

Introduction to Achieve Sustainable Neighborhoods

Abolfazl Dehghanmongabadi

Ph.D. Candidate and Full Time Research Assistant

Eastern Mediterranean University

Email: Abolfazl.dehghanm@gmail.com/ Abolfazl.dehghanmongabadi@cc.emu.edu.tr

Prof. Dr. Şebnem Önal Hoşkara

Dean of Faculty of Architecture,

Eastern Mediterranean University

Email: sebnem.hoskara@gmail.com

Nina Shir Khanloo

Master of Urban Design

Email: nina.2nk.sh@gmail.com

Abstract

As results of the rapid development of cities and urban settlements during the nineteenth century as well as changes in conditions and aspects that are affective on development of cities in recent years, urban neighborhoods find especial position in the formation of cities. Besides, concept of sustainable development emerged as a major part of literature review in urban design and planning. There are numerous reasons to apply sustainability concept in urban design and planning that generally can be mentioned as preserving of natural systems and resources, economic prosperity and social equitable communities. In this regards, human must manage their own societies and products particularly settlements. Hence, applying aspects of sustainable development within conventional practice of neighborhood planning is a vital approach to achieving sustainable cities throughout the world. Accordingly, the main aim of this study is concentrated to make clear definition of sustainable neighborhood and clarifying the main factors and principles which are affective to achieve a sustainable neighborhood. The methodology of the research is centered on theoretical technique based on previews studies and documents. Consequently, the research would express main characteristics of a sustainable neighborhood and understanding the fundamental factors and approaches to enhance the level of sustainability concept in urban neighborhoods through increasing the quality of life and achieving sustainable development within cities.

Keywords: Urban Neighborhoods, Sustainability, Neighborhood Planning, Sustainable Development, Sustainable Neighborhood.

1. Introduction

During the past century due to the rate of population growth in urban areas, and need of social, economic, physical development by considering the needs of coming generation, the concept of sustainable

development emerged. Basically, sustainable development is to provide new principles and lifestyle of living all over the world, therefore; sustainability cannot be an end product, unlike sustainability can be a vision and process (Newman & Kenworthy 1999, p. 5) which means and demands of it, is to create substantial change for all the humans. The concept of sustainable development has been used in different forms and definition. In this contexts, numerous scholars mentioned if the current and future urban areas want to develop and use natural resources with the same level as present time without concerning the future requirements, environmental, social and economic problems are inescapable. Accordingly, new approaches in urban design and planning were applied in order to achieve sustainable development in cities.

Neighborhoods always also has a strong physical reality inside cities with distinctive physical, social and economic characteristics. They are main unit of city which play important role in formation of cities. Urban neighborhoods are where people live and spend most of their time. Thus, planning and design of urban neighborhood must be comprehensive to meeting resident's requirements and accommodating new development by considering the needs of future generation. Accordingly, planning and design of urban neighborhood as a significant geographic and social unit has crucial role for creating a sustainable cities. Consequently, designing sustainable neighborhoods is initial steps towards achieving sustainable urban settlements (Gildroy, et al; Al-Hagla, 2008).

Based on statements mentioned above, the focus and main aim of this study is concentrated on clarify the fundamental factors and principles which have directly effect on sustainability of urban neighborhoods and goals and objectives of sustainable neighborhoods. Hence, this study is guided by two basic research questions:

1. What are fundamental effective principles to design and create sustainable neighborhoods in cities?
2. What are main goals and objectives of sustainable neighborhood?

The most important objectives of this research which are based on the main aim and questions will be clarified in separate parts which are mentioned in the following:

- Understanding the meaning and background of sustainability;
- Explaining the meaning of sustainable neighborhoods;
- Clarifying the fundamental principles related to design and planning that must be considered to have sustainable neighborhood;
- Describing the key features of sustainable neighborhood.

Accordingly, this research is designed in three main parts. The initial sector is to converse about the meaning and background of sustainable development. The second part is to explain the meaning and features of sustainable neighborhood. The final part provides concluding notes.

