria related to QoL, such as socio-political dimensions and more.

This index also has two sub-indicators called Gender Development Index (GDI) which measures the status of women in society 6 and Human Poverty Index 7 (HPI) Human Development Index was designed by Mahboub Al-Haq in 1975 and has been developed annually by the Development Program every year since then. The United Nations (UNDP) assesses and ranks countries. There are also indicators for measuring the quality of urban life in the cities of the United States, Canada, and Europe (M Brundage, B Bass, J Davidson et al., 2011).

QoL index

However, in 2005 the EIU has also developed 9 indicators the so-called QoL index, which are more than objective conditions, measured and ranked 111 countries:

1. Material well-being as measured by GDP per capita 10 and PPP (power parity)
2. Life expectancy for years
3. Security and political stability
4. Family life: Divorce rate per 1000 population
5. Social life: the degree of presence in social organizations and circles and the church
6. Climate and geography: favorable weather in terms of heat and cold
7. Job security: Unemployment rate
8. Political and civil liberties
9. Gender inequality: The average income ratio of women to men

Mercer Quality of Living Index

Mercer is the one of the most popular QoL indexes for ranking cities. Each year, by using some indicators, they are doing continually research on quality of life in different countries. For evaluating the QoL, Mercer, uses indicators and factors such as recreation, entertainment and social activities; they compare the housing conditions; they analysis the economic conditions; they consider the availability of products and goods for consumer; they compare the situation and quality of public transportation and services; they compare the social and political environment in each country; they focus on natural environment; they consider the health facilities and accessibility in each country; they check the education system and also the factors related to socio-cultural environment. Based on this comprehensive comparation between countries, every year they announce a list and ranking the countries and cities about QoL.

Rank	City	Country/region
1	Vienna	Austria
2	Zürich	Switzerland
3	Vancouver	Canada
3	Munich	Germany
3	Auckland	New Zealand
6	Düsseldorf	Germany
7	Frankfurt	Germany
8	Copenhagen	Denmark
9	Geneva	Switzerland
10	Basel	Switzerland

Figure 1: Top ten countries' quality of life in 2019, source: www.mercer.com

According to the ranking, Vienna is the highest ranked city in the world. With a population of more than 8.5 million people, it is now for 10 years on at the top of the list. The high ranking of Vienna is mainly based on the numbers of green spaces and clean environment, the low rate of crimes and its effective and affordable public transportation (www.mercer.com). Based on mercer' indicators there are ten main reasons for calling this city number one in the world.

Housing condition

Having a house with a comfortable and reasonable price is the first and important factor in measuring the quality of life. Housing condition with design and high quality and in comparing with other cities in Europe is good and also the rent price is affordable. The contract between tented and house owner is supported by policy and the prices, although is increasing but still in compare with other countries in Europe is low. Some houses in Vienna designed by famous architects for low-income people and social support for these people positively impacted the housing condition in Vienna.

Infrastructure and public transportation

Living and working in a crowded city has its own problem but in Vienna public transportation work effectively and they support mobility between areas and places 24 hours a. The prices are low and the system supports all social activities and connection between areas. At the same time, Cyclists have fully supported by there are clear pathway and the safe area around the city. Another option with high quality is sild walking in the city for supporting the people who like walking.

Level of pollution and quality of Environment

The environmental quality of Vienna is famous. There are many green spaces and natural environment. The level of pollution is low and the cleanness and green spaces are excellent. The quality of air is good and it doesn't have any problem with air pollution. The rate of drinking water is high and there is no problem accessing the drinking water for citizens. At the same time, there is no problem with noise pollution and light pollution as well.

Education system

The education system of Vienna is very effective and famous. The system is excellent and also the universities are in the best group in the world. The education system in kindergarten and primary school uses the Montessori method which is focusing on creativity and encourage students in growing their talents. In some school just by using the experimental method, train students and help them for development and growth.

Health system

The Health System of Austria is one of the best in between the European countries. The health system is easy to access for people and they have a high standards system that is supported by the state. The people are supported by three main insurances. The system legally supported by the General Social Insurance Act (ASVG) and when a person hires systematically is joining the health insurance system and based on income, they calculated her/his insurance. The system provides many benefits and there are different kind of services such as Primary healthcare services, special healthcare, Emergency care, Psychotherapy, long term care services, special care for disable people and so on. This country uses an electronic system for monitoring all these services from the date of birth for each person.

Economy condition and stability

Based on the good development and growth of Austria, this country is the 14th- the richest country in the world and the collaboration and cooperation of the country with other countries help them to achieve a high level of gross domestic product which is one of the measuring tools for quality of life. Having the stable economic system make this country one of the most strength country in Europe.

Security and crime rate

The rate of crime is very low and social activities and interaction of people can be stronger because of safety. In 2019, this city is located in sixth place for ranking the safety and security in the world. Overall, walking and doing activities at nights are safe and secure.

Leisure and Cultural activities

Museums and public places such as parks and zoo and its famous opera house and different types of outdoor activity places all support the social–cultural environment factors and they have a strong positive relation with having high QoL in Vienna.

Summary of quality of life

As WHO described, quality of life is "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". Overall, the QoL is related to factors and indicators that support our life and it is related to each individual perspective about his/ her life conditions, and his ability to use these facilities. For understanding these factors, we should measure them based on two main levels, which are individual and social level. Having a high quality of life and standards of living

positively impact the well-being of people and increase their happiness. These factors and indicators are the education system and health system of a country, economic issues and work condition of people which is related to economic experiences, housing condition and the living environments, security and safety of people in society, activities and cultural activities which support people' life and their leisure, transportation system and infrastructure of each area that support daily life and also the rules and laws of the areas and countries which support people activities and life. In summary, quality of life as a complex and multidimensional factor is related to people life and their activities and it has a direct impact on their satisfaction and well-being for enjoying their life.

2.5 Urban Quality of Life (UQoL)

As the number of populations in urban increasing the quality of the urban is also important. Planning for city is more than infrastructure, it also related to development of city, how we should use our spaces and lands and designing the environment. As Kennedy and his group in 2011 mentioned, the concept of urban quality of life achieves more consideration because of population number and using the lands for answering the population need and demands.

Urban development means social activities, economic growth and creativity or even new innovation, however this growth has many negative disadvantages such as changing the environment and using more resources, traffic jam and more pollutions, insecurity and changing in houses conditions which already decrease the quality of life in urban. And this is the policy makers and planners to improve the citizens QoL (Rezvani et al., 2013).

Urban design has a direct related to quality of life and well-being of people. The relationship between environment and architecture is a psychology interaction. Any urban design can influence of well-being and satisfaction or it can negativity influence on stress. De Dominicis and his partners in one study related to Italy in 2015, by considering different dimensions of urban quality of life and using a method of Perceived Residential Environment Quality Indicators (PREQIs) showed the perceived quality of urban features at the neighborhood level. In their study, they used 11 main dimensions of urban environment and their direct relationship with well-being. Also, they used: Architectural and town-planning spaces, accessibility, Green spaces, social relations, Welfare services, Cultural–recreational services, Commercial services, Transportation services, Pace of life, Environmental health, Maintenance and care for understanding this relationship.

Based on a study by Ulengin in 1998 in Istanbul, for analyzing the urban QoL, we should consider four main areas. As they mentioned four main environmental areas should consider, the first one is the quality of the physical environment. it means that the arrangement of building in urban and type of houses is important as much as using the green areas and having the infrastructure and urban services. The second important area is related to the quality of the social environment. This part includes the educational system and also the price of it and access to this service. This part also covers all services related to health and the access of health and its price. In addition, the safety and security of society for having cultural activities and entertainment which is a critical point for social connection is very important to consider. The third area is related to the quality of the economic environment which consider the cost of living and price of housing and also the job opportunities and level of job satisfaction. The

last part is related to the quality of transportation and communication that covers the issues related to the quality of public services and accessibility of public services and real communication opportunities for people. The study proved that the economic environment is the most powerful contract and have a direct relationship with the satisfaction of people about the quality of urban life (Ulengin, 1998).

Das in 2008, in his study, focused on the relationship between QoL and the urban environment in Guwahati. He mentioned that the urban environment is changeable based on the pressure of population growth and the quality of the urban environment and the quality of this environment is related to the living spaces of populations. Based on this study, the quality of life of the urban environment has three main dimensions, social environment, the physical environment and the economic environment. In the physical environment, they tested the level of satisfaction about housing conditions, green areas and parks, and level of environmental pollution. In a social environment, they examined the security of urban for social activities, health condition and traffic level, and also the level of social supports. With regard to the economic environment, they test two main issues, the first one relates to the cost of living and the second one related to each personal economic situation. The results of this study proved that satisfaction from natural and green areas and parks were high but the results support the dissatisfaction about traffic condition and how it can impact the UQoL.

Senlier and his group (2009) for measuring the urban quality of life in Kocaeli in Turkey, they used some factors and they claimed that all factors related to QoL can impact on subjective and perception of people about their feeling related to urban. For measuring the urban quality of life, Social and cultural facilities and their dimensions such as theatres, Cultural possibilities like museums, Sports possibilities, Public

internet access, public parks were considered. Also, they measured the educational facilities, environmental quality and pollutions, health services, safety and security, public transportation and parking areas and relationship of people with their neighbors. This study showed that all the factors related to each other for measuring the perception of people about their urban and its quality.

Tiran in his study in 2014, measured the urban quality of life of people in Ljubljana, he used some factors that were related to satisfaction of living in urban. In this study, he found that the quality of the environment had a great influence on residents' satisfaction. And Dwelling is another strong factor that impacts the level of satisfaction, it can impact positively or negatively. However, the effect of economic factors cannot ignore. The final result proved that satisfaction with the neighborhood has a direct link with the satisfaction of living in a city.

However, measuring the factors related to urban quality can also have negative impact as well. For example, in a study of Geurs and Wee (2004), analyzed how to have a sustainable transportation system in urban and accessibility and mobility. They proved that mobility is a need for urban but for having a sustainable system we need consider its impacts as well. They found that because of growing the city population the public transportation and accessibility between areas are growing. Based on this study (EC, 2004) realized that one of them is equity and they found that from each three person in cities, one of them doesn't have a chance to use their own car. The other important issue was related to traffic jam and increasing the pollution, and they proved that mobility in the city has a direct impact on economy and it is costly. The other important things are related to urban areas and spaces that influenced by growing the accessibility and they are lost for increasing the infrastructure and transportation system, this factor

is significantly related to number of green areas and public parks that used for roads and transportation needs. Losing the green areas and parks in cities because of developing the infrastructures also impact on visual of cities. Also, they mentioned that, air pollution and noise pollution are another negative impact of urban mobility and it has a direct link with health problems. Other negative impacts are related to increasing the number of accidents, changing the social interaction style and changing the traditional face of cities based on the growth of urban citizens.

Pirbabaii and Sajadzadeh (2012) for measuring the urban quality of life, mentioned that four main areas have a direct impact on the quality of living in a city and we have to consider the physical functions such as how we used the landscapes and what are their quality, how is the patter of growing the houses and how are their conditions, how is the quality of green areas and public parks, and about the environmental design and infrastructure for the growing a city and its impact on quality of life in urban. They also measured the social environment quality by considering the factors related to social communication, facilities about health and education, safety and security of social activities and access to cultural and public areas for entertainment, also public services. They mentioned that for understanding the urban quality of life the economic environment and public transportation also important. Based on the result they claimed that for increasing the quality of life in the city, social environment is the most important factor and increasing the physical environment quality, transportation quality and economic in order needs more attention for increasing the satisfaction of people who live in Dizaj town in Iran.

Tazieh (2015), found that many dimensions have shaped the perception of citizens related to urban landscapes. And for measuring the quality of the urban environment

we should consider them. About the physical environment in UQoL, we need to use innovation and use the lands in a sustainable way, the landscapes should be interesting and practical because these elements have a direct link with citizens experiences and mental health, any development in the physical environment should respect the culture and social believes, also we can use them for growing the economic activities such as tourism attractions.

Urban planners have a critical role in designing places and areas in the city which can directly increase the level of QoL. The satisfaction of citizens is influenced by many factors in cities such as public places and their quality, the number of green spaces and quality of transportation, security and safety of activities, the quality of accesses for activities and facilities in cities and etc. these places and theses services meet citizens satisfaction and we should be considering the role of environment and our natural resources (Serag El Din et al., 2013). Past researchers examine and test the relationship between urban quality of life and the satisfaction of citizens, for example, McCrea and his group (2005), tested the relationship between subjective urban QoL and different levels of geographic, they found that for young people the environment can predict their satisfaction. In another study, Chor Chin and Wai Foog (2006) proved that accessibility can increase the value of places.

