International Journal Of Architecture and Urban Development
Vol.7, No1, Winter 2017

Factors Affecting the Urban Renewal Process From Sustainability View: A Case Study of (District 11 of Municipality in Mashhad)

[1]Ali Ghesmi Shah Galdi, [2]Rahmatolah Farhudi, [3]Ezzatolah Ezzati*

1 Ph.D. Candidate, Science and Research Branch, Islamic Azad University, Tehran, Iran
2- Assistant Professor, Department of Geography, Tehran University, Tehran, Iran
3-Associate Professor, Science and Research Branch, Islamic Azad University, Tehran, Iran.

Recieved 15.03.2016; Accepted 15.11.2016

ABSTRACT: Sustainability is observed in many aspects and elements of traditional Iranian architecture, planner and landscape architecture, and this method was used to solve many problems for many countries. The aim of this article is to achieve a sustainable approach in planning urban renewal projects to identify the relationship between urban design considerations and the sustainable development objectives. An experimental model of stability testing of the modernization projects in three economic, environmental and social dimensions was evaluated in District 11, Municipality in Mashhad. In this article, the questionnaire used to collect data from sample size of 380 and various statistical analyses such as Independent T-test, Pearson correlation, multiple regression and path analysis were used. The findings show that the variables in all three "economic", "social" and "environmental" dimensions had related rate of sustainability of urban renewal projects. The variables, Built Environment and social factors were more effective in increasing the sustainability of urban renewal projects.

Keywords: *Urban renewal, Sustainablity, Sustainable urban renewal, Urban areas*

INTRODUCTION

Nowadays, sustainable development is a common goal of many worldwide urban policies, and many urban renewal projects are claimed to be sustainable; however, limited assessment or evaluation tools are available to examine the extent to which urban renewal projects have generated sustainable outcomes. The majority of evaluation models commonly used in recent years are mainly for assessing the sustainable development in which the assessment of environmental performance of the project has made up a large proportion and has not yet been regarded as the most comprehensive one to assess the sustainability performance of urban regeneration. Even though it adopted indicator-based approach addressing both tangible and intangible issues, it failed to provide a mechanism to assess the sustainability level of particular urban regeneration scheme before the project commences. In addition, assuming equally importance of economic, environmental and social objectives and equally importance of each indicator under particular issue is not realistic in the real world. In view of it, this study attempts to incorporate a sustainability concept in the urban renewal proposals and discover a list of urban design considerations that can sustain the economy, environment, and social well being. In this paper, critical factors are discussed to provide valuable information for the professionals to make decisions among different design.The specific objectives of this article are shown below:

-To develop a theoretical and conceptual framework for a sustainable urban renewal approach that is built on the relationships between urban renewal, sustainable development and urban design, and the interplay of various urban design principles and corresponding design considerations;

-To justify the selection of the urban design considerations highlighted in the captioned framework for enhancing the sustainability level of local urban renewal practices;

-To establish a feasible assessment model - Sustainable Urban Renewal Process Assessment Model (SURPAM) and evaluate the components of the SURPAM to be adopted in the urban renewal process by capturing the experts' views.

Accordingly, this article is divided into several subsections. Section 2 will review and analyze the literature that deals with sustainable urban renewal. Section 3 will explain the aim of this article. Section 4-5 will explain the methodology used and study area. In these context, firstly combination of techniques as a means of gathering data appropriate for the indicators. Expert opinion plays a major role in the empirical investigation which seeks to assess the measurement of urban renewal practice in light of sustainability principles. Secondly detailed performance analysis of case study is presented utilizing the 21 Main Indicators discussed in the accompanying paper. Thirdly, the results of Questionnaires analyses such as Independent

*Corresponding Author Email: *rfarhudi@ut.ac.ir*

International Journal Of Architecture and Urban Development
Vol.7, No.1, Winter 2017

T-test, Pearson correlation, multiple regression and path analysis. Sections 6 will provide analysis of the empirical research, with reference to the three topics (environment, social and economic). The final section will offer some concluding remarks and relate this study to existing knowledge on sustainable urban renewal.

LITERATURE REVIEW

Urban renewal

Urban renewal is seen as a process involving "physical change, or change in the intensity of land use and buildings" resulting from the "economic and social forces" imposed on the urban areas (Couch, 1990). This phenomenon is clearly reflected on the urban renewal policies for Britain and the United States (US). Due to the rapid growth of the population, economic restructuring and change in the social needs, urban areas in Britain are redeveloped to create better living environments by demolishing obsolete houses, offices and shops, rebuilding new premises and providing various types of amenities e.g. public transport, schools, recreation facilities, etc. In addition to the demolition and reconstruction of buildings, the urban renewal programmes with comprehensive forethought and coordination also include conservation and rehabilitation (Twichell ,1953; Steel & Slayton, 1965; Hemphill et al., 2002). Urban renewal is conducted to achieve a number of goals especially for slum clearance (Steel & Slayton, 1965; Rothenberg, 1969; Rapkin, 1980; Taylor & Newton, 1985; Cuthbert & Dimitriou,1992; The Planning & Lands Bureau, 1996; Lü, 1997; Carmon, 1999; Chan, 2000; Ha, 2004). The concept of urban renewal covering slum clearance, redevelopment, rehabilitation and conservation was laid down officially in the Housing Act 1954 (Choo, 1988). Steel & Slayton (1965) stated that urban renewal in the US was known as a slum clearance programme which aimed to remove or rehabilitate slum and blighted areas. Urban renewal is a complex process that has been commonly adopted to cope with changing urban environment, to rectify the problem of urban decay and to meet various socioeconomic objectives since Industrial Revolution (Couch, 1990; Adams & Hastings, 2001; Lee, 2003). The activities in the programme such as displacement of substandard accommodation and redistribution of different land uses were not only for physical improvement of the living environment but also for social status enhancement and stimulation of economic growth. The same idea is highlighted by Priemus (2004) indicating that urban renewal did not simply involve "brick and mortar" but it had to be seen as a process combining physical, social and economic agendas.