1.1 The Methodology of Research

This study is designed to be a documentary research. The methodology of the study is based on theoretical methods. The study will begin with a literature review on concept of sustainable development which this part will be involved theoretical work through documents on previous studies. After that sustainable neighborhood will be defined and main principles and features of sustainable neighborhood will be explained. The final part is concluding notes. Thus, the research will be used qualitative research techniques.

2. Sustainable Development: History and Overview of the Concept

During the recent years, the world have extremely changed and a significant number of people shifted from rural areas to cities as well as moved from one country to another country based on the fast economic growth which is linked with the intensification of industrial and commercial regions around the world. This quick economic growth and social migration and immigration are combined with lacking housing

conditions, excessive consumption of material and energy resources, instability in social and cultural values and social separation on global level. Consequently, these development processes have directly affected on environmental quality, social values and economic equality as well as increased risks of global environmental and human health conditions (Weiland 2006).

Based on these initial discussions, sustainable development have been widespread subjects of discussion on global, national, regional, and community levels to provide appropriate future for human. In this regards, in global scale the primary reference of sustainability in 1972 was published by the United Nation Conference in Human Environment in Stockholm (Drexhage and Murphy 2010). After that this concept was developed and used in conference of united nation on environment and development in Rio de Janeiro. During this conferences sustainable development is defined a kind of development that considers supplying today requirements without declining capability of next generation to supply their requirements. In 1987, with a report that published by the world commission on Environment and Development, sustainability is defined to address the problem between environment and development processes (Harris 2003). This report is popular as the Brundtland report included a universal accepted definition of sustainable development: “development which meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987, p. 45). This definition has three main ideas or keywords involves development, requirements and future generation. However, this report was accepted by the “United Nations General Assembly” and it has spread as a political approach in a lot of countries around world. Furthermore, in 1992, the elements of sustainability set out at the UNCED in Rio de Janeiro, and a sustainable development defined as “improving the quality of human life while living within the carrying capacity of supporting eco system” (Zuhairuse et al. 2009, p. 273). In continues, in 2005 United Nation Summit Outcome Document mention and clarify the “interdependent and mutually reinforcing pillars” which sustainability or sustainable development is consist of three interconnection pillars of environmental protection, economic development and social development (Drexhage and Murphy 2010). The concept of sustainability covers the concept of fairness to next generations. In other words, sustainability is branded by economic development based on social justice and good organization in the use of natural resources (Alshuwaikhath and Abubakar 2008). Based on the definition of sustainability, people have a moral responsibility to look after earth and hand it on in good direction to coming generations. The concept of sustainability is a simple and dynamic process that increasingly used in planning process however there is a common sense that sustainable development is a good thing but there is no universal acceptable ways on how this concept should be translated into practice. Generally, sustainable development is such a development process which consider generating, preserving and increasing life quality of all human in all eras (Mobaraki, Mohammadi, & Zarabi, 2012; Laghai, 2010; Berke& Conroy, 2000).

Traditionally, initial focus of sustainable development has been on the issue of environmental degradation, therefore; environmental concerns have been the foundation of sustainable development. However, during the twenty century, the concept of sustainable development has developed and increased its interconnection to economic and social elements of development. Accordingly, sustainable development is an interface between environment, economic, and social sustainability. However, there is a reality that if sustainable development wants to have future must be able to attract people and appearance in their emotions and behaviors as well as adapted their values (Packalén 2010; Nurse 2006; Duxbury 2001). Obviously, sustainable development is not an end state, but a process. The final aim is an equitable society that moving in manners that do not exceed the Earth’s capability to support human and non-human life. Working towards sustainability goal is a multi-stakeholder process that includes actors at different levels of government and throughout disciplines. Finally, public participation is a key factor to achieve sustainability in communities.