2.5.1 Urban Quality of Life and its Dimensions

QoL is a multidimensional concept that illustrated by many elements and results of relationships between them are shaping the urban QoL. In 2013, Serag El Din and his group introduced 7 main dimensions of urban QoL in his study:

Environmental urban QoL

The environment is a vital factor for our living. The natural environment and its impact on our daily life are ignorable. The quality of that and the protection of resources is the main issue for all countries (Serag El Din et al., 2013). Based on past studies, researchers showed that the natural environment could increase the level of quality of life because it has a direct impact on health and economy and social quality. From the objective view, we can measure it based on the level of pollutions and conditions (Pazhuhan et al., 2020). And from a subjective view, we can measure it based on the perception of the individual and the level of their satisfaction (Constantinescu et al., 2019).

Physical urban QoL

This dimension is covering all issues related to services and infrastructure (Serag El Din et al., 2013). Based on their study, all facilities and land use can impact on QoL. A sustainable infrastructure is a system to support and develop the urban and improve the QoL, and in the same time help to protect the resources (Fischer and Amekudzi, 2011).

Mobility urban QoL

In this dimension, all accessibility, transportation system and traffic jam are mentioned (Serag El Din et al., 2013). Based on their study, these issues may impact on QoL. Pazhuhan and his group (2020) proved that even the access of people and their satisfaction for daily shopping impact on QoL. Also, the mentioned that in urban QoL, the feeling of citizens related to safety of streets and their satisfaction about daily traffic is important. The satisfaction of citizens about the public transportation system is another important element that impact on QoL (Pazhuhan et al., 2020).

Social urban QoL

For having a quality of life, people need social interaction and this relationship between people is a key factor, which could measure by the power of leisure and activity of people in society (Serag El Din et al., 2013). In this dimension, two main indicators are considered. The first one is related to the being in leisure activities that are measuring by quality and quantity of the time that people spent in cultural and sports activities and the level of their satisfaction The second indicator is related to the type of interaction of people in society and how they positively impact each other (Pazhuhan et al., 2020). In this dimension, social support and voluntary activities are also considered (Constantinescu et al., 2019).

Political urban QoL

Based on the study by Serag El Din and his partners (2013), all the policies and roles that support the QoL dimensions, are important and these policies are related to safety and satisfaction of citizens about their daily life (Pazhuhan et al., 2020).

Economical urban QoL

Economic dimension is related to all economic activities the influence the QoL (Serag El Din et al., 2013). This dimension is talking about the economic and security of the people in society. In this part, we are measuring the quality of life-based on the safety and security of people which is related to the number of crimes and physical safety of people when they are doing their activities (Constantinescu et al., 2019). The level of satisfaction of people about the income and the living cost is important as well as job opportunity and job satisfaction (Pazhuhan et al., 2020).

Psychological urban QoL

Overall, for measuring the quality of life, we must consider three main parts. The first part is about life satisfaction. This part is covering all issues that make people happy and satisfied with their life. The second part is covering all factors that impact of emotional and feeling of each person about his/her life (Constantinescu et al., 2019). The last part is covering the conductive to happiness that is giving life meaning and purpose, this part can cover all psychological functions (Serag El Din et al., 2013).

2.6 Quality of Life based on Environmental Factors

The environment has two main indicators: natural and physical. based on past studies these two indicators have a direct connection with human behavior and increase positively their happiness and satisfaction. The relationship between the environment and QoL is proved. In the following each indicator will be discussed:

Natural environment

Natural places and resources have a main connection with human life (White et al., 2013). In many cultures, this relationship has a strong effect (Wolsko and Hoyt, 2012). The quality of natural resources and the environment influence human behavior, emotions, feeling and health. In 2010, Kaplan and Berman, by using the attention restoration theory, proved that spending time on the natural could help people reduce their negative feelings. Ulrich and his group (1991) also found that the interaction between nature and people helps human to recover all bad emotional and feelings. The impact of the natural environment and people is proved by many studies, for example, Barton and his partners (2010) found that this relationship can increase the mood and emotional conditions of humans. Past studies found many benefits about this relationship; however, they are claimed that the role of water in nature is stronger than

other aspects (Barton and Pretty, 2010). Using natural resources and nature in sustainable and good condition is key for cities to increase the positive impact on citizens. Natural environments (e.g., landscapes, forests, seas and mountains) should be accessible to the environment around human habitat (Byrka et al., 2010). According to mental well-being studies, people living near the coastline are happier (Ferreira and Moro, 2010). However, research shows that a distance of more than 5 km from the coastline is not an important factor for happiness. Paying attention to natural forms for the landscape is important because natural habitats have curved, regular and irregular geometric shapes that lead to increased feelings and pleasure of beauty (Engelbrecht, 2009).

Another role of natural environments is the imperceptible encouragement of people to exercise and social interactions, which in fact also causes physical and mental health, and this has a positive effect on happiness and well-being. Natural environments encourage physical activity, which promotes physical health, as well as social interaction, such as socializing with friends, relatives, or spouses, which ensures mental health, which is one of the most important determinants of happiness (Nisbet and Zelenski, 2011).

The quality of the nature has stronger effect, when it is free of any pollutions such as air, water and noise. natural and green environments keep people away from stressors and things that cause mental illness for humans, such as air or noise pollution, which are associated with respiratory and cardiovascular diseases and increased stress. These factors also have a direct impact on happiness.

Weather conditions

Weather is an environmental factor. In 1998, Frijters and Praag, by focusing on weather factors such as temperature, sunny days, wind speed and the number of rainy days in Russia, found that there is a strong link between weather and human well-being. Rehdanz and Maddison (2005), found that temperature has a direct impact on well-being. Ferreira and Moro (2010), mentioned in their study that wind has a negative relation with well-being.

Andersen and his group (2006) claimed that sunny days have a direct influence on children learning. Based on this information, we can say that the condition of the weather effect QoL and people mental and physical health. The weather factors influence human well-being and QoL.

Air and Noise and water pollution

Air is the most critical natural resources and it provides life surviving. Having clean air makes a balance for sustainable living. Air and the quality of that have a significant connection with human life and quality of life. The quality of air directly impacts our health and our life expectancy. Any air pollution could decrease the level of QoL. The lack of plants, the wrong type of transportation, industry and agriculture can increase and cause air pollution. EEA (2016) defined it as “the presence of contaminant or pollutant substances in the air at a concentration that interferes with human health or welfare, or produces other harmful environmental effects”.

Welsch (2006) found that there is a significant relationship between air pollution and its cost with the economy. Less air pollution needs less cost for maintaining and this means that more benefits for countries. As mentioned in air quality and human health

by WHO, air pollution could increase the different disease and have a direct impact on human well-being (2014). The impact of air pollution and well-being supported by past studies (Darçın, 2014). Guxens and Sunyer (2012) found that there is a link between depression and air pollution. Torres and his group (2013) proved that there is a connection between life satisfaction and air pollution. Overall, based on QoL dimensions and past studies, we can say, the air quality could impact QoL and it has a direct link with well-being and human satisfaction.

On the other hand, we have noise pollution which is one of the worse issues in urban life. Many people around the world suffer from noise pollution. Many factors enhance the noise pollution and in urban living, traffic and people culture are the main reason. Noise pollution is about any unwanted sound that suffer people. This pollution also has the direct impact on human health. Evans and his group (1998), explained the negative effect of noise pollution and human psychological problems such as stress. This pollution as well as air pollution could affect on human well-being and their satisfaction. Seidman and Standring (2010) tested the relationship between noise pollution and QoL.

The other type of pollution based on quality of environment is water pollution. this type of pollution has a strong power on quality of life. It could be related to drinking water or losing the nature quality in green locations and blue spaces. This factor makes lots of health problems. Ferreira and Moro (2010), found that this environmental issue decrease the human satisfaction and impact negatively on their well-being. This factor can impact QoL.

Green spaces

As the cities are growing and the level of nature is decreasing, the number of green spaces and their quality is getting more important (McKinney, 2002). Managing them is a need for cities and past researches proved the positive impact of green spaces and human well-being. For example, Rydin and his partners (2012) found that green spaces are the main natural resources in urban and we should manage them carefully, also, they mentioned that these places and locations can increase the satisfaction of people. The interaction between green spaces and human physical activities is proved. Shanahan and his colleagues (2016) found that green spaces provide the most important area for human activities and these places have a positive relationship with human well-being. The connection between green spaces and people in some cultures is strong. These locations encourage people to spend more outside and could also increase social interaction. Leslie and Cerin (2008) showed that these places could positively be related to health.

Blue spaces

Blue spaces include canals, ponds, rivers and lakes. In the study by Ferreira and Moro (2010), they mentioned that living near the sea and on the coastline has a strong link with well-being. These are shape our urban and their conditions are important. The impact on our daily life and quality of them has influenced our mental and health. For example, in 2019, Garrett and his group found that blue spaces can increase well-being. Finlay and his colleagues (2018) proved the relationship between blue spaces and health issues. These blue spaces could increase physical activities and social interaction cohesion (Markevych et al., 2017). Managing these places need sustainable development planning. The quality of these areas shapes our life and effect on QoL.

Physical environment

This part is related to all structures and tools and facilities that human build in their environment. The main goal is to create the facilities to make living easy and comfortable but the quality of these elements is essential. this physical environment has a connection with our life activities, social interactions, leisure and even our behavior. Montgomery (2013) proved that environmental planning and urban design impact on human behaviour and it can increase their interaction and social connection, thereby we can use it for increasing the well-being and happiness through the citizens. The link between physical environment and human activities is proved, for example, Maller (1998) claimed that any physical environment includes physical part such as shape, size or material as well as its productivity such as activities that use for. In fact, these physical environments can mix with nature and based on their quality can increase the QoL of people. Overall, when we are talking about physical environment, we should consider about combination of physical elements that shape our activities and help to increasing the interaction of people in social.

Transportation

Engaging in social and community is a critical key for each person and mobility and transportation system on environment play a significant act (Dickerson et al., 2019). An effective transportation system supports human activities and encourages them to be part of society. Communities should have multiple kinds of transport (e.g., walking, cycling, and public transportation) to encourage people to attend public places in their spare time. Leyden (2011) concluded that the design and conditions of cities are related to the happiness of urban residents. Cities that provide easy access to convenient public transportation and recreational and cultural facilities increase happiness. In past studies

such as Liddle and his group (2012), found that transportation and mobility is a need for protecting the health and this system has a link with QoL. This idea also supported by many studies, such as Mezuk and Rebok (2008) and Bryanton and his partners (2010).

An effective transportation system, provide accessibility, and comfort. In addition, we should mention that different types of transportation can decrease the level of air pollution, and encourage people for more physical activities like a bicycle.

Infrastructure

Having a sustainable development and growing the city with effective infrastructure is related to QoL. Infrastructure is related to all physical and services structure of a society which support human life and it could impact on quality of life. This system related to all facilities and organization. The effective infrastructure increases the comfortability of people 'live and many researchers found that there is a link between infrastructure and QoL. Some studies proved this relationship such as, Fischer and Amekudzi (2011), found that there is a strong relationship between effective infrastructure and QoL and this relationship could make a sustainable development that meet also next generation and protect resources and nature.

From the combination of important infrastructures can be divided into branches and facilities as well as connection points, public buildings, welfare centers, waste disposal systems, waste recycling systems as well as water consumption, institutions, management systems Mentioned events, stadiums and other important public places.

In QoL, the individual is affected by physical and psychological issues and main need for having the good condition is the situation of their life, how they have an access to the places, what is the quality of roads and transportation support (Gabriel et al., 2003), how they have an access to clean water, how they can use the facilities and all of these, are related to effective infrastructure.

This factor can impact directly on our environment and its quality that has a great impact on QoL. With having an effective infrastructure, we can decrease the air pollutions, use our resources like water in a correct way, use the nature and protect it from any wrong decision, use the recycling system for controlling the pollution and reusing the resources, caring more about the energies and our resources (Dia et al., 2007).

Street lighting

Social activities in a safe environment are related to urban QoL. Street lighting is one of the factors affecting the feeling of peace and security as well as providing light. And the importance of light in dark areas is even more important. Or the environment with appropriate light and brightness attracts people to that environment and also the presence of light causes it to meet the needs of people in that environment.

Several studies proved that there a link between lighting and the number of crime (Farrington and Welsh, 2002), it means that street lighting provide the security and safety for having activities in night time. The relationship between street lighting and QoL is tested by past studies. For example, Painter (1994) mentioned that street lighting reduces the crime and increase the society confidence also he mentioned that street lighting has an impact of quality of life.