Sustainable Urban renewal

In recent years, many international meetings and conferences were held to discuss the future direction of global urban development. Meanwhile, various documents, declarations and convention were made to put the notion of sustainability into reality (1UNDESA, 1992; United Nations, 1997; Lai, 2002; United Nations, 2002; Hong Kong Special Administrative Region passport, 2004; Mottershead, 2004). As mentioned before, urban renewal projects can improve the built environment and the quality of life of the citizens to a certain extent. However, they may impose negative impacts on social, economic and environmental domains of the communities (Rothenberg, 1969; Alexandre, 1992; Chui, 2003; Ha, 2004) when they fail to strike a balance among those aspects (O'Flaherty, 1994; Bentivegna et al., 2002; Ng, 2002; McLaughlin, 2003). As discussed by Tang (2002), property-led urban regeneration approach solely to refurbish the physical condition of the city prohibits sustainable growth of the community. Hence, academia and municipalities have recently initiated a new approach in which the concept of sustainability is incorporated into urban renewal projects in order to create sustainable communities (Visic, 1995; Peng, 1999; Alexander, 2000; Couch & Dennemann, 2000; Shutkin, 2000; Alker & McDonald, 2003; Rydin et al., 2003). Such an approach is intended to be developed by applying the concept of sustainability to urban renewal; a major local issue that draws a great attention from the public (Berek, 2002). It is because the literature mentioned in previous section proves that applying this global concept to local issue at city level can meet various objectives and produce positive outcomes (Campbell, 1996; Devuyst, 2000; Leeming, 2000; Shearlock et al., 2000; 2PD, 2003). The idea of merging sustainability concept into urban renewal process to secure long-term economic, environmental and social well-being of the public can be represented by the terms "sustainable urban renewal" or "urban regeneration" (Ng et al., 2001). Thus, Urban renewal sustainable has got several components, such as social component which revives social cohesion or communities, economic component which uses physical renewal to revive the economic market of a place or perhaps component where the arts are used to restore vibrancy and life (Palmer, 2008). The accepted general meaning of sustainable development is a balance among economic, environmental, and social equity concerns. Sustainable development draws from five intellectual traditions: carrying capacity, fitness, resilience, diversity, and balance (Neuman, 2003). Carrying capacity refers to the ability of natural and man-made systems to support the demands of various uses and inherent limits in the systems beyond which change cannot be absorbed without producing degradation or irreversible damage (Godschalk & Parker, 1975). The World Conservation Union (1991) defines sustainable development as 'improving the quality of human life while living within the carrying capacity of supportive ecosystems'. Carrying capacity persists as a mainstream definition of environmental planning for sustainable development (Beatley, 1995; Rees, 1996). The concept of carrying capacity became popular because it used factors that are easily measured and assessed. However, measuring capacity at a single point in time goes against the notion of sustainability as process (Neuman, 2003). Fitness has a tradition in biology. Fitness implies an evolutionary

process marked by the mutual interaction between species and environment (Neuman, 2003). Landscape architects and environmental planners endeavor to fit built structures and developments into natural landscapes without disrupting ecological systems irreparably (Ashby, 1978). Lynch (1981) measured people's perceptions about the quality of their environment in relation to the spatial, physical city and elucidated the connection between urban form and local culture. Resilience is a process of adjustment through interaction, as is fitness (Ashby,1978). However, instead of asking how well does an organism or activity fit into a given ecosystem or social community, resilience asks how well a place absorbs the presence of an organism or activity (Neuman, 2003). The modern city planning movement partly derives from the idea of resilience. In the late 19th century the urban expansion, tenement improvement, and civic hygiene movements in Europe and the United States diagnosed large cities as ill but not fit to live in (Neuman, 2003). Professionals proposed solutions to let in more light and air and to better treat wastes – that is, to make cities more resilient to the impacts produced by crowding (Hall, 1988). Diversity refers to preserving biological diversity via environmental protection. Diversity also implies both the variety of members in a community and the positive disposition of members in relation to one another (Neuman, 2003). In urban planning, it may take the form of multiple and mixed land uses instead of a single use. Likewise, it is construed as promoting social diversity by inclusionary zoning that accommodates a range of incomes. Diversity has become a pervasive and persistent feature of sustainability debates (National Research Council, 1999). Balance refers to balancing the natural environment with human development. The Brundtland Report (3WCED, 1987) stressed a balance between development and environment, and between present and future generations. Thus, a real sustainable urban renewal has to address 3 dimensions namely economic renewal, environmental renewal and social renewal (Fig.1).

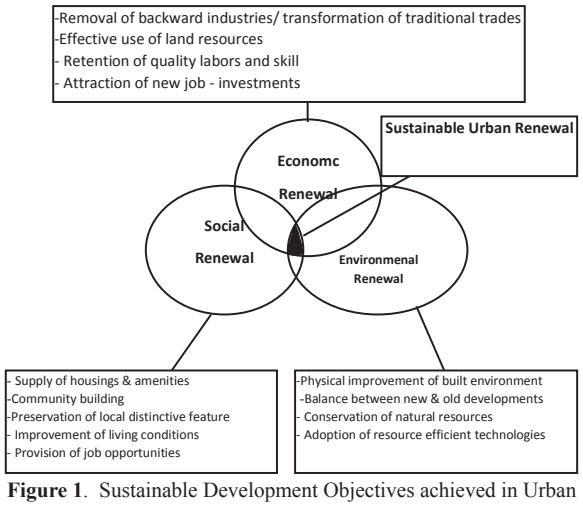

Figure 1. Sustainable Development Objectives achieved in Urban Renewal Process(Sources: Berke and Conroy, 2000; Shearlock et al., 2000)

Aims of the study

The purpose of this study was to develop a theoretical and conceptual framework for a sustainable urban renewal approach that is built on the relationships between urban renewal, sustainable development and urban design, and the interplay of various urban design principles and corresponding design considerations. The second aim was to examine the characteristics of the urban (re)development in District 11, Municipality in Mashhad. A third purpose to establish a feasible assessment model - Sustainable Urban Renewal Project Assessment Model (SURPAM) by means of perception surveys, expert judgments and statistical analyses for advocating sustainable urban renewal.

MATERIALS AND METHODS

The methodology used for this case study research strategy can be broken down into the following phases: definition of a conceptual model, establishment of a set of dimensions of analysis, construction of a system of indicators and extraction of conclusions. The empirical work was based on the collection of bibliographical elements, direct observation and field interviews.

Research Indicator

Environmental indicators

Human through social - cultural relations gives form, function and importance to space and organizing the space, in turn, leads to the transformation of these relations. Therefore, the build and design of urban spaces affect the process of social life and must be physically and mentally be effective for citizens (Seifaie, 2005, 76) and good urban design could bring a wide range of benefits (Vandell et al., 1989) and could further improve the sustainable values (Rowley, 1998; 4CABE & 5DETR, 2001). In this regard, the considerations urban renewal plans to achieve a sustainable environment includes the proper use of natural resources, reducing pollution and supporting the urban environmental landscapes, and measures related technologies such as noise pollution control or maintains the air quality at acceptable standards and this plan could have positive effects on the environment. It should also be noted that harm to natural environment increases when development intensity increases (Tang & Lam, 2000). One of the effective means to limit development intensity and reduce its negative effects on ecosystems is considering the spatial arrangement of buildings and streets and factors such as density control, height and appropriate access (Lim & Leung, 2000). There is a broad consensus that in areas of regeneration, standards of external appearance, cleanliness and safety are improved (Page & Boughton, 1997; Jupp, 1999; Beekam et al., 2001). Upgraded housing and 'image construction' have also contributed to significant improvements in residents' overall satisfaction with their areas (Lawless, 2006; Rhodes et al., 2005). Natural landscape and open space are important to protect urban ecology and improve overall environmental quality (Nevter & Beser,

International Journal Of Architecture and Urban Development
Vol.7, No.1, Winter 2017

2003). Upgrading local environments can generate positive externalities and establish an upward spiral of improvement which eventually turns run-down neighbourhoods into more attractive to live and invest in places (Turok, 1992)