3. Sustainable Neighborhood

Urban neighbourhood can be seen and understood in different ways because the identity of a neighbourhood usually has more dimensions than just sociological context, topography, land use and administrative categories. Neighbourhoods are the location for connections of social, economic, physical and environmental factors. Normally, the term neighbourhood is defined from different social, psychological, mental, perceiving, architectural (physical) and political points of view. In other words, each of the different parts presents its own definition of neighbourhood. Thus, there are different approaches to applying sustainable development to neighbourhoods. Hence, within the context of neighbourhood planning and development a general understanding of the meaning of sustainable development is to balance social, economic and environmental requirements linked with urban development measures (Blum and Grant, 2006; Al-Hagla, 2008). In the following part sustainable neighbourhood by considering balance among social, economic and environmental dimensions will be explained.

3.1 Definition of Sustainable Neighbourhood

There is one universal agreement that at the scale of neighbourhood there is no clear definition for sustainable development, the definition and the principles for a good and sustainable neighbourhood may change over time. However, sustainable development at the neighbourhood is defined based on the broadly applicable definition of sustainability which published by Brundtland report, as a “development that responds to the local needs without compromising the ability of people globally to respond to their own needs”. In the other word, sustainable development at a neighbourhood is involved the development of communities with consideration of three interconnection pillars of sustainability include environmental, social and economic purposes in a balance manner (Churchill and Baetz, 1999). Besides, the assimilation of sustainable development principles in neighbourhoods planning is essential since most of the issues encountered at the macro-city scale are in fact result of weak planning at the micro neighbourhood level. Accordingly, several efforts have been recognized to integration of sustainability at the neighbourhood. In this regards, Churchill and Baetz in 1999 improved a set of strategies for sustainable neighbourhood which proved a broad range of factors involving “population density, alternative modes of transportation systems, community agriculture, water re-use and green building techniques” (Engel-Yan, J., et al. 2005). Furthermore, Neo-Traditional neighbourhood as a technique for increasing the level of sustainability at the neighbourhood has been recommended a development pattern by focusing on “high pedestrian access achieved through connected grid street patterns, mixed land-use, narrower streets, and a mix of other features” (Engel-Yan, J., et al. 2005).

3.2 Main principles of Sustainable Neighbourhood

UN-Habitat as an organization that has support for better urban future, recommended 5 principles include “*Adequate space for streets and an efficient street network, High density, Mixed land-use, Social mix and Limited land-use specialization*” as main principles of planning for a sustainable neighborhood which they will be explained in the following (UN-HABITAT, 2011; Teed, et al., 2013; Falk and Carley, 2012).

- ***Adequate space for streets and an efficient street network***

Target of this principle is to develop a suitable and efficient level of street network which can works for vehicle, public transportation and especially for pedestrian and cycling. Besides, the street network play important role to formation and shaping the neighborhood structure which can defined pattern of development blocks, buildings, open public spaces and landscape. Thus, this principle provides the basis for sustainable neighborhood development. Furthermore, to develop sustainable neighborhood by focusing on mobility dimension, the following characteristics should be considered in street design:

- Street must be walkable and cyclist friendly;
- Public transportation must be encouraged
- Street hierarchy must be extremely interconnected
- Parking area must be adequate

- **High Density**

Due to issues which emerged by rapid urbanization, global population explosion and urban sprawl, achieving high density is essential which is foundation of sustainable neighborhood. High density means a concentration of people and their activities. High density development has many economic, social and environmental benefits as well as high density is a smart choice and is located in the central of sustainable urban planning. In the following several of main benefits of high density development are mentioned:

- Efficient use of lands and accommodate more people per area;
- Reducing the cost of public services such as emergency response, school transport, water, sewage and roads;
- Support to have better community services;
- Decaling the dependency to car and parking demand, support public transport, pedestrian and cycling modes;
- Enhancing the social equity;
- Improving and supporting the quality of public open spaces;
- Increasing energy efficiency and decreasing pollution.