Street lighting as an objective can increase the safety and at the same time it impact on beaty of cities, provide the security which positively increase the well-being (Peña-García et al., 2015). Davies and Farrington (2020) mentioned the feeling security and safety which are increased by street lighting can positively enhance the well-being in social.

Therefore, it is very important that the layout and brightness are sufficient so that users can experience sufficient performance and enjoy the environment. Nowadays, a lot of attention is paid to the security of public places and lighting of places such as squares, parks, streets, etc.

Gaston and his group (2014) mentioned 4 main benefits from street lighting 1. Time for work and social activity, 2. Prevention of the crime, 3. prevention of vehicle accident 4. aesthetics.

For example, the lighting of the environment should be such that a certain space can be used in the dark hours of the day. In addition to lighting performance, light can also be examined in terms of types of lights, their intensity and location, which has a great impact on the environment and the amount of use absorbed or repelled by people. And also, the beauty of the space that has a great impact on happiness. Baby cooking can act as a warning to the residents of an area and create security for the people, for example, in the stairs, intersections, potholes of the city is very important. It also maintains environmental security and reduces the likelihood of crime. To this end, they use more light in the design and construction of high-crime environments such as prisons.

Urban furniture

Urban furniture is related to all elements and design in a city with different material that provide beauty and comfort such as bench, bust station, public sculptures and etc. this element increase the beauty of the city and encourage people to spend time in society with feeling good. This part is related to park design elements, street design and squares design and positive impact of them on quality of life (Casanova et al., 2016). Public places and their design increase the society communication and quality of them influence the satisfaction of people (Casanova et al., 2016). Any elements in urban designing directly connect with activities and psychological feeling (Casanova et al., 2016).

They are effective and also play an important role in the pleasantness of the space and encourage people to interact socially. According to Maine and Hannah (2010), the challenge in this situation is to spend time outside the home and experience different emotions such as relaxation, using sunlight and fresh air. Also, designing and arranging appropriate furniture in the city can encourage people to use Slow and increase the feeling of social satisfaction. In fact, the main purpose and purpose of preparing this outdoor urban furniture is to increase the feeling of satisfaction and peace, as well as people's entertainment.

Sidewalks and cross walks

Sidewalks are the main part of the urban that increase the face-to-face connection, social interaction and encourage people for physical activities (Jacobs, 1961). The design and quality of the sidewalks are essential. This physical environment can positively increase human’ activities and people's well-being because it increases the trust in the public and more connection between people (Santos et al., 2017). Quality

of environment and physical environment is vital for our life and the sild walks act as a system that makes easy access between places, connect the areas for walking and being mobility in environment and encourage people for walking and doing their daily activities. So, their quality should be considered as well (Ehrenfeucht and Loukaitou-Sideris, 2010).

Possibilities

Overall, the places and areas that engage with our work, life and activities impact our mental health and has a great relationship with our evaluation of QoL. This is the main responsibility of urban planner to identify the places and areas for changing in a better situation (Macintyre et al., 1993). Jaime and his group (2011) mentioned that possibility needs to understand people' needs, culture and geography of the area, analysis the environment and its impact on society and find the correct possibility for any changes in the area. In possibility the environment condition, social condition and human behavior and needs are critical (Belon and Nykiforuk, 2013).

Green space design

According to Zhang (2015), grasses, trees, shrubs and other vegetation are among the main elements for urban space design. The advantages of these plants in urban space are as follows:

Due to the shade created by trees and plants, they encourage people to walk and their shade makes the environment more pleasant and also reduces the temperature because it helps to reduce the temperature of the asphalt. On the other hand, they increase the oxygen in the atmosphere and all these features attract people and encourage them to participate in the community. Because psychologists believe that green creates a sense

of calm (Zhang, 2015). And it is clear that the effect of green space is inevitable. One of the plants that has a great impact on the beauty of the street landscape is green, which covers a large area and creates a beautiful image for the city (Yang et al., 2015) Among the positive effects of plants on people's satisfaction and happiness, we can mention people who have been exposed to these environments.

These people believe that the landscape of vegetation has a great impact on improving the disease and relieving their pain. Another effect of green space is to encourage students and motivate children to play in open spaces (Zhang, 2015). In addition, oxygen is another factor that affects people's mood, so the positive effects of vegetation, such as trees, which act as air filters cannot be ignored. Planting trees, flowers and plants apart from creating shade by spreading a pleasant scent in the space can encourage people to walk and be in the community and establish intimate relationships in friendly environments as well as create interaction for a long time. Summary of environmental factors is showing in table 2.

Table 2: Summary of environmental factors

Factors		Dimensions	Scholars
Environmental	Physical	Transportation	Dickerson et al. (2019); Jacobs (1961); Liddle et al. (2012); Mezuk and Rebok (2008); Bryanton et al. (2010)
		Infrastructure	Fischer and Amekudzi (2011); Gabriel, et al. (2003); Bergman (2007).
		Street lighting	Farrington and Welsh (2002); Painter (1994); Peña-García et al. (2015); Packer et al (2011); Gaston et al. (2014);
		Urban furniture	Casanov et al. (2016); Hannah and Maine (2010).
		Sidewalks	Jacobs (1961); Santos et al. (2017); Patterson et al. (2004); Ehrenfeucht and Loukaitou-Sideris (2010).
		possibility	Duncan et al. (2005); Macintyre et al. (1993); Jaime et al. (2011); (Belon and Nykiforuk, 2013).
		Green space design	Zhang (2015); Yang et al. (2015)
	natural	Green space Blue space Weather Air quality Noise pollution, Water pollution	Frijters and Praag (1998); Rehdanz and Maddison (2005); Ferreira and Moro (2010); Buller et al. (2006); Welsch (2006); (Darçın, 2014); Guxens and Sunyer (2012); Ferreira et al. (2013); Evans et al. (1998); Seidman and Standring (2010); McKinney, (2002); Rydin et al. (2012); Shanahan et al. (2016); Leslie and Cerin (2008); Dzhambul et al. (2018); Markevych et al. (2017); Garrett et al. (2019)

Summary of Urban quality of life

Urban quality of life especially focuses on the quality and conditions of the cities and the level of the urban environment. Development and planning for the cities are the main issues for modern life and these conditions support people who are living in cities. This issue is important because it has a direct link with the lands and spaces and as the number of populations increases the demands also raise. The development of

the cities depends on economic, social and environmental factors. Living in the cities has already many stresses and pressure so by considering the quality of urban for living in standards, we can support the people ‘life and activities. Same as the quality of life, urban quality also depends on many factors and indicators such as environmental factors (natural and physical), mobility and transportation system, social activities and social life, economic issues and political factors and psychological issues that are supporting life in urban. By improving these indicators, we can support our urban life and improving the well-being of the people for living with satisfaction feeling.

Chapter 3

THE CONCEPT OF HAPPY CITY

An environment for living, travelling, pursuing goals and aspirations and advancing them. In this sense, quality environment, citizens satisfaction and happy cities are becoming more and more popular subjects for city planners, city authorities as well as researchers. The concept of happy city is a newly developed approach in evaluating and defining satisfaction of residents with their environment and city and gained attention with the works of Montgomery in 2013.

3.1 What is Happiness?

According to researchers, happiness is actually one of the components of mental well-being (Haller, M., & Hadler, M. 2016). In fact, it is the mental criteria of the individual regarding the quality of life and their satisfaction with life. Happiness as a multifaced factor is considered by many fields such as philosophy, psychology and others (Frey and Stutzer, 2002; Rojas, 2011). Happiness is related to individual feeling or satisfaction feeling of each people about his/her life (Mousavi et al., 2013). The feeling of happiness is not same for all people but there are some common factors can impact on that (Conceição and Bandura, 2008).

The most comprehensive model in the literature on this subject belongs to Keyes (2010), which considers three aspects of mental well-being:

• *Emotional well-being:*

Emotional well-being has two dimensions: the first dimension is having a good feeling and not having a bad feeling about life. This dimension is the same as happiness and has an emotional nature. The second dimension is general life satisfaction, which is cognitive in nature. If a person has high emotional well-being that says he is satisfied with his life and often feels good about life, he achieved emotional well-being (Keyes, 2010).

• *Psychological well-being:*

Indicates the challenges that a person faces in trying to do life and realize his unique talents and includes the following 6 dimensions:

1. Accepting yourself: It means having a positive evaluation of yourself and your life
2. Personal growth: The feeling that a person is constantly growing and developing
3. Having a purpose in life: The belief that a person's life is meaningful and purposeful
4. A positive relationship with others
5. Mastery of the environment: the ability to manage life and the world around in an effective way
6. Autonomy: A sense of self-control (Bartels, 2012)

• *Social welfare:*

represents the evaluation of the individual of the quality of his performance in the social environment (Røysamb,and Nes 2018).

Overall, we can mention here that some factors are introduced for increasing the happiness feeling and the result of this led people to have a happy life and satisfaction (Waldinger and Schulz, 2010).

Keyes calls the dimensions of psychological and social well-being a sign of positive functioning of the person and, if a person has the conditions of two dimensions of emotional well-being (feeling good and life satisfaction) that means the person is mental healthy (Keyes, 2010). In short, when a person feel that life is good, we can achieve happiness.

Renwick et al., (1996) improved the QoL approach and mentioned that QoL is a combination of psychological and physical functions. He assumes, that it is related to the evaluation of each person how to enjoy his/her life with his/her facilities. Based on studies by Veenhoven (2001) there is a positive relationship between quality of life and feeling of happiness.

Figure 2: Relation (Author)

3.2 The Happy City According to Charles Montgomery

As a powerful concept happy city is introduced by Charles Montgomery 2013, the main idea is how we can transfer our urban life for having the healthy and happy city and people can achieve well-being by living in this type of cities. Overall, when we are talking about this concept, a happy city is a city that people can experience happiness, they can enjoy their life and have a feeling of well-being. is shaped based

on emotional bandage and emotional factors based on Montgomery are (Montgomery, 2013):

Public transport system: having the effective transportation system which can support people daily life and urban mobility with less pollution and healthy condition is one of the main factors. As he mentions it is a critical factor because it has a connection with infrastructure and can also impact on shaping our urban.

Infrastructure: In this part also, he talked about healthier life infrastructure and he claimed that having an effective infrastructure act essential role in urban life because it is related to facilities and connection between areas, it is related to combination of buildings especially public buildings and also it is related to connection of people with social activities. Using the resources in sustainable way and having the recycling system in cities is another important issue. Public areas and activities center have a direct link with people' welfare. In this part also the cleanness of city should be considered. Using the technology and modern system also can support happiness of people in happy city.

Emotional bondage: positive emotional connection between people in social which can shaped by culture and other practices, create happiness and increase the well-being of society.

Cultural practices: tradition and culture have an important role in communication and connection between people. Any cultural practices that encourage people to celebrate and make social activities can impact on well-being of people. Cultural festivals and carnivals can be part of having the happy city.

Security and sense of safety: security and safety of residents in a city is another essential factor for having a happy city, because it can impact on people' activities especially at nights and also their enjoyment from outside activities.

Women's conditions: the condition of women in society is important, the main issue is can they go out and walk in the street alone? Can they do their activities safe? Is the society secure for them? And in a happy city this factor is considered.

Safe and secure area for side walkers: one of the characteristics of a happy city is providing good and safe walk for people who are walking and enjoy being in the city.

Keeping environment safe and doing friendly practices: the way of using energy and keeping them sustainable is very important. Using the alternative way such as solar energy, recycling the rain water and increasing the green area around the city are very helpful. As Montgomery (2013) mentioned a city with green perspective can increase the happiness and a city with low level of carbon can improve the health of people and their well-being. So, investing on the green area can be a useful way for transferring an urban city to a happy city.

Public spaces and gardens around the city: these public areas can positively transfer our urban to a happy place. these places encourage people for more social interaction and social communication and attract people for outside life and activities, beautiful areas positively impact on emotion and feeling of residents and a happy city should have enough public places and entertainment centers, museums, parks, theatres, and cultural activity centers. Restaurants and communication areas.

Sharing the cultures: any elements in urban area such as sculpture, furniture's and infrastructure, arts, painting and urban design have positively impact on happy feeling of people.

Overall, he defined a happy city based on six main areas:

- public places
- culture issues
- beauty promotion
- access and movement
- creating land use
- respect for nature

According to him, explained the happiness in happy city can achieve based on these principles: first increasing the joy and decreasing the hardship in a city, second provide all important factors related to health, third, give people a feeling of freedom, forth, provide all the facilities and services equally, fifth, encourage people for social interaction and the last consider economic and external environmental matters for solving the issues (Montgomery, 2013).