Economic indicators

The interpretation of sustainable development along purely economic lines is a common theme within the regeneration literature, and the ambiguity of the term is often depicted as enabling the economic agenda. Couch & Dennenmann's (2000) study of the regeneration of a inner-city area in Liverpool found that economic aspects were prioritised over social and environmental concerns and that economic regeneration and more precisely property development were the main driving forces regenerating the area, while Russo's (2003) study of reading found a similar bias towards the economic, this time articulated through the concept of growth. Parallel research also noted that regeneration budgets had failed to focus on the roots of economic deficiency such as for example long-term unemployment and neglected to boost enterprise and skills which would have helped broader economic outcomes (Hayman, 2009). In this regard, urban design creates jobs by attracting new business and retaining contemporary companies in a particular area, establishment or preservation of different economic activities secures employment of the citizens (Eberhard et al., 1998). Montgomery (1998) pointed that the types of activity available in an urban area can affect the performance of its local economy. A vibrant city contain diversified activities can attract different groups of people to spend time and money. When the time pass, the political environment and economy of a city, technology level, and demands of the citizens change. Buildings and provisions within a development that do not cater for changing needs may become obsolete even though their service lives have not yet expired. To optimize full utility values of individual buildings and their facilities, and avoid premature replacement, the building and urban forms should be highly adaptable. Adaptability to changes is vital to social development (Spangenberg, 2005). Investment returns can be maximized if the cityscape and the provisions inside can be altered rapidly to meet varying market demands and take advantages of unexpected business opportunities. Therefore, investors are willing to price higher for the building and site layout with higher flexibility to address changing circumstances (Rowley, 1998). It may be the case that such a 'negative' or 'aggressive' gentrification process may be experienced by large and 'fashionable' cities and so it is less likely to be found in areas of low demand housing, where instead area gentrification could be perceived as a positive phenomenon (Butler, 2007). Power calls this 'low level gentrification', a process of improvement that integrates new residents within the existing urban frame by reclaiming spare spaces whilst organically improving them, in sharp contrast to extreme gentrification which displaces existing residents (Power, 2009). She also argues that 'gentrification is the inevitable price of success' in the rebirth of run-down inner-city areas (Power & Houghton, 2007). Rehabilitation creates economic benefits as time and cost of the owners and communities incurred to improve existing conditions are much lower than new construction (Pearce et al., 1996). Arrangements facilitating future maintenance and management of buildings, facilities and spaces are essential to a development as they provide incentives to the management staff to conduct routine maintenance and management works. Routine maintenance reduces the deterioration rates of the structures and their facilities, and lowers the operation and future repair costs (Miles & Syagga,1987; Matulionis & Freitag, 1991).

Social indicators

Built environment affects social well-being. However, achieving social sustainability for a city always goes beyond the manipulation of the physical environment and has direct relationship with intangible values of the community, and psychological and emotional need of public (Vallance et al., 2011). Provisions of various types of amenities are vital to a society. Public facilities such as schools and medical centers cater for basic needs of the citizens (Rothenberg, 1969) while others like sports facilities and community centers offer venues for holding different leisure activities. To look after vulnerable groups such as disabled, elderly and children within a community, special provisions should be readily available for their uses. From this perspective, social processes that changes proportional to the development of mental and environmental factors, and affect the ability to attract people in public space should be considered by urban planners in preparing urban projects. Help to build more cohesive societies along with above mentioned items is one of the main priorities of urban renewal projects. Research show that urban regeneration intervention has an overall positive impact on areas with poor community cohesion through promoting more interaction among different resident groups (6SDC, 2007; Audit Commission, 2008). In late 1990, the increase in social interactions and decrease social inequalities in order to deal with the disintegration of communities were considered by governments. The process that is effective in creating sustainable urban communities. Empirical evidence also shows that the attention to the principles of the composition of communities in addition to the reduction in social - behavioral malformations, crime and will attract and retain families in cities (Tunstall & Fenton, 2006; Silverman et al., 2006) and the right combination of society can be seen as a description of "sustainability" terms and reflect the community's capacity to meet the needs of residents ovr the course of time (Kearns & Turok, 2006). Public participation is another matter of concern during urban design process. When a development is conducted without working with the local community, the public is not likely to react favorably (Barnett, 1982). On the contrary, when the residents are involved in planning their communities and decision making process, the

outcome of the urban design is very likely to meet their needs and desires (Rydin et al.2003). In this way, the confrontation and social oppression are minimized and the senses of belongings of the citizens are enhanced (Inam, 2002). It should be noted that the indicators of sustainable urban renewal could be examined according to theoretical studies and real and concrete conditions and characteristics of the desired range and then we can adopt a suitable framework to deal with problem (see Figure 2).

Study area

The Iranian case study is in Mashhad, capital of the khorasan province in the Northeast region of Iran. Mashhad is categorised as a Metropolitan city (300km2) with a population of over 2,000,000 people (Rahnama, 2010). Mashhad in terms of geographical location located at latitude 35 degrees 43 minutes north and longitude 59 degrees 37 degrees 7 minutes and 3 minutes to 60 degrees 38 minutes East (Shah Mohammadi, 2007, 86). The District 11 is one of the developing areas of the city (Mashhad Municipality, 2010). The region's population density of 123 people per hectare and the family size is 3.43 people that in terms of family members is approximately equal to whole city (3.42) (Mashhad Municipality, 2010) According to available statistics, the population of this region in 2013 amounted to 222,018 people, which include 7.9% of Mashhad population. The extent of this urban area is 1800 HA that is extended from the north west of Mashhad (Figure 3). The statistical sample consisted of 166 males (43%) and 214 women (57 percent) that in terms of education, 67% have degrees higher than diploma and the rest were under diploma. The age range belongs to age groups between 18 and 35 years. According to frequency and the results obtained from the questionnaire, most of the audience that use of study spaces are young peoples. It should be noted that since this area is located near the business and commercial centers and density of the area and new development activity cause that the district 11 of Mashhad be qualified to measure sustainable urban renewal process (Fig- 3)