- **Mixed Land-Use**

Purpose of this principle is centered on developing a range of well-matched activities and land uses next to each other within suitable places and flexible enough. Besides, mixed land use has attempt to create “local jobs, enhance local economy, decrease car dependency, encourage pedestrian and cyclist traffic, reduce landscape fragmentation, provide closer public services and support mixed communities”. During century modern urban planning introduced the concept of land-use zoning approaches which single function areas emerged throughout the cities around world. This concept create serious problems for cities such as traffic congestion and car dependency. Hence, to solve these issues, mixed land-use concept promoted by new urbanism. Mixed land-use concept provide condition to combine of housing, commercial, industrial, offices and other functions. Thus, when verity of function are mixed in one neighborhood, housing and economic activities should be designed well balanced and well-matched (UN-HABITAT, 2011; Teed, et al., 2013; Falk and Carley, 2012).

- **Social Mix**

This principle has aims to promote the cohesion and interaction among different social groups within same neighborhood and provide equal accesses to existing urban opportunities by planning different kinds of residential houses. This principle provides the foundation for healthy social networks. Mixed land-use and social mix are mutually dependent and support each other. Besides, social mix can be achieved by mixed land-use and suitable polices. Furthermore, in a mixed land-use neighborhood, opportunity of job is generated for diverse level of residents with different income. Thus, people with different level of income live and work in a neighborhood and shape a social network. Finally, social mix can be defined as a socio-spatial concept with the following purposes:

- Promoting more social interaction and increasing social cohesion through different social classes;
- Generating job opportunity;
- Attract more services to the neighborhood.

- **Limited land-use specialization**

The aim of this principle is concentrated to limit use of functional zoning to encourage mixed land-use strategies. Besides, this principle has focus on the land-use aspect. In the cities around the world, the individual application of land-use specialization generates numerous single function neighborhood that they are main source of contemporary issues in urban environments. To create mixed land-use limiting land –use specialization is essential. Thus, there are two ways to correct zoning strategies and apply this principles:

- “To combine compatible land-uses into one block and neighborhood;
- To introduce mixed land-use zoning while respecting”

Consequently, these five principle are extremely interrelated and supportive for each other. High density provides the residents and activities foundation for a sustainable neighborhood. Besides, adequate street density is the physical base whereas mixed land-use and social mix are shaped the land use and quality of social life within a neighborhood. Furthermore, the initial step toward mixed land-use within neighborhood is Limited land-use specialization. Accordingly, these five principle create a balance among, growth of population and economic, fast urbanization, and sustainable urban development. Besides, they are supportive to launch a new urban system. In this new system, all factors which mentioned above will be developed together and provides condition which urban residents and urban spaces live and develop in harmony (UN-HABITAT, 2011; Teed, et al., 2013; Falk and Carley, 2012).

3.3 Key features of a sustainable neighborhood

Accordingly, these five principle play crucial role to foster sustainable urban neighborhoods by encouraging livability. Thus, in the following main features of a sustainable neighborhood will be mentioned that these five principle contribute to them:

- **A vibrant street life:**

Promoting and encouraging the street life by providing suitable condition to establish different activities. In this regards, high density and mixed land-use play important role to enhancement a lively street life. Besides, a high population density produces appropriate industrial and commercial service demand whereas mixed land-use generates sufficient manufacturing and service space. Thus, a neighborhood with the these five principle has capability to make balance between demand and supply as well as prosperous street life in neighborhood which satisfies people’s needs and provide a safe and vibrant neighborhood life (UN-HABITAT, 2011; Teed, et al., 2013; Falk and Carley, 2012).

- **Walkability:**

Walkability is one of the main factor to encourage people into the public space, decline congestion and improvement local economy and connections. Besides, existing vibrant street life invites people to walk and also a rational street network provide this opportunity to offer administrative service in walking and cycling distance and make sure safety. Furthermore, high density, social mix and mixed land-use within a neighborhood make closeness to work, house and services conceivable. Moreover, walkability contribute to reduce automobile dependence and air pollution and decline natural consumption. Finally, walkability add an unbelievable contribute to vibrancy neighborhood.