3.3 Relationship between QoL, Happiness and Happy City

A happy city is a result of having the emotional infrastructure and social interaction of happy people. The relationship between nature and living in urban is mentioned. The aim of having a happy city is feeling great and have a social connection based on effective infrastructure (Montgomery, 2013). As we can understand, the main goal of a happy city is based on having happy people. Based on the above information, the quality of life can increase happiness and this feeling is essential for having and

building a happy city. In the following recent work of scholars on the relation between QoL, happiness and happy city will be investigated.Samavati and Ranjbar (2017) in their study, proved that quality of life and design of urban with planning and sustainable development are the key factors for achieving the happiness and having the happy city with happy people. As Wikantiyoso and his group (2020) found in their research, the main concept for having a sustainable development in urban is to combine and fix three main factors, social, economic and environmental factors that are the key for increasing the quality of life for now and next generations. Happiness and happy city are very important concepts because without these ideas, we can completely destroy our lands and resources. Lack of sustainable planning in urban design can increase many problems. Destroying the natural and resources with unprofessional infrastructure can increase the level of pollution and decrease the quality of life. Unprofessional construction and lack of planning in urban growth can impact on anxiety, stress and health problems in citizens.as Mirzaei and his partner (2020) mentioned in their study, all these problems can solve with the concept of happy city and sustainable development planning in urban. By using the concept of happy city, we consider the quality of life and its elements and also the condition of living for each people, people need to work and rest and at the same time they have to be secure for their leisure time and enjoying their time.

If the quality of life increase it can positively impact on satisfaction and behavior of people and the concept of happy city help us to live happily in city with high level of quality in our urban and respect to our nature.

In past decade, many studies work on concept of happiness in urban and positive impacts of them for having happy city and happy people and each of them tested many

factors but by reviewing them still we cannot say we can provide a comprehensive plan for having a happy city (Mirzaei and Zangiabadi, 2020). For example, in 2011, Leyden examined some factors related to happiness in 10 urban areas. The main finding of their study showed that a city with suitable public transportation and outside activities such as cultural and leisure facilities can increase happiness and their residents are happier. In their study they considered two main factors. First, they tested the indicators related to importance of place such as access to transportation, parks and public areas, shops and libraires, markets and leisure areas. Also, they measure the cleanness impact and beauty impacts of these area on their study. Safety and security and quality of water and activities at night also measured in their study. Second indicators were related to personal characteristics such as income and work condition and family condition, also freedom and health condition and social interaction were considered.

In 2014, Cloutier and his group mentioned factors related to health and sustainability that covers US green indexes and based on their founding the sustainable development has a positive impact on happiness and by using these ways we can create happy city for our residents. Cloutier worked on factors related to urban design and energy management and also, they consider issues related to public transportation system, infrastructure and community interaction and economy development and they found that these factors also are important for having happiness in cities (Cloutier et al., 2014).

Abachizadeh in his study (2015), for measuring the happiness used two main indicators; social dimensions and individual dimensions about happiness and the result

showed that level of unemployment and widows have negative impact on happiness and these dimensions also important.

In 2016, Mirzan and his partners worked on environmental factors and they found that all these indicators have a strong and positive impact on happy city. They considered different type of pollutions such as air, water and noise. Also, they measured the impact of temperature and impact of different climates such as rainy, windy. Also, they measured the impact of landscape and natural coastline.

In 2016, Krekel and his partners found the positive relationship between green spaces and life satisfaction and level of happiness of people. The main factors that they measured were related to access to green areas and green urban design also they consider the housing conditions (Krekel et al., 2016).

Hiscock specifically worked on factors that have a positive impact on happiness and their relationship were proved in their studies, these factors were Enjoyment, Body, Purpose, Mind, Community, Relationships (Hiscocket et al., 2016).

Francis and Lewis in 2016 worked on factors that can measure the level of happiness in city and he present happy city index. He considered City conditions, sustainability and equity and also measured work condition, health system, education system, place and community in cities.

Sepe also in 2016 worked on public spaces and their impact on happiness and he found that role of public spaces is more important. In another study in 2018, by Pringle and Guaralda, they were working on natural elements and physical elements in urban and

they proved that the harmony between physical and natural elements in urban design is important for having a happy city and happiness in cities.

Mirzaei and Zangiabadi in their study in 2020, by measuring the socio-cultural and environment and economic factors found their impact on happiness and they suggested that for having a happy city with happy people we need to consider all these indicators.

According to Florida, the happiest cities are those where people are open and tolerant (Florida et al., 2013). Nonetheless, he believes that infrastructure is a 'basic necessity' as he argues that citizens need a good infrastructure and public transportation in order to be happy. Moreover, he suggests a pyramid of needs in a city (Figure 3).

Figure 3: Place pyramid (Florida, 2008)

Ballas in his research mentioned that there is a link between the role of places and relationship of society and social cohesion and also feel of belonging to social. based on Gardner and his partner in 2004, they proved that for having happiness in cities and well-being of people we should consider planning and policies in our urban designs. As Montgomery (2013) mentioned, we should create an urban environment with caring about physical and public spaces elements to improve the citizens health (physical and mental) that increase the feeling of happiness.

3.4 Happiness Factors in Environmental Planning and Design

National research council in 2000 announced that environmental elements have a direct impact on happiness. Based on environmental planning and urban design, form of buildings can impact of people behavior and also it can increase the level of happiness on society and impact on social communication and interaction (Montgomery 2013). As Montgomery mentioned that a happy city is a green city and it protects us in many ways, so living in a green city and using the green spaces positively influence on feeling of happiness and our mental health. (Mitchell and Popham 2008). In a study by Florida (2008), he proved that physical environmental in urban have a strong impact on our daily activities and improve our happiness.

The way we design our city in a sustainable and correct way, we can develop social network for social life and social activities that is necessary for having a life satisfaction and physical health which lead to happiness (Samavati and Ranjbar 2017).

Based on study by Samavati and Ranjbar (2017), there are some physical indicators that influence on happiness which are related to urban design. These indicators supported by past studies (Table 3).

Table 3: Physical factors, sources: Samavati and Ranjbar (2017)

Factors	Elements	Past studies
Physical factors	Environmental elements	MacKerron (2012); Nisbet (2011)
	Spatial cohesion	Variri (2015)
	Sidewalk	Montgomery (2013)
	Bike way	Chaplin (2009); Hsieh, et al., (2014); Montgomery (2013)
	Green spaces	Montgomery (2013)
	Variety	Kim ang Jin (2018)
	Accessibility	Montgomery (2013)
	Flexibility	Vaziri (2015)
	Cleanness	Vaziri (2015)
	Place identity	Vaziri (2015)

Based on the studies mentioned in table we can easily understand that these physical factors can influence on social activities of people and their daily life. Quality and accessibility of them have positive impact on health of residents and this health (mental and physical) can support the happiness.

The environmental elements all related to elements that shapes our urban perspectives such as benches and their quality and the numbers of them, design of them and the way that encourage people sit and enjoy their social interaction, the quality of pavements and sidewalks around of the city and quality of them, shape and façade of building, their harmony, material and the face of shops, cleanness of the urban environment and also the access to lavatories, public toilets and their cleanness and their design, the number of trash bin and their accessibility and the number of them in city, the art and design of city and using the different arts for designing the perspective of the city, in this part also the number of restaurants, café, and their accessibility is important (MacKerron, 2012).

As Esfandiyari and Choobchian (2012) defined, Spatial cohesion is a systemic view that mentions the mixer of spatial structure, exploration of the relationships of spatial, evaluation of the process of spatial, and combination of the spaces in urban. These factors cause to have a social, economic, and cultural relationship in society and these factors can be one of the significant indicators and has a direct link with ell-being and people happiness in cities.

Based on study by Shoaee and his partners (2014), they proved that spatial cohesion can impact and increase social cohesion that impact positively on social interaction. Social interaction and social communication are one of the major reasons for

happiness.so by this relationship and their impact of mental health we can say we have happiness in our city.

Sidewalks and bike ways are two important area in urban design which can encourage people for healthy activities. Shoaee and his group (2014), in their study proved that sidewalks directly impact on our daily activities and our physical health which can turn to happiness and well-being. Its idea is same for bike ways. Having the safe and secure sides for cycling encourage people for healthy transportation and more physical activity and the result is having the healthy mind and feeling good in city. As Montgomery (2013) define characteristic of happy city, he mentioned that bike way is an important element for happy city and happiness in citizens. Encourage people for cycling help to decreasing the various energy that already use for transportation and also this type of transportation can decrease the Nosie and air pollution in cities and decline the level of traffic in urban.

Green spaces and public parks are very important elements for decreasing air pollution and positivity impact on feeling of people. Kaplan (1995) proved that these spaces also can decrease the level of stress in urban life and positively can impact on health. As Ulrich and his group (1991) found the green spaces also have positive impact on citizens' behavior. Bertram and Rehdanz (2014), they claimed the green spaces can increase the life satisfaction as well as health and Leslie and Madanipour (1996) they showed that these spaces have a direct link with social interaction and these areas also encourage people for communication. Overall, green spaces are the best source of transferring a city to happy city as Montgomery (2013) said a happy city is a zero-carbon city and green places are the important sources for decreasing the pollution,

developing the view of city and encourage people for more communication and social interaction.

all the physical factors can impact on quality of our urban. Golkar (2005) defied that in urban design and its quality we should consider the physical environment and interaction between them as much as cultural and patterns. So as a result, and based on past studies we can say that physical variety in urban, flexibility and legibility of these physical factors and place's identity and their cleanness all of them have a positive impact on our quality of life and quality of our urban design which can increase the mental and physical health of our citizens and increase the level of happiness.

In the following part Indexes and rankings measuring happiness of citizen will be introduced with a focus on the urban environment.

Chapter 4

MEASUREMENT

4.1 Measuring Happy City – Indexes and City Rankings

In recent years, many efforts have been made to measure happy cities in a quantitative way. In order to measure happiness, the factors that are developed by scholars are influential to develop measurement indicators. According to Basra, ‘using indicators is a comparative analysis, where cities are evaluated and ranked according to their different economic, social and geographical parameters. Moreover, he argues, that city rankings are influential ad guiding cities to set priorities in planning and helping to create satisfying environments for their citizens and visitors. Moreover, they can contribute to position cities, can be marketing tools in city promotion and contribute to the success of city leaders (Giffinger-Gudrun 2010).

On the other hand, rankings on happiness are also critized as ‘‘happiness’ or ‘life satisfaction’ are very subjective and personal: cultural influences and complex impact of policies on happiness’ (Goossens Y et al., 2007). In addition, Goosen argues, that index should not be a named measure for happiness, but more as a measure for environmental efficiency to address well-being (Goossens Y et al., 2007). Nonetheless, rankings for happiness are accepted and applied in many cities and the Ranking organizations are trying to update their approaches as applied in the case of the World Happiness Report (www.worldhappiness.report.org).

In the following the most prevalent happy city ranking indexes will be presented and common dimensions will be identified. The major focus is on the dimensions related to the urban environment and the variables to measure the satisfaction of citizens with their physical environment.

4.2 Happy City Rankings

The rankings which are most commonly taken into account by authorities and scholars to identify the happiness level of cities and countries are as following:

- Happy Planet Index
- Thriving Places Index
- Happy City Index
- City Well-being Index
- World Happiness Report (Gallup)

All Indexes are related to the measurement and quantification of how satisfied the citizens are with their living and their life. Moreover, public happiness is conceived as an average result of the data collection from individuals.

Happy Planet Index

This measurement is used for evaluating the sustainable well-being of all nations, it helps us to understand how countries do well in achieving long term happiness and sustainability for their peoples' life. This information shows that without too much cost we can also have a happy life (https://happyplanetindex.org). How it is calculated?

Four main factors are evaluating for achieving a happy planet (https://happyplanetindex.org):

- The first one is Life expectancy, this factor as the main indicator of the health situation of each country shows the average of years that an infant born and live and also the rate of years that they live in the country.
- The second factor is experienced well-being that shows how people feel about their quality of life and feeling the well-being in a country.
- The third factor is the Inequality of outcomes that measure the distribution of life experiences and life expectancy how unequal measure by people and this measurement show the level of satisfaction or unsatisfaction of people in living the same nation.
- The fourth factor is the Ecological Footprint that shows the amount of land needed for each person in the population of the nation. This measurement also includes the resources such as food, wood, other natural resources, the area in the city and the level of infrastructure in a city which occupied.