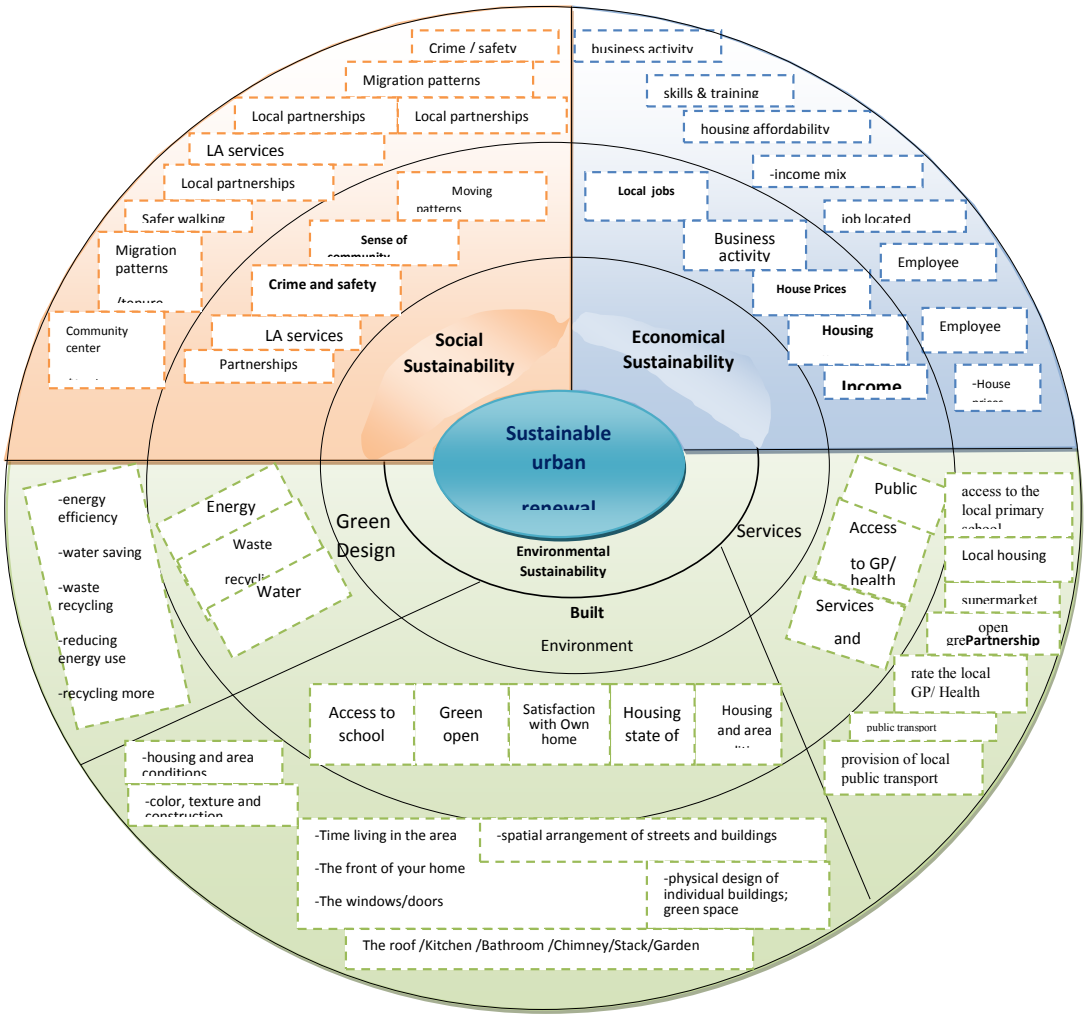

Fig2. Experimental model to measure the sustainability of urban renewal schemes

International Journal Of Architecture and Urban Development
Vol.7, No.1, Winter 2017

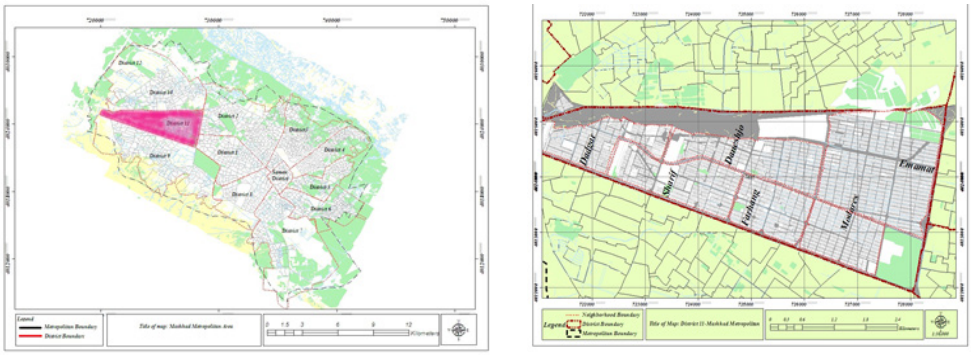

Fig 3. Location of the study area (Mashhad Metropolitan.District 11)

RESULTS AND DISCUSSION

The scaling method has been used to quantify experimental model used in the study area (Becker, 2000). Such that, the average rate of sustainable urban renewal of any three categories of its constructive standard, namely environmental, social and economic aspects were obtained from the lowest level of the model and one-sample t-test was used to achieve the sustainability status of urban renewal in terms of inhabitants. According to Cochran Formula and considering the population in District 11, a sample of 380 people is obtained. Using all documented and available information as field research and statistical analysis, a questionnaire was prepared and then distributed between 380 people, of both genders, male and female, aged between 15 to 65 years, and all of them were randomly interviewed. Data were valued using 5 point likert scale range. Applications such as Excel and Spss were used in the analysis of data. The response rate was 100%.

The results showed the mean of sustainable urban renewal in the study area was 3.24 (Table1). It should be explained. five-point Likert- type scale between 1 and 5 was used (1 = totally disagree…5 = totally agree). Thus, number 3 obtained as theoretical mean of answers and the mean scores obtained were compared with this number. According to the results of Table 1, it can be seen that the mean score is 3.24. this means that the rate of urban renewal with a focus on sustainability issues is evaluated at a medium level.

The status of sustainable urban renewal in terms of residents range to separation of its constructive standards

The one sample t-test was used to obtain the status of sustainable urban renewal in each of the desired criteria. During investigating the status of independent variables than theoretical mean, the variables of Business activity- House prices- Moving patterns -Green open space-Services and facilities in general-Access to school -Public transport- Water use were higher than average. Among them, 5 criteria (Sense of community, the ability to repair, Access to GP/ health services, partnerships and Energy use) from 21 selected criteria for this study do not have a good situation (Table 2).

Examining the relationship between sustainable urban renewal factors Correlation between the factors

influencing on sustainable urban renewal, according to information obtained from the results of Pearson test by SPSS software in Table 3 show that among the economic aspects of the research model, there is a relationship between variables of income levels, House prices and with the residents' attitudes about the success of modernization projects (with 99% confidence intervals). In social dimension, all of selected variables have shown significant relationship with sustainable urban renewal and in this dimension, the security variable has the highest correlation. Among the environmental variables, three variables include the quality of public transport, green space and design features and the conditions of residence have a relatively moderate relationship with sustainable urban renewal independent variables. After making sure of the existence of relationship between variables, multiple regression test was used to determine the rate of this relationship. This study showed that all four factors, economic aspects, social aspects, the services and built environment have positive impact on sustainable urban renewal process (see Table 4).

Table 1. T- test results of sustainable urban renewal from the perspective of residents and its constructive standards

Fundamental domains	Mean	Sd	N	Test Value = 3
Sustainable urban renewal	3.1	.31	380	
Economical Sustainability	3.25	.50	380	
Environmental Sustainability	3.16	.35	380	
Social Sustainability	3.29	.66	380	

Table 2. the statue of the sustainable urban renewal according to the item and variables (T- test results)

Variables/ Item	Mean	Std. Deviation	Score
Economical Sustainability	**3.25**	**.50**	Medium
Local jobs	3.07	.35	Medium
Business activity	3.8	1.2	High
House prices	3.82	.83	High
Income	3.57	1.1	High
Housing affordability	3.5	.35	Medium
Social Sustainability	**3.29**	**.66**	Medium
Moving patterns	3.56	.61	High
Sense of community	3.38	.57	Low
Crime and safety	3.62	.71	Medium
LA services	3.02	.86	Medium
Partnerships	2.95	.52	Low
Environmental Sustainability	**3.16**	.35	Medium
Housing and area conditions	3.09	.49	Medium
Housing state of repair	2.5	1.28	Low
Satisfaction with own home	3.29	.55	Medium
Green open space	3.88	1.95	High
Services and facilities in general	3.63	.61	High
Access to school	3.91	.59	High
Access to GP/ health services	2.84	.74	Low
Public transport	3.72	.64	High
Energy use (energy efficiency)	1.47	1.01	Low
Water use (water saving)	3.54	.55	High
Waste recycling	2.93	.86	Medium

Table 3. The results of the Pearson correlation coefficient between the approach of sustainable urban renewal

Variables/ Item	Pearson Correlation	Significance	N	Cronbach's Alpha
Economical Sustainability	**.761**	**	380	**.75**
Housing affordability	.361	**	380	
Income	.398	**	380	
Social Sustainability	.570	**	380	
Moving patterns	**.344**	**	380	
Sense of community	.32	**	380	**.70**
Crime and safety	.35	**	380	
LA services	.268	**	380	
Partnerships	.286	**	380	
Environmental Sustainability	**.459**	**	380	
Housing and area conditions	**.51**	**	380	
Green open space	.37	**	380	**.76**
Public transport	.35	**	380	

Notes:

Positive coefficients indicate that protected areas alleviate poverty or increase rice harvests, whereas negative coefficients indicate that protected areas exacerbate poverty or reduce rice harvests.