- **Affordability:**

Affordability should be supported in transaction and economic activities, and also services and housing by encouraging closeness and declining costs and constructing services for different class of users. Obviously, applying of these five principles, contribute to decrease consumption of time and resources therefore bring down costs of general service. Moreover, to promote a balanced supply of urban public resources and encouraging acceptable housing for different income groups, social mix principle is essential. An affordable

and accommodating neighborhood is a core feature of a sustainable city (UN-HABITAT, 2011; Teed, et al., 2013; Falk and Carley, 2012).

Consequently, these five principles toward supporting and achieving sustainable neighborhoods seek to the objectives include promoting high density development to decline sprawl development and maximize use of land. Further, encourage walkability and decrease car dependency as well as enhance use of land and offer an interconnected network of streets which provide safety, walking, cycling and driving. Furthermore, fostering local employment and productions whereas provide different size of housing types and support local services.

4. Example of the best sustainable neighborhoods

In this part two neighborhoods of Malmö city in Sweden which are the best example of neighborhoods which are on the way toward sustainable neighborhood will be described.

4.1 VästraHamnen, Malmö, Sweden

Malmö, with a population over 250,000, is Sweden's third largest city. In the 1970's, the shipbuilding industry of Malmö confronted an economic decline; which led to swathes of industrial and docklands along coastline being abandoned. The VästraHamnen area is included in this event as well. The City of Malmö was planned to develop a new inner city area with the inspiration of creativity, development knowledge and stimulation of economic growth. Therefore, public funding was allocated to the renovation and environmental improvement of the VästraHamnen area, to effectively stimulate its renovation method as a new, modern city district. By and large, the first stage of process, the Bo01 Housing Estate, was constructed and firmly completed for the 2001 European Housing Expo, with funding from the variety of organizations such as the State of Sweden, the City of Malmö, the regional company, the European Commission and private developers. The project aims to provide accommodation of living, working and studying space for approximately 3000 inhabitants in the area. The focus of the project is to create a sustainable society and environmentally neighborhood. As a whole, the Bo01 concept is based on the idea of the sustainable urban area with attractive district for all generations. Under such a circumstance, a great amount of attention has been focused on the architectural aspects. For instance, new buildings have been constructed within practical guidelines for architectural firms with focus on the quality, choice of vernacular materials, effective energy consumption and green issues (ULR1, 2).

The main aim of Bo01 is to be provided a globally leading example of environmental adaptation of a densely built urban area and an exemplary project for other countries. Besides, increased biodiversity and reprocessing of water, resources, sewage and waste, the household's energy requirements are met by great deal of local renewable energy sources. Besides, toward achieving sustainable neighborhood following actions based on main principle of sustainable neighborhood have been done (URL1).

- ***Adequate space for streets and an efficient street network***

Generally, the automobile is recognized as a dominant means of transportation and is accommodated in a multi-storey underground car park. Nonetheless, the government is given priority access to pedestrians and cyclists over other vehicles across the neighborhood. As well as, a regular local bus network act as a connection from the area to the city center (URL1).

- ***High Density and Mixed land-use***

The Bo01 master plan scheme is designed to help minimizing heat loss from the buildings by placing high-rise apartments on the outskirts of the area, facing the sea against the strong winds to protect the one-story buildings from the cooling effect. Furthermore, a 'Green Space factor' is needed to be considered for every apartment. This policy required planners to provide on-plot greenery system such as green planted walls and

facades or roofs. Another factor in the environment which needs to be considered and kept is biodiversity. Biodiversity is improved through providing nesting boxes; butterfly and bee flower beds, a wild Swedish flower meadow, country side garden and wide open expanses of water. Bo01 is a local renewable energy system, with heat production from the exploitation of aquifers storage and solar thermal collectors; also, summer cooling generation from the aquifers; and electricity usage from a wind turbine and photovoltaic solar panels. Bo01's energy consumption systems are managed and preserved by a local energy company and are associated with Malmö's community energy network for heating, cooling and electricity, to allow considerable fluctuations in public supply and demand to be regulated. Therefore, many inhabitants can monitor their energy consumptions including water, electricity and heat through state-of-the-art technology systems which are installed in their homes to encourage them to save resources. Additionally, all sorts of waste (e.g. newspapers, packaging and batteries) is organized and recycled through waste separation units which are installed in homes (URL 1, 2, 3).