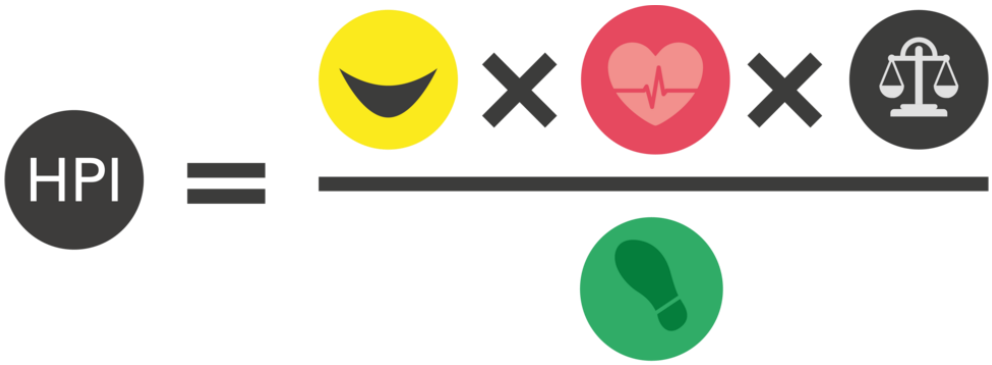

Figure 4: Happy Planet Index Indicators, source: https://happyplanetindex.org

Before people believed that having a great economy can impact positively on their life and make them happier but nowadays because of unequally issues even people in Europe and USA think that they are not living in a happy condition. One of the main reasons is developing economy without considering other issues. These factors caused that many changes in climate and the planet earth faces with serious problems that can

directly impact on our life. Overall, we can say that development in GDP in any nation is not the reason for having the happy life and also unequal distribution is not the only reason to increasing the unsatisfaction level. Happy planet index, every year, based on nations information and data is going to make a list and by using different factors is showing the level of well-being and happy condition in each nation.

Based on the result that they published in 2016, and comparing 140 countries, Costa Rica for third time located in highest well-being between countries and even the rich countries in the world. Residents feel better live longer that USA residents. This country is introduced as a leader of environmental protection. The way that they protected the resources is top in the world and as it estimated it would be the country without carbon neutral by 2021. The best issue is related to electricity used that is 99% from renewable sources. After 1949, when the country cancelled its own army, all the money spends on developing the educational system, health system and pensions. The other factor which directly increased the well-being of people in this country is social communication and relationship between family member, friends and neighbors. Already this country has many problems such as inequality system in income but still they try to achieve sustainability.

Happy Planet Index: 2016 Results

Rank	Country	HPI				
1	Costa Rica	44.7	7.3	79.1	15%	2.8
2	Mexico	40.7	7.3	76.4	19%	2.9
3	Colombia	40.7	6.4	73.7	24%	1.9
4	Vanuatu	40.6	6.5	71.3	22%	1.9
5	Vietnam	40.3	5.5	75.5	19%	1.7
6	Panama	39.5	6.9	77.2	19%	2.8
7	Nicaragua	38.7	5.4	74.3	25%	1.4
8	Bangladesh	38.4	4.7	70.8	27%	0.7
9	Thailand	37.3	6.3	74.1	15%	2.7
10	Ecuador	37.0	6.0	75.4	22%	2.2
11	Jamaica	36.9	5.6	75.3	21%	1.9
12	Norway	36.8	7.7	81.3	7%	5.0
13	Albania	36.8	5.5	77.3	17%	2.2
14	Uruguay	36.1	6.4	76.9	18%	2.9
15	Spain	36.0	6.3	82.2	10%	3.7

Figure 5: Happy Planet Index, source: www.happyplanet.com

The NEF Institute (New Economy Foundation) 11, a non-profit organization active in improving the quality of life, has developed an index called the "Happy Planet Index" which measures a combination of subjective and objective variables (R Mercieca-Bebber et al., 2017).

The institute's 2005 report presents a model in which converting resources into the quality of life is defined as follows: Environmental resources as input through 10 tools must be converted into efficiency that is nothing but long life and a happy life People. These ten tools include:

- Government and sovereignty
- Local community (urban management)
- Technology
- Healthcare
- Education
- Family

- Values
- Economy
- Employment
- Consumption

The fundamental question is: In the existing societies have the above ten tools used the natural resources of society to have a happy and good life or not?

In answer to this question, NEF evaluates and ranks countries using an index based on the same model. In the institute's 2005 report, the title of the report was changed from "Happy Planet Index" to "Unfortunate Planet Index". The authors of the report say that the reason for this name change is that according to the available data, no country has been able to perform properly in this regard (D Kyte, A Retzer, K Ahmed et al., 2019).

In the 2005 report of the NEF institute, 178 countries, were evaluated from different regions of the world, and for each country, according to 3 main objectives - satisfaction with life, life expectancy as well as environmental issues and an index score were determined.

Happy City Index

The Happy City Index is an annual report on the conditions for well-being which is measuring sustainability and equality at a city level (Happy City Index Report, 2016). It is systemic approach for identification of the factors affecting the city health, well-being and happiness. As illustrated in figure 6, City conditions are affected by equality and sustainability. However, this effect is two-ways. It means that city condition will have positive impacts on equality and sustainability of the city. Therefore, it important

to look at the city in holistic manner to reach sustainable outcomes (Happy City Index Report,2016).

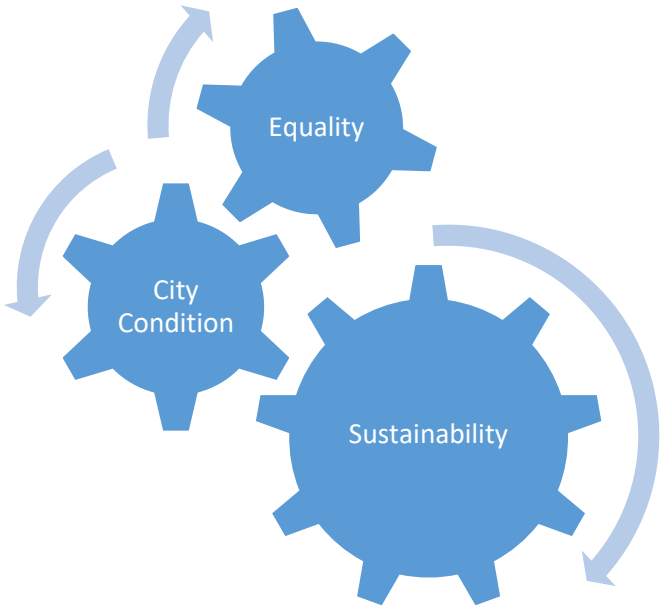

Figure 6: Level 1. Happy City Index

From the data as illustrated in figure 7, it can be concluded that the dimensions of urban conditions fall into five main categories naming, place and community, education, health, and work.

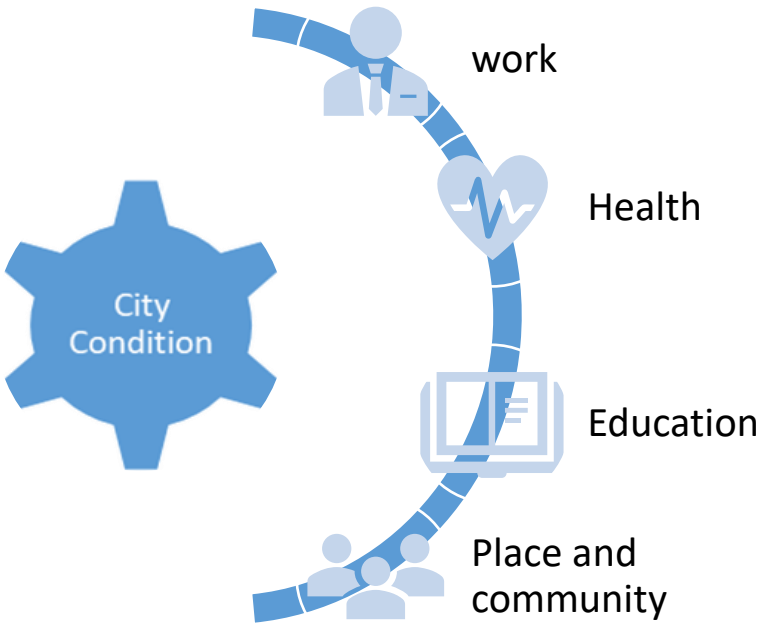

Figure 7: Level 2. Domain

This is known as the second level in understanding the city conditions. Therefore, the first level was a systemic view of city condition within a bigger system of sustainability and equality and city conditions are themselves systems consisting of different factors. These are the wide-ranging categories of urban conditions that are important for creating happiness.

The domains are categorized as education, place, community, work and health related issues. However, to dig deeper in the combination of data we have. Overall, score of conditions in urban and suburban areas are calculated by weighting average of the scores for any of these five domains mentioned above (Haller & Hadler, 2016).

As such, these subdomains that create city conditions are furthered investigated to include more subdomains themselves. Therefore, each of these categories are further divided to subcategories. As an example, the health domain is categorized as mortality

and life expectancy of the residents, their illness and disability, healthy and/or risky behaviors of residents, and their mental health. Another example is sense of place, which can further be investigated by, categories such as safety, communication, housing, green areas. Moreover, work can be divided into quality of work, unemployment rates and income. For education, we can divide it into the quality and facilitating of children education, and adult education is separate categories. Also, community can be reduced to categories such as participation, culture, local businesses and support of residents in this issue, and social isolation. An illustration is presented in Figure 8.

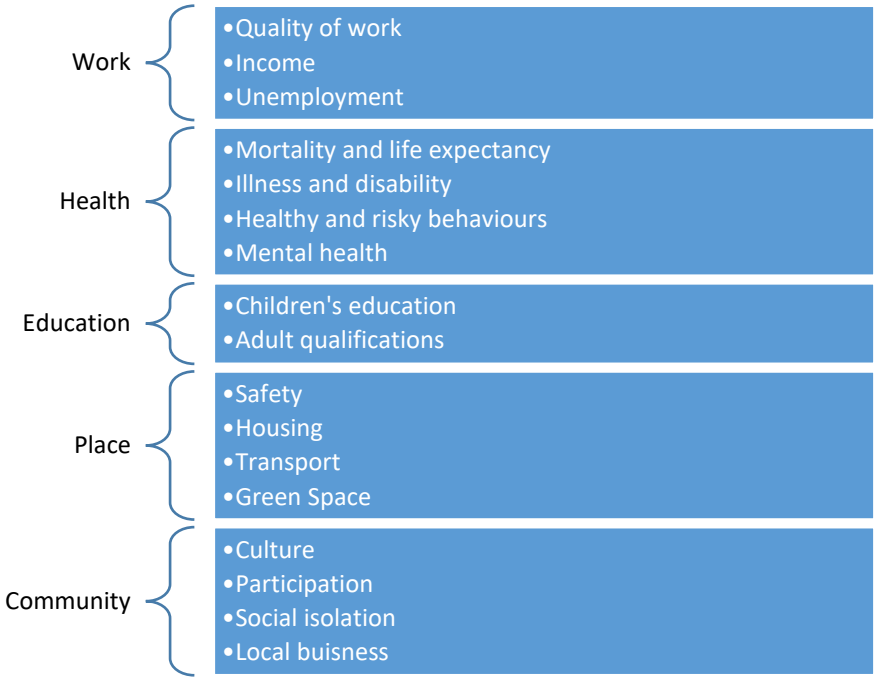

Figure 8: Level 3. Sub-domain

4.3 City Well-Being Index (Knight Frank City Well-being Index)

The City Well-being Index is established by the Intelligent Lab as they claimed that the existing indexes are limited to economic issues mainly measuring the GDP. This index aims to measure the satisfaction of citizens in the most liveable cities in the

world ranked in the Mercer QoL Index. According to the City Well-being Index 'the concept of well-being, or wellness, is far wider than individual health and happiness' and has to include measurements that can be objectively measured'. In other words this index advocates the notion that happiness and well-being of citizens are not exclusively depended on emotional and subjective criteria, but objectively measurable ones They developed an index in accordance to the Wealth Report Attitudes Survey considering factors for decisions about where to buy a house which revealed that personal security, lifestyle and healthcare are important factors for forming decisions on where to buy a house and live (www.Knight Frank City Well-being Index.com). This index has eight measures such as:

- access to green space
- sunshine hours
- traffic free of congestion
- individual satisfaction
- safety and crime
- work-life balance
- health care

The Index is based on the analysis of 40 global cities and their results show that the Nordic European Cities are on the top this ranking. Norway's capital Oslo takes the top spot, followed by Zurich and Helsinki. Looking at specific measures, Oslo leads for green space with 68% of public space in the city are accessible parks and gardens for the citizens.