N s= not-significant.

* Significant at $P < 0.05$.

** Significant at $P < 0.01$

The internal consistency of the scales was also analyzed calculating their Cronbach's alphas

International Journal Of Architecture and Urban Development
Vol.7, No.1, Winter 2017

Table 4. Linear regression of sustainable urban renewal dimension (economic, social, services and built environment)

Independent variables	Unstandardized Coefficients		Standardized Coefficients	t	p-value Sig.
	B	Std. Error	B		
Economical dimensions	.221	.063	.273	12.57	.000
Social dimensions	.245	.035	.308	16.81	.000
Servise	.321	.012	.329	8.23	.000
Built Environment	.116	.033	.424	11. 7	.000
a. Dependent Variable: sustainable urban renewal , R=.737 .R square=0.7,					

*** p-value < 0.01; * quadratic form

According to the findings, the output model to better understand the results obtained using path analysis (Fig. 4). Prioritization listed in Table 5 shows that the economic dimension of the research has the top priority and variables such as Social dimension, services, and Built environment have other priorities

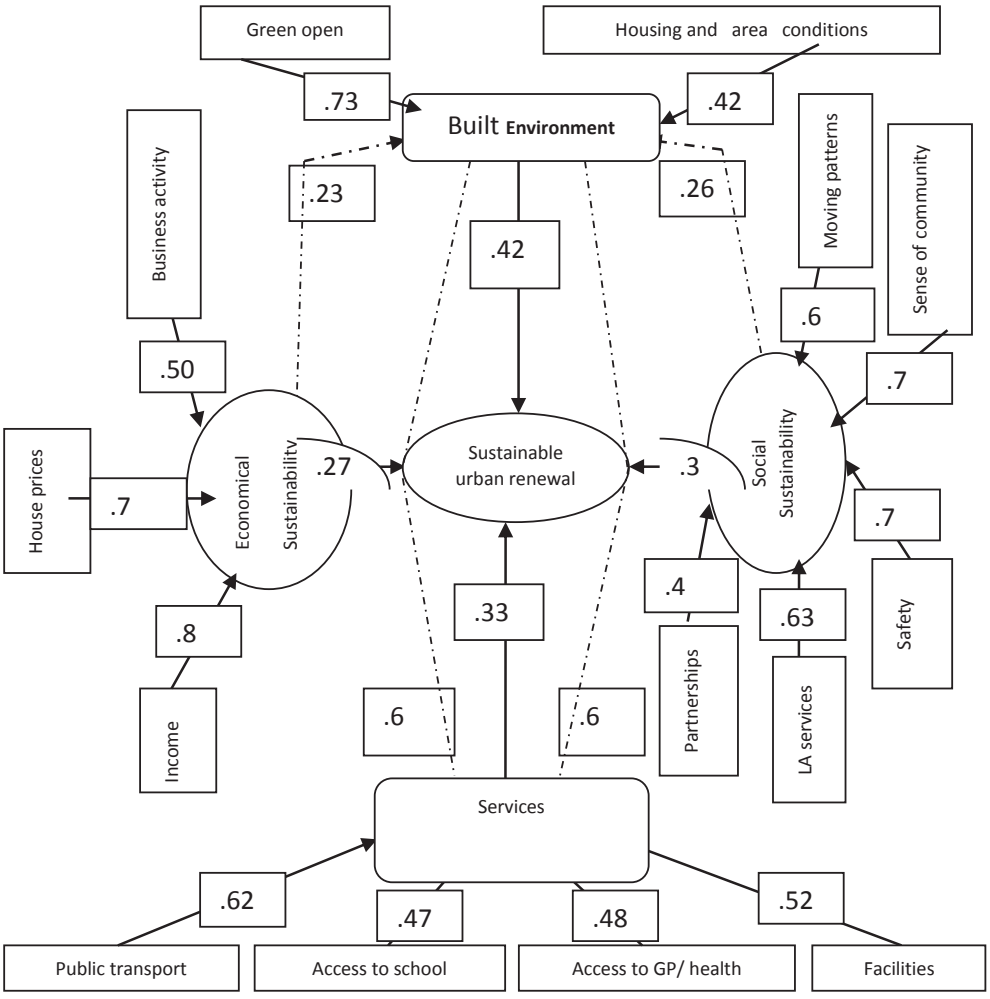

Fig 5. The impact coefficients (Beta) obtained for variables of research model relations from path analysis

Table 5. prioritization of independent variables on sustainable urban renewal in Mashhad,

Variables/ Item	Direct Effect	Indirect Effect	Total Effect	rank *
Economical Sustainability	**.27**	.11	.38	
Business activity	.59	.136	.726	5
House prices	.384	.19	.57	11
Income	.397	.216	.60	8
Social Sustainability	**.3**	.1	.4	
Moving patterns	.33	.18	.51	12
Sense of community	.579	.21	.79	4
Crime and safety	.627	.21	.83	3
LA services	.440	.21	.65	7
Partnerships	.202	.12	.32	14
Built **Environment**	**.42**	.2	.62	
Housing and area conditions	.56	.27	.86	2
Green open space	.5	.4	.9	1
Services	**.33**	----	.33	
facilities	.513	.17	.68	6
Access to school	.337	.158	.48	13
Access to GP/ health services	.444	.155	.59	9
Public transport	.521	.2	.58	10

Notes: Effects, Example for Economical Sustainability ▫Direct = .27▫Indirect = .11 ▫ Total effect (.56+.07) = .63

Further back in the model it gets more complicated Business activity

▫Direct = .59▫Indirect through Economical Sustainability= .50*.27 = .13▫

Indirect through economical sustainability then built environment = .50*.23*42 = .04

▫Indirect through economical sustainability / built environment then Services = .50*.23*.6*.33 = .02