The heritage resources of the VästraHamnen district will be preserved by restoring large historical industrial constructions in the area which contribute to the sense of place, unique character and sense of identity of the area. Another prominent aspect of the Bo01 was design quality and condition of the building. So, urban planners and developers had to follow "Quality Program", which accurately defined architectural quality; the character of public open spaces; the building's proficiency; and acceptable standards for color, material and energy. According to the project policy although the housing development was varied, however it was designed with a range of sizes and types. Also, the tenure aspect was considered to provide buildings with mixed of options such as rental, shared ownership and freehold. The Bo01 development aimed to shed light on the mixed use aspect as well. Under such a circumstance, varied of functions including shops, cafes public school, day-care centers and offices were well integrated with the housing (URL 1, 2, 3).

- **Social Mix**

Another essential factor which needed accurate focus was people and their interactions. Accordingly, variety of public open spaces such as urban parks, green areas and meeting places with the aim of increasing social capital and encouraging interaction among locals were placed. Besides, along with the main policy of the project, small well-designed green spaces in associated with each apartment were added. Also, distance or home working and electronic trade (e-trading) factors were encouraged in Bo01 via the neighborhood communications system including broadband information (URL 1, 3).

- **Limited Land-Use Specialization**

According to the city planners, the site is constructed on reclaimed, formerly developed industrial land, thereby helping to preserve Sweden's cultivatable and agricultural land are added to the policy of the area (URL 1, 2, 3).

4.2 Ekostaden Augustenborg, Malmö, Sweden

Augustenborg was built 1948-52 by Malmö City Housing Company Ltd. As a whole, the neighborhood braggged a local school and industrial estate, and fascinated young families from small, poorly apartments in Malmö. The area developed as a successful neighborhood with a high quality, well-designed built environment which combined with well-supported local activity. With respect to the previous developments, a new construction program was implemented in the area. Under such a circumstance, the housing construction lost its attraction and became abandonment. After years, in the 1980-90's, Augustenborg saw a new demand for housing construction due to the increased migration to Malmö. When people moved to this area with cultural and social diversity, many social difficulties came out. Along with this event, in Augustenborg, Malmö, Sweden urban planners and authorities imposed a new major program in

consultation with local inhabitants and employees. The main aim of this program was to improve the area and lead towards three pillars of sustainability criteria (URL 1, 2).

The urban development program of Ekostaden Augustenborg (Eco Neighborhood) was started in 1998. The main focus of this experimental project was to demonstrate comprehensive solutions to innovative urban renewal. Accordingly, new measures were implemented to manage waste and congested traffic; increase biodiversity and service; and create state-of-the-art rainwater management systems and green roofs. Therefore, this project has been described as being “one of the farthest reaching program of ecological development in an existing neighborhood in Europe.” Consequently, according to main aim and focus of this program by paying attention on main principle of sustainable neighborhood the following action have been done (URL 1, 2, 3).

- ***Adequate space for streets and an efficient street network***

The new imposed program has made the residents to start an ‘eco car pool’ with a fleet of electric and friendly-environment ethanol cars that can be rented by locals. Policy makers paid attention to other types of transportation as well. Safe cycling and walking routes are promoted through dramatic changes and improvements in local traffic system (URL 1).