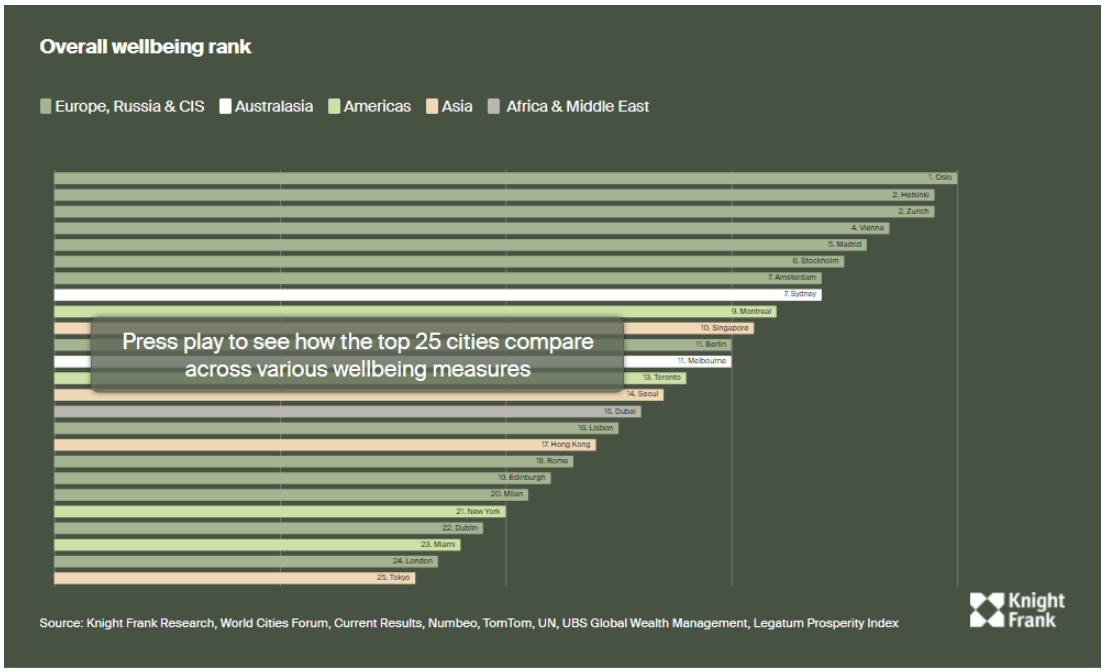

Figure 9: City Well-being Index (Knight Frank City Well-being Index)

4.4 World Happiness Report

Since 2012 the World Happiness report ranks countries and cities in the world based on three main dimensions, social factors, environmental factors and urban condition. This report differs from other indexes as it not relying on a list of factors that researchers consider relevant, it is more considering the citizens self-reports and their own weighting of the given factors (world happiness report, 2020). They are considering social, environmental as well as urban factors for evaluating happiness level of the citizens:

Social environmental for happiness

Evaluation of life based on individual perspective and her/his perspective related to health condition, income level, and quality of social environmental factors were done. Some issues such as low income and its impacts, divorce rate and separation between family members, discrimination and also level of illness and security and safety in

social also considered. The point is when these risks increase the level of happiness also decrease.

From well-being perspective, the role of trust in social and institutions in social is really significant. The economy experiences such as income and level of unemployment also important. In social environment, the connection between family members and friends and their neighbors are critical and they have link with well-being and level of happiness. Based on data, people who have trust to their police, government and other people who are connected is important. The condition of houses and environment also their social interaction increase their happiness. These supports from social and other people can impact positively on their feeling. By comparing the 35 countries in Europe and their population, we found that social connection and trust is the main reason of happiness in the Nordic countries. Also, safety of their relationship in social and friend and neighbors with social supports for health system and their jobs are good in these countries. Based on world happiness report, it shows that how trust and social connection in these countries increase the level of happiness (world happiness report, 2020).

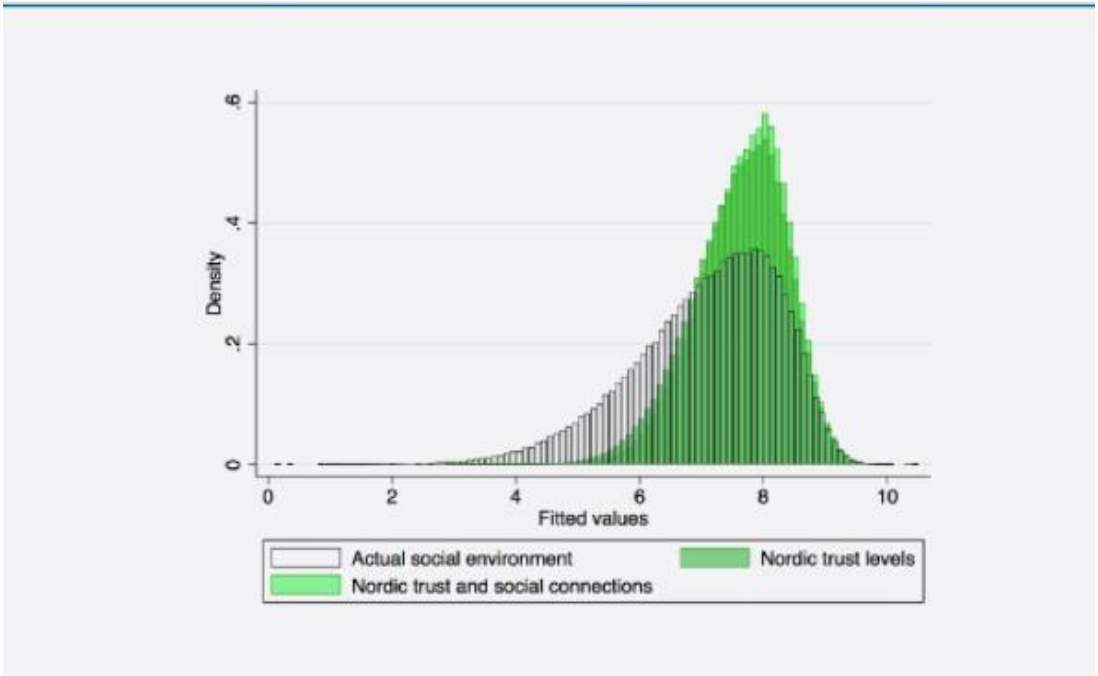

Figure 10: Sustainable natural environments

Having the sustainable natural environment and using the resources in correct way and protecting the resources for next generation means having hope for future. The quality of environment and level of pollution have a direct link with satisfaction and well-being of people. For collecting the data and measuring the level of happiness in cities the access to public natural environment, closeness to the lacks, rivers and blue spaces were considered, the access to green spaces and their quality were evaluated, the level of pollution and quality of air and drinking water were evaluated, the weather condition and climate impacts were considered and facilities and activities related to natural environment were observed, such as walking, gardening, sports, social activities outside. The number of parks and trees in streets also measured. Mood is one the main factors which have impact on perspective of each person. Weather condition has impact on emotional feeling, sunshine has power for better moods, clear skies and light winds also impact, warm temperatures has more positive impact and they can influence their outside activities.

Urban condition

More than half population in the world are living in the urban. And it is estimated to increase by 2045 to more than 6 billion. The most populous cities in the world are: Tokyo with more than 37 million residents, New Delhi with more than 28 million residents and Shanghai with 25.6 million residents (United Nations, 2018).

In many countries the development and economy condition positively impacted on happiness of their people. But in compare by rural life, communication and social connection is less. Trust between rural people also was another factor which is not appear in cities. The other factor in comparing with rural life and level of their happiness was related to community belongings and community relationship and social interaction between people. Based on data, results show that people who are living in rural, they are happier. Cities are the most part of economy circulations. More than 80% of GDP of each country is generated in cities. They impact on development, the number of labors, innovation, growths and standard of living. In compare to rural, city residents are younger, more educated and more intellectual. By 2050, from each 10 people in the world 8 of them will live in cities. Rapid growth of cities created some serious issues and impact on quality of living, in 2016, 1 million people living in cities with very bad condition related to housing in poor urban environment that face with lack of facilities and different number of crimes. Based on results of data in 2016, 90% of cities are in high level of air pollution and this issue caused to death of 4.2 million people. Cities used two third of resources and energies and they caused to produce a lot of greenhouse gases. Lands are using without any plan and public areas such as parks and green areas are in the pressure. So how we can achieve the residents' well-being if we don't help to cities to growth and develop in correct way.in this ranking

they used different factors to compare the quality of life in cities. First of all, they use The Economist's Global Liveability Index, and they consider 5 different scales. And based on resident’s self-report about their quality of life they ranking the cities. The aim is to understand the condition of all people who are living in cities not just the people with full facilities. This type of analysis helps to understand about all factors that impact on residents; perception about well-being and quality of life in cities.

The aim of cities for development is having the sustainable development and it means that we should care about our resources, we should consider the quality of cities, we have to think about our next generations and just growing is not important. In sustainable development, all factors related to transportation and effective infrastructures are essential, because an effective public transportation can positively impact on mobility of residents and also it can control the crowed. It can decrease the wasting time and energy consumption and it has direct link with quality of environment, such as air pollution and noise pollution. This indicator can increase the quality of live and enhance the well-being of people. On the other hand, by having the sustainable development we have access to green areas and public areas for increasing the communication and social interaction between people in the city and this factor is another important item in well-being of residents.

For ranking the cities happiness around the world, they achieve the result by comparing the current evaluation of life and measuring the well-being and also future expectation.

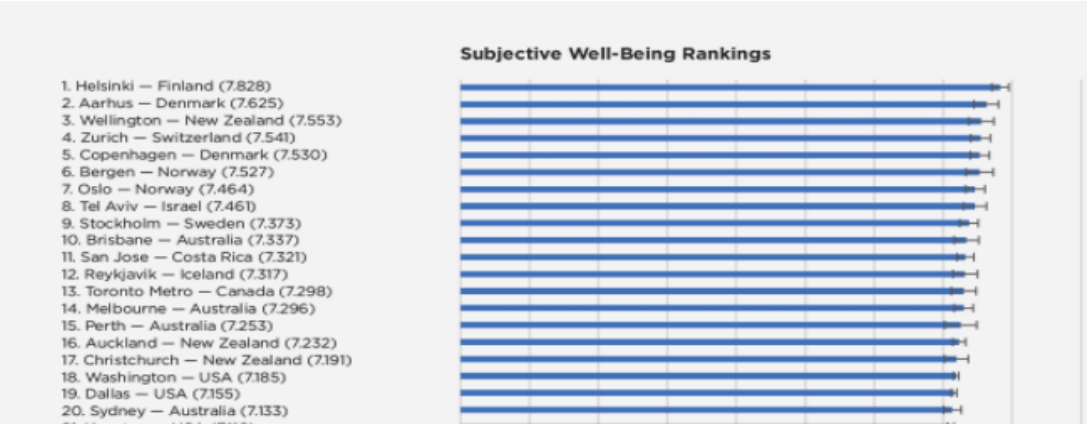

Figure 11: Subjective well-being

As we can see in figure 11, the city of Helsinki in Finland is at the top and based on the current situation is number 1 of the lists. The second city is Aarhus in Denmark. However, Copenhagen in Denmark is located in fifth rank and Bergen in Norway is sixth-ranked and Oslo in Norway is located in the seventh rank and Stockholm in Sweden comes out ninth. Overall, more than half of the first top cities in the world are related to Scandinavia cities and it shows that how positively their residents evaluate their life conditions. In the list, the third top city is Wellington in New Zealand and also Brisbane in Australia is ranked tenth. Number eight in the list also is related to Tel Aviv in Israel.

The list also shows the cities that because of instability in economy, low level of security, war and terrorism attacked are located in the low-level well-being.

However, some cities during the years of 2014-2018 had some changes, positively or negatively, the top ten cities with positive changes are most located in Africa, Eastern Europe, or Central Asia. The largest positive changes are happened in Abidjan in Ivory Coast (Figure 12) (word happiness report, 2018).

Figure 12: Change in subjective well-being

4.5 Thriving Places Index

The measurement shows the conditions of the local for well-being and it shows how these conditions deliver fairly and sustainable between residents. This measurement supports the individual well-being and social well-being. These conditions are related to work condition, support feeling of happiness and healthy life and how these conditions fairly deliver in social about current and in the future. For measuring this, they used many factors.

The factors include local conditions such as place and environment which support local environment quality, housing conditions and public transportation and safety of local residents.

Local mental and physical health in local which support mental health of local, overall health conditions and life expectancy and healthy and risky behavior in social.

Local education and learning system which support education system related to adult and children.

Local works condition and local economy conditions which support level of unemployment, level of employment (part time- full time), basic needs of local and local business.

The last factors in local condition are related people and the culture in community, this factor support indicators related to community connections, cultural events, number of participations in these communities.