* The design considerations are ranked according to their total effects

The importance of the sensing the sustainability in its various dimensions, especially in the urban renewal process can assist planners in order to improve the habitat, especially if a significant part of this evaluation assigned to review attitudes of residents to this. The issue that causes programs and projects be closer to the realities and needs. In this regard, the present study is conducted to assess the sustainability of urban renewal projects using hierarchical model framework from its building blocks that were completed using questionnaires technique that randomly distributed among the 380 people residing in Mashhad city. Standards in the social, economic and environmental dimension using 5 spectral items were valued and statistical analysis was performed using SPSS software. The results showed that in Mashhad city, the sustainable urban projects in terms of having economic, environmental, social facilities and services and considering the size and scale of the study area and special features of the region i and regional population and density features are in an average condition (1<3.24<5). This reflects on the fact that the area in residents view is in inappropriate condition. In the social stability, there is a Medium level of desire for survival, citizenship power and the presence of NGOs and participation (1<3.29<5). Thus, it seems that some measures to make ensure that the sense should be taken by urban managers and planners so the residents are able to play a role to improve their living conditions. With this approach, managers acts according to domestic and urban needs as well as culture and habits of each location and also consider the permanent change in modern cities and its citizens. An approach involving people in the fate of city and using collective wisdom can strength the sense of belonging to the place they live and move toward the social justice and comprehensive development (sustainability). In another aspect of this study, it determines that the economic dimension has Medium level (1<3.25<5). According to the participants' responses, the Income, Housing affordability in the study area is high. Therefore, it requires that in development programs and projects, an special importance gives to create and enhance the economic potential of the region by increasing job skills, access to finance along with strengthening economic – family foundations, provision of adequate, affordable and safe shelter with basic services and infrastructure and providing job opportunities. Such a design creates jobs by attracting new business and by preservation of certain activity in an area secures and improves employment of citizens. It should be

International Journal Of Architecture and Urban Development
Vol.7, No.1, Winter 2017

noted that from an economic standpoint as well as enabling residents to spontaneous renovation and minimal reliance on upstream financial resources is of particular importance. Also, the environment dimension was considered in this study. The results showed that this factor has a Medium level similar to other research model factors (1<3.16<5). Among environmental and physical factors accessing to Public transport, services and facilities were above average and Housing state of repair and Energy use have not suitable conditions and faced with the problem and scarcity. Therefore, it seems that the physical neighborhood and its environmental characteristics such as scale, functionality, aesthetics, urban spaces, bond form and relationship of a region with entire city, permeability, internal and external network access and how to transplant or adapt to mass should give more attention and thus civil life and a sense of belonging and participation of the public and implementation of renewal projects be strengthened (Teymoori, 2006). Another result of this article is that using statistical analysis related to the correlation (Pearson) shows that there is a significant and positive correlation between effective dimensions in sustainability of urban renewal, and most of the selected indicators relating to the status of sustainability of urban renewal in district 11 of Municipality in Mashhad (if the obtained correlation value be less than 5%, the result will be significant) and according to them, we can judge about them (Table 3). For example, we can say that most of economic indicators that affect the sustainability of urban renewal projects (r = 0.76) and all selected indicators in this dimension have a significant relationship with the sustainability of urban development projects. Also, according to the output of multiple regression analysis, it revealed that coefficient of determination adjusted for the variables entered to research model is (R square = 0.73), which suggest that 73% of the variance and vibrate changes of sustainable urban renewal are predict and evaluate by equation variables (social, economic, services and man made environment dimensions) and the rest of these changes (27%) oriented from dependent variables related to the impact of external factors that is known as the square of error quantity, e2. The results of multiple regression analysis of mentioned variables can be written in standardized and mathematic form as follows:

$$Y= b0+X1b1+X2b2+X3b3+\ldots+Xnbn$$

In this equation, Y is the dependent variable, meaning that the sustainable urban renewal, b0 (i = 0,1,2, ..., n) is the constant coefficient and X1,X2,... are independent variables. In this study, the variables of economic dimension with β=0.273, social dimension (0.308), services (0.329), built environment (0.424) became known as factors influencing on the sustainability of urban renewal projects in Mashhad. These factors can be used to calculate the regression and its equation is as follows:

Built environment (0.424) + services (0.329) + social dimension (0.308) + economic dimension (0.329) = the amount of the sustainability of urban renewal projects.

However, path analysis was used to have better understanding and evaluate the direct and indirect factors affecting the sustainability of the urban renewal projects also to compare the status of indicators related to this article (Olobatuyi, 2006). As shown in Table 5, environment dimension with a significant difference compared to other factors had the highest effect (B = 0.42), (B = 0.33). This impact, for example in environment dimension, shows that it is the direction of direct and positive correlation and with the increase in standard deviation units in environmental variable the standard deviation increases, it should be note that since the space is the physical reflection of social, cultural, economical dimension of each society, recognition of the characteristics of community and space in urban areas and planning to intervene in these spaces should be taken place based on possibilities. This means seeking capabilities to enhance the current situation is based on possibilities and limitations.

CONCLUSION

The importance of urban renewal in settlement of the urban decay problems, the value of sustainability concept on urban renewal and the significance of urban design in achievement of the sustainable development objectives are widely recognized in the literature. Sustainable urban renewal approach is an appropriate mechanism to achieve sustainable development at the local level especially in developing countries where environmental and social well-being of the communities are always overlooked in planning financially viable redevelopment projects. In this regard urban design is the major facilitator in sustainable urban renewal approach allowing the incorporation of more sustainable attributes from economic, environmental and social perspectives in local urban renewal process. This article has enhanced the understanding on the role of urban design in urban renewal leading to sustainable outcomes, and highlighted numbers of important urban design considerations that should be taken into account in project planning. This article has clearly explored the relationship between sustainable urban renewal approach and urban design but its task has not yet been fulfilled unless a proper measure for assessing the extent to which these concepts are applied to local urban renewal practices is developed. This article has made a great effort to establish an appropriate assessment of experimental model for study area. The model can be used either for selection of appropriate proposal for a site undergoing urban renewal or for evaluation of the renewal projects before and/ after implementation. It is believed that the economic, environmental and social well-being of the community can be optimized when individual urban renewal schemes have been thoughtfully assessed against a set of indicators contained in the model. It seems urban renewal could provide a stepping stone for achieving sustainability at the community level. And urban design was probably a suitable means to achieve sustainable development at the local level. Therefore, highlight the design considerations that should be taken into account in the urban

renewal projects in order to create a sustainable neighborhood. Even though a list of urban design considerations was identified. The second attempt of this study was to examine the applicability of these considerations to the local context by means of a perception survey. After analyzing the data collected through different statistical tests, numbers of critical factors for achieving economic, environmental and social sustainability was highlighted. To examine the capability of local urban renewal projects to meet various sustainable development objectives, this article made the use of the extracted factors to develop a theoretical framework of an assessment model called SURPAM. This article has clearly indicated that sustainable urban renewal approach should take root at the local level in particular when the traditional urban renewal practices fail to improve the built environment and the living quality of the citizens. Good urban design cannot be achieved unless the urban areas are planned in accordance with a number of thoughtful design principles. These principles which aim to meet certain amounts of pre-determined objectives and benefit the citizens from different dimensions have to be transformed into feasible design options and practical design considerations in order to ease the design process. Through a series of perception surveys, and a number of interviews and discussions with the experts from various fields, it can be concluded that the significance of individual design considerations to urban renewal would be greatly influenced by the local characters of an urban area, the expectations of the general public, and the overall political, social-economic and cultural environment. Therefore, a full understanding of the region and the people inside is required to prepare an appropriate design for the area undergoing urban renewal. However, in order to facilitate the process of regional development as well as creating balance and equality in the development of urban areas using sustainability advantages, the following suggestions are offered:

Proper and systematic scheduling of projects in social, economic and environmental dimensions, along with providing practical strategies with people participation to actualize the potential powers that could be the background for calling the balanced and homogeneous content development.