- ***High Density and Mixed land-use***

Based on the project policies, the Housing Company have undertaken a number of measurements related to the energy saving, including the more efficient steering of heat and hot water systems, new design ventilation systems, additional insulation and low energy electrical pieces. Besides, reprocessing is encouraged in building units for various materials such as paper, plastic, glass, metal, carton, batteries and organic waste. Moreover, residents have an opportunity to grow their own green vegetables in one of the many small on-site portions. These are given as a chance to local children. Saving species of animals was another aim of the project; hence biodiversity in the area is boosted through a green roof program; flower planting, native fruit trees; the expansion of wetlands; and the providing of bird boxes (URL 1, 3).

- ***Social Mix***

The estate supports plentiful and varied social and cultural population who migrated to the area, with approximately 65% of residents being non-Swedish and almost 45% of population being unemployed. In addition, social linkages among inhabitants needed to be considered as well. Thus, community integration among residents of Augustenborg is enhanced through social clubs, indoor and outdoor sport activities, diverse cultural events and classes. Local inhabitants, employees and school children are integral part of the process at Augustenborg. They play a pivotal role in the idea, design and implementation of project. Regular community workshops, meetings and informal gatherings such as sports and cultural events, ensure that all residents’ views are heard by the City Authority and the Housing Company. The estate provides special accommodation for elderly as well. On the other hand, authorities paid special attention to provide green open spaces and facilities for local children and families including communal gardens, play areas, green spaces and a football pitch. Besides, social services are provided as well and a primary school in the area provides local children a high level of education. Furthermore, there are a small branch of local shops run by the community (URL 1, 2, 3).

5. Conclusion

In this century a growing body of research is focusing on the sustainable neighborhood pattern as a place to live over many generation. Sustainability at neighborhood is a long-term process which mixed land-use, density, arrangement of streets, housing and economic affordability and social mix play crucial role in this respects. Accordingly, neighborhoods as the foundation of any city that are a abstruse fabric of people, buildings, uses and most significantly social interactions, must be sustainable and attractive for people of all

age. Besides, sustainability at neighborhood will be made by a complex set of variable and principle which many of them are difficult to forecast. Hence, plan which considered for a neighborhood through achieve sustainability shall be flexible whereas providing clear direction. Consequently, to achieve a sustainable neighborhood a comprehensive planning by concentrating on the mentioned principles is essential.