The other indicator in related to equality which support the factors related to fair delivery of health system, income, the gender rights, social system and support all ethnicity.

The last indicator is related to sustainable development which is supported energy resources uses, the level of wasting the energy and also related to green infrastructure.

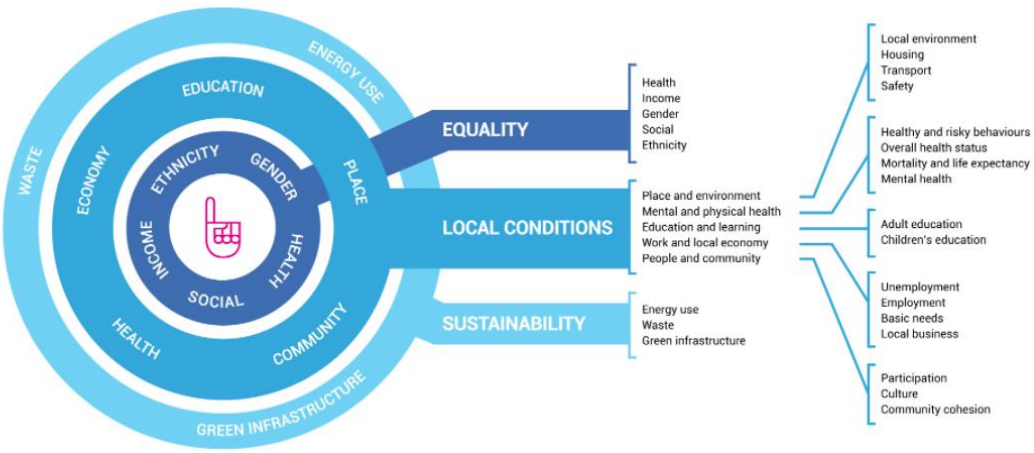

Figure 13: The TPI framework is arranged into three headline elements (thriving places index, https://www.thrivingplacesindex.org/, 2019)

4.6 Findings

The study of the different and most common Indexes has shown, that most of the applied rankings are using a variety of dimensions and indicators to measure happiness. Recalling the main areas that should be emphasized according to Montgomery to create a happy city, which were: public places/culture issues/beauty promotion/access and movement/creating land use /respect for nature. And his suggested principles:

- first increasing the joy and decreasing the hardship in a city
- second provide all important factors related to health
- third, give people a feeling of freedom
- forth, provide all the facilities and services equally,
- fifth, encourage people for social interaction and
- the last consider economic and external environmental matters for solving the issues (Montgomery, 2013)

It is visible that the majority of ranking are considering his suggestion in their dimensions and measurement domains. As can be seen in table 4 and Table 5 that the current Indexes are considering Environmental (natural, physical), social-cultural, leisure, security/safety, economy (work, income), sustainability, health, education well as Well-being experiences. Especially the World Happiness Report, which is measuring happiness in country and city scale, developed is covering all suggested areas. It is focusing not also on subjective well-being by addressing a bottom-up approach by given the opportunity to weight the areas by the respondents themselves (www.worldhappiness.com), So the citizen decides if education is more important than urban space for example.

Table 4: Happy City Indexes with indicators (Author)

Index	Dimensions	Focus	Factors related to urban environment/space
Happy City Index	**3 dimensions**: 1.City Conditions 2.equality 3.sustainability 5 domains -work -health -education -place -community 17 Sub-domains 60 Indicators		-Sustainability - Under the domain of Place: • Housing • Transport • Green Space • Safety
UN World Happiness Report	• Government and sovereignty • Local community (urban management) • Technology • Healthcare • Education • Family • Values • Economy • Employment • Consumption	Measuring Global Happiness in 156 Countries and cities Since 2020 just objective criteria were considered, now focus is on subjective well-being and environmental issues - Social - Urban - Natural	-Environmental factors: • natural conditions • physical conditions - urban management
City Well-Being Index	1.Green Spaces 2.Sunshine hours	Analyzing 40 global cities	- Focusing on accessibility of Green spaces and transportation - Not considering quality of urban space

(Knight Frank City Well-being Index)	3.Traffic free of congestion 4.Individual Happiness 5. Safety 6.Worklife balance 7. Healthcare		- Targeting objective measurable variables more than subjective happiness such as calculating sunshine hours per day
Thriving Places			This measurement supports the individual well-being and social well-being - local environment quality - housing conditions - public transportation
Happy Planet Index	4 Dimensions: 1.Life expectancy 2. experienced well-being 3. Inequality of Outcomes 4. Ecological Footprint	The Happy Planet Index combines four dimensions to show how efficiently residents of different countries are using environmental resources for a long and happy live.	It is not emphasizing specific components in urban environment but focusing on ecological issues and protection of natural resources

Table 5: Happy City Indexes with factors (Author)

	Main factors						
	Environmental (natural, physical)	Social -cultural Leisure, security	economy (work, income)	Sustainability	Health system	Education	Well-being experiences
World happiness report	*	*	*	*	*	*	*
Thriving places index	*	*	*	*	*	*	*
Happy planet index	*			*	*		*
City Well-Being Index	*	*	*				*
Happy City Index	*	*	*	*	*	*	*

4.7 The Scandinavian Countries Are the Happiest in the World

There is a strong historical connection between the Nordic people and nature. The Nordic region is geographically and environmentally located in one of the rarest and most beautiful areas of the earth and various plant and animal species live in this region and there are many resources in the Nordic nature. Most people were Nordic tribes that lived in nature and were associated with it, including the Vikings. The harsh climatic conditions of the people of this region have adapted to the special environment there. Even today, a large part of the Scandinavian people, especially in Norway and Iceland, live among nature, and most of the small towns of these countries are not far from the wild nature of this region. The culture of living in and close to nature, in turn, has transferred the social responsibility of protecting this nature to the people of the Nordic. Today, the Nordics consider the environment and nature to be part of their cultural and national heritage, and to preserve it, they have designed a shared social and national responsibility, and have aligned their policies and businesses in this way. In recent years, the Nordic Commission has drafted a document that all member states must comply with in the long run, and that is to enter the field of green economy. The private sectors of these countries have been active in this field. The long-term green economy document gives the Scandinavian countries a long-term vision to deplete their economies of fossil fuels and resources that harm nature in any way by 2050. The Scandinavian private technology and business sector has invested more than € 1 billion in green technology parks in the Nordic countries by 2014. Denmark's development document states that the country must become independent of fossil fuels by 2050 and turn to renewable energy. Today, Denmark, along with the Netherlands, is famous for its country of bicycles, and most people travel by bicycle in the city. The Prime Minister of Finland, Marie Quinnimi, announced at the Nordic Council in 2011 that

Finland would have a green economy in the next three decades so that it would be a cleaner and less polluted country in the coming decades. The green economy in Finland has been one of the ways to expand the welfare state in this country. Nokia grew in Finland in the 1990s on the basis of green economy policies. In recent years, however, the company has been in financial crisis and has laid off many of its Finnish employees. But the company's products are produced in Finland without the slightest environmental pollution. In Sweden, too, there are minor differences of opinion between the Social Democrats and the Environment Party to steer the country's economy towards green growth (Nordic Council of Ministers, 2012).

Norway is also a short distance away from the green economy. Due to the fact that the Norwegian economy is dependent on natural resources, especially oil and gas and fishing, there has been a lot of criticism of this country in the world in connection with whaling or pollution of the Scandinavian Gulf. However, the country has tried to take steps to protect its environment and has tried to sign more and more environmental documents in the world every day. In this regard, the reputation of the country's transport fleet, which is one of the largest and cleanest in the world, is very significant. Public transportation without the least pollution is one of the country's environmental policies. The Norwegian government also respected the well-being of its citizens and environmental groups in 2012 and suspended oil exploration in the Lofoten region of northern Norway for environmental reasons. Because this area was the birthplace of different wildlife and spawning ground for different aquatic species. Finland, which is building the world's largest nuclear power plant, has addressed the concerns of its citizens after the recent catastrophe in Japan. Accordingly, the President of this

country, Taria Halonen, announced in 2011 that Finland will soon get rid of the sources of conventional and fossil power and turn to the green economy).

Also in 2012, the world's largest shipping and container transport company, Danish Maersk, announced that it would soon be working to become an environmental and green company. Prior to that, the company took an important step in 2009 to become the largest maritime shipping company in line with the environment by launching its new climate strategy. With this strategy, the company has updated its fleet to determine the fuel of its ships based on the climate of each region, in order to prevent the production of greenhouse gases by its ships. In addition, some Nordic capitals have recently begun designing green growth strategies for their capitals, identifying each area of the city based on a specific business. In this program, parts of the city are intended for the movement of children and old citizens, and in terms of climate and environmentally sustainable technologies, they are the best place in the city for travel and breathing. The plan to buy recyclable waste from citizens was one of the first to be implemented in the Nordic countries and then expanded to other parts of Europe. They and the neglect of various economic benefits to protect the environment and nature, has greatly expanded their national image in the field of environment and green policies (Haugen, 2014).

Since 2013 the Scandinavian countries are always ranked in the top five of the most of the World Happiness Report (WHR) mainly these are Finland, Denmark, Norway, Sweden, and Iceland. This is due to the high living conditions, which have according to the research done on Nordic countries a high impact on the happiness of the citizens. Our issues such as democracy, trust in the government as well as an established welfare state are.

Helsinki

Helsinki is the capital of Finland and it is the most popular city in the world and it is located near the Gulf of Finland. In 2021, the number of populations in 2021 with 0.92%increase in compared to 2020 is 1,317,000.

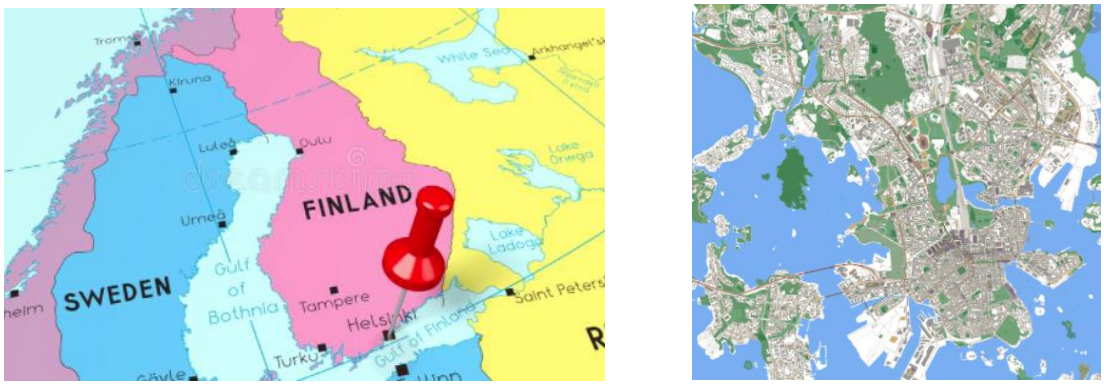

Figure 14: Map of Helsinki, source: https://www.alamy.com/

One of the main reasons for having a good life in this city is equality and service availability for all citizens. Development and planning in the main positive point in this city and their aim is to positive discrimination of housing and welfare in the whole city. People are the main part of this process. Another important factor is safety. The connection with nature and sea and the level of cleanness are important as services related to sports and cultural centers. A good life is in this city is also related to work-family balance and public services and public transportation and these factors also attract more international talented people. Saving energy and having an effective infrastructure is its power (Figure 15). High quality of life increases the happiness and well-being and satisfaction of residents.

Figure 15: Saving energy, source: https://www.intelligenttransport.com/

The housing condition is another important factor. Development with planning and effective construction system provides the needs of new housing. Different types of houses are available and rent is reasonable. All the facilities are considered and there are many services to support both the demand and supply side. There are many types for students, family, young people, elderly people, disable people and homeless people.

Parks and green spaces are controlled and constructed well and their maintenances are considered (Figure 16). For all new project, people also involved in development projects. The urban environment is protected by law. Parks are designing vary carefully to support people' activity and keep the beauty of the city with all elements. There are many areas for picnic and encouraging people for having outside activities. All different types of plants and ecosystem protected by law, and their main aim is to protect the environment and ecosystem of the city. Helsinki has approximately 100

km2 of green spaces. Forests, beaches and all-natural environment protect and observe very well to reduce the level of pollutions.

Figure 16: Public park in Helsinki, source: https://www.trafalgar.com/

Sidewalk and paths of urban areas for easy accessibility. Bikeways are supporting people's cycling (Figure 17).