Removing regulatory gaps in cooperation and coordination of decision-making and decision maker institutions in the renewal and increase citizens' awareness of issues of rehabilitation and reconstruction of urban spaces, as well as efforts to inform and sensitization through training that is done by community mobilization and the local council

All laws and regulations that limit the access of low-income families to facilities and foundations and applying initiatives tailored to local and regional capacities should be reviewed.

The participation, continuous monitoring and management, with respect to residents view in different category of development projects as various groups and organizations in all stages are essential. People's direct hose area without intermediaries benefit from the benefits of these initiatives is the condition of survival. Otherwise, such development projects that often created using relative advantages of the region, by the people of the region considered as annoying and poorly element applying the methods of residents participation in basic servicing with consolidation and necessary reforms along with matching existing patterns and rules of urban planning and designs and urbanization and building regulations and standards with the reality of environment and the ability of low income families and with possibility of their gradual improvement and in harmony with urban development strategy and special consideration of new building technologies such as green design that is able to protect the urban spaces from environmental pollutants.

Environmental infrastructure in which creating parks and green spaces, leisure areas for citizens and appropriate determination and orientation of future development of the city, improving urban public transport and increasing access to land uses, etc are considered.

Investigating the implementation background and ability to implement development projects in the regions should be in the form of a systematic view, up to such poles of growth formed consistency with the economic and social systems. Using different teams of experts to monitor implements this condition and the project implementation success rate will have higher level .

ENDNOTES

1-United Nations Department for Economic and Social Affairs

2-Planning Department: Hong Kong

3-World Commission on Environment and Development

4-Commission for Architecture and the Built Environment: UK

5- Department of the Environment, Transport and the Regions: UK

6- Sustainable Development Commission, London

REFERENCES

1-Adams, D. & Hastings, E.M. (2001).*Urban renewal in Hong Kong: Transition from developmentcorporation to renewal authority.* Land Use Policy, 18(3), 245-258

2-Alexandre, A. (1992).*The case for the urban environment: Organisation for economic cooperation and development.* The OECD Observer, 175, 16-19.

3-Alexander, D. (2000).The best so far: Vancouver's remarkable approach to the Southeast False Creek redevelopment is a big step towards sustainable redevelopment planning for urban sites. *Alternatives Journal*, 26(3), 10-16

4-Alker, S. & McDonald,A. (2003).*Incorporating sustainable development into redevelopment.* Sustainable Development, 11(3), 171-182

5-Ashby, E. (1978).*Reconciling man with the environment. Stanford: Stanford University*

6-Audit Commission (2008) *Market Renewal Manchester Salford Partnership - Strategic review,* Audit Commission, London

7-Barnett,J. (1982).*An introduction to urban design.* New York: Harper & Row.

8-Beatley, T. (1995). Planning and sustainability: The elements of a new (improved?) *paradigm Journal of Planning Literature*, 9(4), 383-395.

9-Becker B. J. (2000) *Handbook of Applied Multivariable Statistics and Mathematical Modeling.* San diego, Academic Press

10-Bentivegna, V, Curwell, S., Deakin, M., Lombard, P., Mitchell, G. & Nijkamp, P.(2002). *A vision and methodology for integrated sustainable urban development: BEQUEST.* Building Research & Information, 30(2), 83-94.

11-Berke, P.(2002).Does sustainable development offer a new direction for planning? Challenges for the twenty-first century. *Journal of Planning Literature*, 17(1), 21 -36

12-Berke, P. & Manta Conroy, M. (2000) Are we planning for sustainable development?An evaluation of 30 comprehensive plans.*Journal of the American Planning Association*,66(1), 21-33

13-Beekam, T., Lyons, F. and Scott, J. (2001) *Improving the Understanding of the Influence of Owner Occupiers in Mixed Tenure Neighbourhoods,* Scottish Homes, Edinburg

14-Butler, T. (2007) *For Gentrification?, Environment and Planning A*, 39, 162-181

15-CABE & DETR (Department of the Environment, Transport and the Regions)(2001).*The value of urban design: A research project commissioned by CABE and DETR to examine the value added by good urban design. LondonThomasTelford*

16-Campbell, S.(1996).Green cities, growing cities, just cities? Urban planning and the contradictions of sustainable development.*Journal of the American PlanningAssociation,* 62(3), 296-312

17-Carmon, N.(1999).*Three generations of urban renewal policies: Analysis and policy implications.* Geoforum, 30(2), 145-158.

18-Chan, C.(2000). *Urban planning means that many old building are being demolishedand new ones built...* Varsity Online Edition, 9, retrieved from http://www.com.cuhk.edu.hk/varsitye22-

19-Chui, E. (2003).Unmasking the "naturalness" of "community eclipse": The case of Hong Kong. *Community Development Journal,* 38(2), 151-163.

20-Couch, C.(1990).Urban renewal theory and practice. London: Macmillan Education Ltd

21-Couch,C. & Dennemann, A. (2000).*Urban regeneration and sustainable development in Britain.*The example of the Liverpool ropewalks partnership.Cities, 17(2), 137-147

22-Cuthbert,A.R.and Dimitriou, H.T. (1992). *Redeveloping the fifth quarter A case study of redevelopment in Hong Kong* . Cities, 9(3), 186-204.

23-Devuyst, D.(2000).*Linking impact assessment and sustainable development at the local level: The introduction of sustainability assessment systems.*Sustainable Development, 8(2), 67-78

24-Eberhard F., Eger, A. & Anttila, P. (1998).*Social and cultural aspects of sustainable consumption in Zurich.Economic Commission for Europe* (ECE) – Workshop on Encouraging Local Initiatives TowardsSustainable Consumption Patterns. ECE, Switzerland, 2-4 February 1998

25-Godschalk, D., & Parker, F. (1975). *Carrying capacity: a key to environmental planning. Journal of Soil and Water Conservation,* 30, 160e165

26-Ha, S.K.(2004). *Housing renewal and neighborhood change as a gentrification process in Seoul.* Cities, 21(5), 381-389

27-Hall,P (1988) *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century Oxford: Blackwell Publishing. Reprinted 1988.* Updated 1996, 2002, 2014

28-Hayman, A. (2009) Where the cash went, In Regen.net

29-Hemphill, L., McGreal, S. & Berry, J. (2002).An aggregated weighting system for evaluating sustainable urban regeneration. *Journal of Property Research*, 19(4).353-373

30-Hong Kong SAR (2004). *Hong Kong declaration. United Nations Asia-Pacific Leadership Forum: Sustainable Development for Cities.* United Nations Department of Economic and Social Affairs and the Government of the People's Republic of China, Hong Kong, China, 26 February 2004.

31-Inam, A (2002).Meaningful urban design: Teleological/ catalytic/ relevant. *Journal of Urban Design,* 7(1), 35-58

32-Jupp, B. (1999) *Living together: Community life on mixed tenure estates*, DEMOS, London

33-Kearns, A. & Turok, I. (2006) *Sustainable Communities: Dimensions and Challanges, Office of the Deputy Prime Minister,* London

34- Lawless, P. (2006) *Area-based urban interventions: Rationale and outcomes: The new deal for communities programme in England,* Urban Studies, 43, 1991-2011.