REFERENCES

- 1) Al-Hagla, K. (2008). Towards A Sustainable Neighborhood: The Role of Open Spaces. *International Journal of Architectural Research*, 2(2), Pp. 162-177.
- 2) Alshuwaikhat, H.M., and Abubakar, I. (2008) "An integrated approach to achieving campus sustainability: Assessment of the current campus environmental management practices", *Journal of Cleaner Production*, Vol. 16, pp 1777-1785.
- 3) Berke, P. R., & Conroy, M. M. (2000). Are we planning for sustainable development? An evaluation of 30 comprehensive plans. *Journal of the American planning association*, 66(1), 21-33.
- 4) Blum, A. and Grant, M., (2006) Sustainable neighbourhoods: Assessment tools for renovation and development, *Journal of International Research Publications*, Present Online, Issue Ecology, Vol 1, p35-52 ISBN/ISSN: 1311-8978.
- 5) Churchill, C.J., and Baetz, B.W. 1999. Development of decision support system for sustainable community design. *ASCE Journal of Urban Planning and Development*, 125: 17–35.
- 6) Drexhage, J., and Murphy, D. (2010) *Sustainable Development: From Brundtland to Rio 2012*, United Nations Headquarters, New York.
- 7) Duxbury, N. (2001) "Exploring the role of arts and culture in urban sustainable development", [online], Table d'Hôte on Building Sustainable Communities: Culture and Social Cohesion, <http://www.cultureandcommunities.ca/downloads/Duxbury-urban-sustainability-2001.pdf>
- 8) Engel-Yan, J., et al. (2005). "Toward sustainable neighbourhoods: the need to consider infrastructure interactions." *Canadian Journal of Civil Engineering* 32.1, pp. 45-57.
- 9) Falk, N., and Carley, M. (2012). Sustainable urban neighborhoods Building communities that last. Retrieved June 10, 2014 from <http://www.jrf.org.uk/sites/files/jrf/sustainable-urban-neighbourhoods-full.pdf>
- 10) Gildroy, C., et al. (2008). What is Neighborhood Planning? Retrieved June 09, 2014 from [http://cityofchelan.us/planning/pdf/Neighborhood Plan/what is neighborhood planning.pdf](http://cityofchelan.us/planning/pdf/Neighborhood%20Plan/what%20is%20neighborhood%20planning.pdf)
- 11) Harris, J.M. (2003) "Sustainability and Sustainable Development", [online], International Society for Ecological Economics, <https://www.ecoeco.org/pdf/susdev.pdf>
- 12) Laghai, H. (2010). Strategy For Sustainable Urban Development Guidelines For Tehran. Retrieved May 09, 2014 from <http://www.ipalmo.com/wp-content/uploads/article-strategy-11July-2010-laghai.pdf>
- 13) Mobaraki, O., Mohammadi, J., & Zarabi, A. (2012). Urban Form and Sustainable Development: The Case of Urmia City. *Journal of Geography & Geology*, 4(2). Report of the World Commission on Environment and Development. (1987). Our Common Future. Retrieved May 10, 2014 from [http://conspect.nl/pdf/Our Common Future-Brundtland Report 1987.pdf](http://conspect.nl/pdf/Our%20Common%20Future-Brundtland%20Report%201987.pdf)
- 14) Newman, P. and Kenworthy, J. (1999) *Sustainability and cities: Overcoming automobile dependence*, Island Press, Washington, DC.
- 15) Nurse, K. (2006) "Culture as the Fourth Pillar of Sustainable Development", [online], Commonwealth Secretariat Marlborough House Pall Mall London, <http://www.fao.org/sard/common/ecg/2785/en/Cultureas4thPillarSD.pdf>

- 16) Packalen, S. (2010) "Culture and sustainability. Corporate Social Responsibility and Environmental Management Corp. Soc. Responsib. Environ. Mgmt", Vol. 17, pp 118–121.
- 17) Teed, J., Condon, P., Muir, S., and Midgley, C. (2013). sustainable urban landscapes, neighbourhood pattern typology. Retrieved June 11, 2014 from <http://www.jtc.sala.ubc.ca/projects/SDRI/typ.pdf>
- 18) UN-HABITAT. (2011). A New Strategy of Sustainable Neighborhood Planning. Retrieved June 11, 2014 from http://unhabitat.org/wp-content/uploads/2014/05/5-Principles_web.pdf
- 19) URL1. (n.d).
http://depts.washington.edu/open2100/Resources/1_OpenSpaceSystems/OpenSpace_Systems/Malmo_Case_Study.pdf. Retrieved September 20, 2014.
- 20) URL2. (Ten Group. September 2010).
<http://www.urbed.com/sites/default/files/Learning%20from%20Copenhagen%20and%20Malmo.pdf>
Retrieved September 02, 2014.
- 21) URL3. (n.d).
<http://www.malmo.se/download/18.7101b483110ca54a562800010420/westernharbour06.pdf> Retrieved September 02, 2014.
- 22) WCED. (1987) Our Common Future, Chapter 2: Towards Sustainable Development. World Commission on Environment and Development (WCED), United Nation, Geneva.
- 23) Weiland, U. (2006) Sustainability Indicators and Sustainable Development. In Wuyi, W., Krafft, T., and Kraas, F., Global Change: Urbanization and Health pp 241-250, China Meteorological Press, Beijing.
- 24) Zuhairuse, M.D., Abdul Khalim, A.R., NorAtikah, H., Zaidi, O., Masran, S., and Noraziah, M. (2009) "Development of Sustainable Campus: UniversitiKebangsaan Malaysia Planning and Strategy", Wseas Transactions on Environment and Development, Vol. 5, No. 3, pp 273-282.