Figure 17: Bicycle as a significant transportation and bike way in Helsinki, source: https://www.myhelsinki.fi/


Figure18: Housing conditions in Helsinki, source: https://www.bachelorstudies.com/

Figure 19: Sidewalks in Helsinki, source: https://fi.pinterest.com/pin/517632550891493766/

Helsinki has great sources of water, there are rivers and also has access to the Gulf of Finland. And sea covers near 500 square kilometers. There are managing their rain and snow melt water for using and recycling and these processes manage well. They believe that all the protections impact directly on their quality of life and well-being.

Traffic planning is the best way for decreasing the traffic level and impact directly on people' well-being and living in urban (Figure 19).

All the streets, roads, green areas and cultural centers and education system and other important areas manage in urban by sustainable planning program (Figure 20).

Figure 20: Cultural centers in Helsinki, source: https://www.floornature.com/

This city for increasing its quality also provide the high-quality education system, health system, social support and leisure activities and encourage people for having the best communication (https://www.hel.fi/uutiset/en/kaupunginkanslia/helsinki-creates-good-life)

Aarhus

Aarhus is the second-largest city in Denmark that is located on the eastern shore of the Jutland sea and approximately 187 kilometers (116 mi) northwest of Copenhagen. It is the largest harbor city in Europe. It is very famous because of its planning development and sustainable planning for the environment with a population of 1.3 million. In the past years, 15000 population increased and at the same time, more than 20000 jobs created.

Figure 21: Public spaces, source: https://www.archdaily.com/

Figure 22: Public Spaces, source: https://www.archdaily.com/

Successful connection of public transportation is the key to its development. The numbers of international and domestic students have a positive relationship with the growth of the city.

Figure 23: Public transportation, source:
https://www.generalecostruzioniferroviarie.com/

Figure 24: Cycling routes, source: http://www.copenhagenize.com/

They working on many projects to decrease the level of pollutions. All the roads, streets and urban infrastructure are developed based on sustainable planning.

It's famous for its bike side and its facilities for these types of transportation. Public transportation provides easy accessibility and mobility around the city.

Activities centers and public areas offering the best outside activities for domestics and international tourists.

Green spaces and public areas are considering well to encourage people for communications and healthy activities. They provide effective infrastructure and provide social support and social activities well.

The education system is supporting all citizens and more than 49% of people are educated.

It offers high living standards, and the work-life balance is perfect. Environment safety and social support provide a high quality of life.

Zurich

Zurich in Switzerland with more than 1.3 million population is one of the happy cities in the world.

Figure 25: Map of Zurich, source: https://www.newlyswissed.com/

Public transport and high quality of life offering this city an expensive but wealthiest city in Europe.

- Health care and the quality of the environment are the highest-ranking factors for increasing the quality of life.
- One of the most important factors is the high safety of this city for all activities.
- The public transportation system is very famous and cover all the areas and make easy accessibility in the whole city. Easy connection between places supports people's activities. Many types of transportation included in this system such as buses, train, bicycles, taxies, electric scooter and car rental.

Figure 26: Public transportation, source: https://wwf.panda.org/

- public green spaces in urban, natural resources and a clean environment play a significant role in family life in Zurich.

- Leisure activities and cultural centers encourage people for more communication and outside activities. City parks and green spaces in this city help to increase the quality of life in urban and decrease the level of pollutions. And it has a direct impact on the well-being of people.

Figure 27: Urban design, source: https://www.cgarchitect.com/

Figure 28: Natural elements, source: http://natureoflife4u.blogspot.com/

Figure 29: Public parks, source https://www.zuerich.com/

They adopted sustainable planning for development effectively. They manage energy recycling and have a long-term plan for using green energy in whole the city. They are working on road quality and infrastructure. Encourage people to use bicycle and prepare the sidewalks with high quality.

4.8 Findings From the Examples

The comparison of the three top ranked Nordic cities, Helsinki, Aarhus and Zurich shows as that there is an important relationship between quality environment/ successful urban environment and the level of happiness of the citizens and visitors. All three cities have a very effective public transportation system and give priority to walkability and bicycle pathways. They provide sufficient green areas in the urban environment and maintain these spaces. The existence of outdoor activity spaces as well as indoor Cultural centers indicates that social gathering spaces are essential to well-being and happiness in the urban environment. Surprisingly the unpreferable weather conditions as indicated as important dimension for happiness in some ranking measures, are not effecting the happiness level of the citizens. Moreover, the overall quality of public spaces, good infrastructure and service to the community by the municipalities such as maintained out door spaces, roads and parks together with a sustainable and citizen friendly design and planning approach are increasing the happiness level and satisfying the citizens (Table 6).

Table 6: Comparison of cities (Author)

Factors effecting the Happiness in the Urban Environment		
Helsinki	**Aarhus**	**Zurich**
1. Effective public transportation 2. Friendship relation with nature 3. Bike way 4. Sidewalks 5. Easy accessibility 6. Public areas 7. Green areas 8. Cultural centres 9. Low level of pollutions 10. Housing conditions 11. High quality of roads 12. Sustainable planning 13. Outside activities 14. Quality of services 15. High quality of infrastructure.	1. Public transportation system with high quality 2. Low level of pollutions. 3. Traffic control system 4. Sidewalks 5. Bikeways 6. Green spaces 7. Urban planning 8. Sustainable development 9. Quality of services 10. Effective infrastructure. 11. Cultural centres	1. Effective public transportation 2. Effective infrastructure 3. Bikeway 4. Sidewalks 5. Green spaces 6. Quality of services 7. Cultural centres 8. Natural protection plan 9. Sustainable urban growth and development 10. Quality of roads 11. Easy accessibility 12. Public areas are well designed

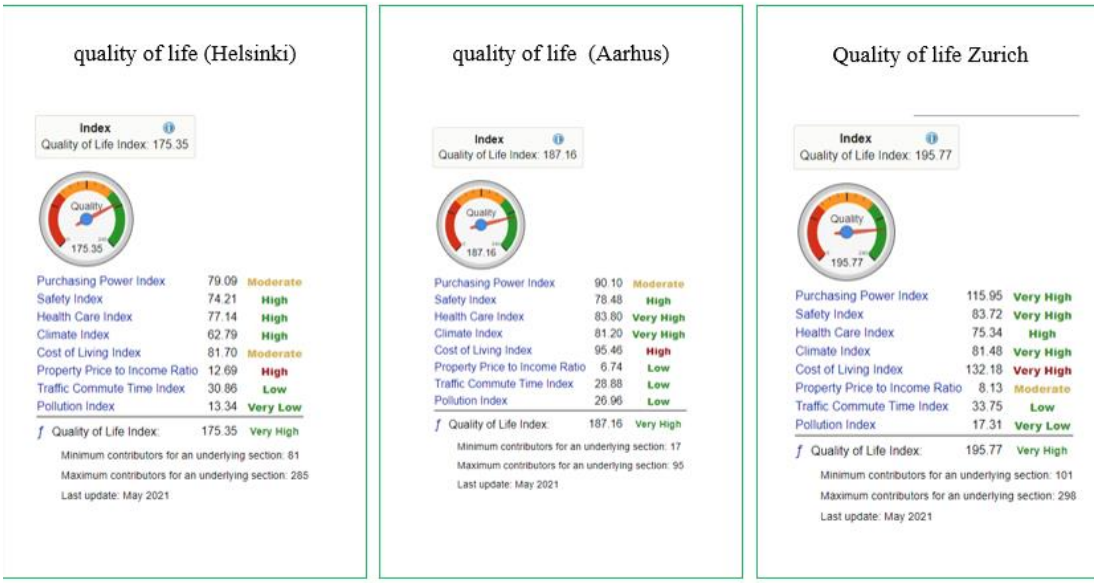

Figure 30: QoL, source: https://www.numbeo.com/

Based on the information in Numbeo, the quality of life in each three cities are very high and, in each item, these cities have great conditions, these factors impact on well-being of the citizens and create happiness for them.

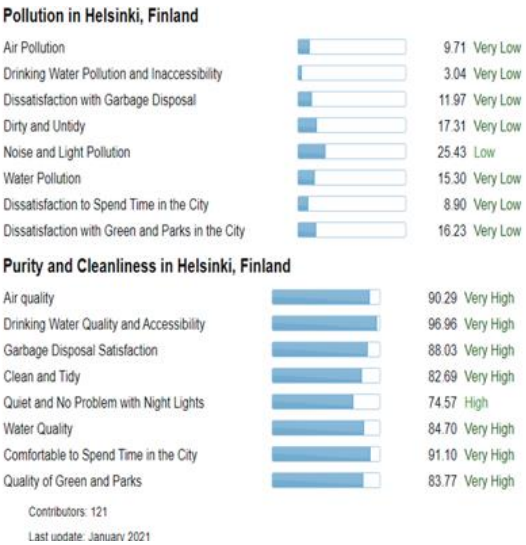

Figure 31: Pollution in Helsinki, source: https://www.numbeo.com/

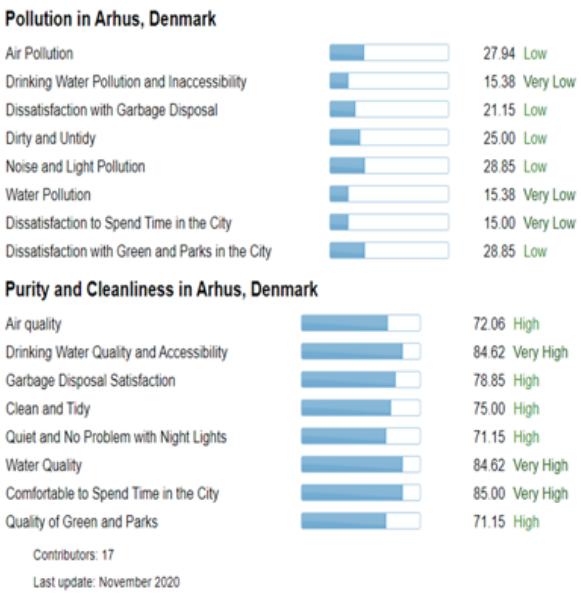

Figure 32: Pollution in Arhus, source https://www.numbeo.com/

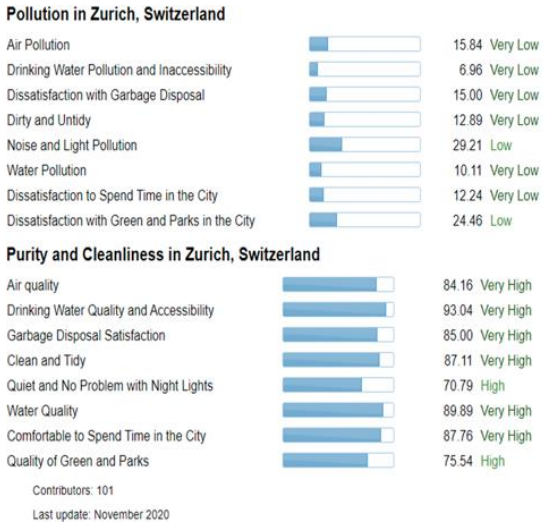

Figure 33: Pollution in Zurich, source: https://www.numbeo.com/

Based on the Numbeo, the level of pollution in these three cities are very low and the quality air, water, green spaces and natural environment is high and very high. So, these factors are the main issue for measuring the quality of life and happiness in these cities.

Chapter 5

CONCLUSION

5.1 Conclusion

This study provides an overview of research conducted in urban happiness studies from previous years. Quality of life studies have been around for a long time, while studies of happy cities have been emerging for the past ten years. The Happy city emerged as a response to the more quantitative measuring tools of most Quality of Life (QoL) studies which have their roots in economical disciplines. Happiness is about feelings and emotional infrastructure, but on the other side it can be objectively measured by a variety of indicators.

As mentioned earlier, research on happiness is emerging, and future studies may make it clear that emotional and social satisfaction can be achieved if the environment provides citizens with satisfaction and lives and lives in accordance with life. Bring, cities become happy cities. The more social interaction and socio-cultural participation is promoted, the more people feel connected to their environment and cities. In addition, green spaces, public parks, a high level of safety, good educational opportunities as well as adequate salaries make the place happy. On the other hand, the opportunity of using comfortable open spaces as social interaction spaces with others, supports beside the individual well-being also a collective happiness.

The study shows that dimensions and concepts of happy cities developed by scholars are reflected in some extend in the city rankings. Especially the Happy city concept developed by Montgomery is considered in the rankings in order to create emotional well-being with the help of the urban environment.

This thesis intends to contribute to the limited studies in the field of Happy cities and its relation to Quality of Life as well as the urban environment. The information gathered in this thesis can provide valuable insights for urban designer to dig deeper into the dimensions of Happy cities in order to provide successful livable spaces for the citizens and visitors.

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