35-Lee, J.S. (2003).*Enhancing sustainability in downtown by triple-value adding to urban redevelopment efforts: A case study of Seoul, Korea. Unpublished PhD thesis,* University of Washington

36-Lim, B,V. & Leung, M.K. (2000).*Passive environmental strategies for architectural design.* In W.S. Wong and E.H.W. Chan (ed.),Building Hong Kong:Environmental Considerations(pp. 135-147). Hong Kong: Hong Kong University Press

37-Lynch, K . (1981). *Good city form.* Cambridge, MA: MIT Press

38-Mashhad Municipality (2010) http://www.mashhad.ir

39-Matulionis, R.C. & Freitag, J.C. (1991). *Preventive maintenance of buildings New York: Van Nostrand Reinhold.*

40-Mottershead, T. (2004).*International sustainable governance In T.* Mottershead (ed.), Sustainable Development in Hong Kong (pp.43-87).Hong Kong: Hong Kong University Press.

41-McLaughlin, C.M. (2003).*Blighted partnerships: Unsustainable redevelopment practices.* Unpublished PhD

thesis, University of California
42-Miles,D. & Syagga, P. (1987). *Building maintenance A management manual.* London: Intermediate Technology Publications.
43-Montgomery, J. (1998).Making a city: Urbanity, vitality and urban design. *Journal of Urban Design*, 3(1), 93-116.
44-National Research Council.(1999).*Our common journey: A transition toward* .sustainability. Washington, DC: National Academy Press.
45-Nevter,Z. & Beser O. (2003). *Sustainability of green network and built environment relation: Case study of Lefke.* SBE'03 on "Technology and Management for Sustainable Building". Council of Scientific and Industrial Research (CSIR), South Africa, 26-30 May 2003
46-Neuman,M.(2003).*The compact city fallacy.Unpublished paper, Texas A&M University.*
47-Ng, M.K., Cook, A & Chui, E.W.T. (2001). *The road not travelled: A sustainable urban regeneration strategy for Hong Kong.* Planning Practice and Research, 16(2), 171-183
48-Ng,M.K.(2002). *Property-led urban renewal in Hong Kong: Any place for the community? Sustainable Development,* 10(3), 140-146.
49-O'Flaherty,B.(1994).*Land assembly and urban renewal.* Regional Science and Urban Economics, 24(3), 287-300.
50-Olobatuyi, M.(2006). *A User's Guide to Path Analysis. University Press of America*
51-Page, D. & Boughton, R. (1997) *Mixed Tenure Report: Improving the design and management of mixed tenure estates in London,* Notting Hill Home Ownership, London
52- Palmer, E. (2008). *The Social İmpacts Of Heritage-Led Regeneration, Architectural Heritage Fund.* Report prepared for the Agencies Co-ordinating Group, London
53-PD(Planning Department) (2003).*Hong Kong 2030: Planning vision and strategy paper no.* 11/0 Councilfor Sustainable Development, retrieved from http://www.info.gov.hk/hk2030/hk2030content/wpapers/pdf/sustainableCouncilpaper.pdf
54-Pearce, A.R., DuBose, J.R. & Vanegas, J.A. (1996). *Rehabilitation as a strategy to increase the sustainability of the built environment.* USA: School of Civil and Environmental Engineering, Georgia Institute of Technology.
55-Peng, P. (1999).*A sustainable urban Neighborhood: Bow valley centre redevelopment plan Unpublished.* MSc thesis, University of Calgary
56-PLB (1996).*Urban renewal in Hong Kong,* retrieved from http://www.cityu.edu.hk/hkhousing/pdoc/UrbanRenewal in HongKong1996.htm
57- Power, A. (2009) The role of land use planning in creating communities and social cohesion, *Foresight Paper*
58-Power, A. & Houghton, J. (2007) *Jigsaw Cities.* Big places, small spaces, Policy Press, Bristol.
59-Pincetl, S. (2001).*Moving toward sustainability: A new direction for the community redevelopment agency of Los Angeles.* Los Angeles: University of Southern
60-Priemus,H.(2004).The path to successful urban renewal: Current policy debates in the Netherlands. *Journal of Housing and the Built Environment,* 19(2), 199-209.
61-Rahnama M.(2010), *research project on the feasibility of creating and managing spatial database Mashhad municipality.*
62-Rapkin, C. (1980).An evaluation of the urban renewal experience in the USA.Habitat International, 5(1-2), 181-192
63-Rees,W.(1996) *Indicadores territoriales de sustentabilidad. Ecología política* .,27-41
64-Rhodes, J., Tyler, P. & Brennam, A. (2005) *Assessing the effects of area-based initiatives on local area outcomes: some thoughts based on the national evaluation of the Single Regeneration Budget in England*, Urban Studies, 42,1919-1946
65-Rothenberg, J. (1969).*Economic evaluation of urban renewal: Conceptual foundation of benefit-cost analysis*. Washington: The Brookings Institution.
66-Rowley, A.(1998).Private-property decision makers and the quality of urban design. *Journal of Urban Design,* 3(2), 151-173.
67-Russo. (2003).*Statistics for the behavioural sciences: An introduction. New York:Psychology Press*
68-Rydin,Y.,Holman, N., Hands, V. & Sommer, F. (2003). Incorporating sustainable development concerns into and urban regeneration project: How politics can defect procedures. *Journal of Environmental Planning and Management*, 40(4),545-561
69-SDC(2007). *Building houses or creating communities?A review of Government progress on Sustainable communities,* Sustainable Development Commission,London
70-Seifaie,M.(2005). *The desirability of using public spaces with emphasis on Partnership Planning.* Unpublished master's thesis, Tarbiat Modares University, Tehran.
71-Shah Mohammadi,Z.(2007).*Public libraries in Mashhad-spatial analysis* (using GIS). Unpublished master's thesis, Ferdowsi University of Mashhad, Mashhad.
72-Shearlock C.,James P. & Phillips, J. (2000). *Regional sustainable development: Are the new regional development agencies armed with the information they require?* Sustainable Development, 8(2), 79-88
73-Shutkin, W.(2000). *Towards a global/ international model for sustainable urban redevelopment* retrieved from http://www.urbanicity.org/FullDoc.asp?ID=268.
74-Silverman, E., Lupton, R. & Fenton, A. (2006) *A good place for children?Attracting and retaining families in inner urban mixed income communities*, Joseph Rowntree Foundation, York
75-Spangenberg, J.H. (2005) Economic sustainability of the economy: concepts and indicators, *International Journal of Sustainable Development,* Vol. 8,Nos. 1/2, pp.47–64.
76-Steel, R. & Slayton, W.L. (1965). *Urban renewal: Proposals for Britain and experience in America. USA: Royal Institution of Chartered Surveyors*
77-Tang, B.S. & Lam, A.S.L (2000).*Town planning and*

the environment: Role and tools of private consulting planners. In W.S. Wong and E.H.W. Chan (ed) Building Hong Kong: Environmental Considerations (pp. 43-59) Hong Kong:HongKong University Press

78-Tang, B.S. (2002). *From privatization to bureaucratization: Implementing urban renewal in Hong Kong.* USA: Ashgate Publishing Limited.

79-Taylor,M.A.P. & Newton P.W. (1985).Urban design and revitalization-Australian perspective. *Urban Ecology*, 9(1), 1-23.

80-Tunstall, R. & Fenton, A. (2006) *In the mix.* A review of research on mixed income, mixed tenure and mixed communities, Housing Corporation/ Joseph Rowntree Foundation/ English Partnerships, London

81-Turok, I. (1992) Property-led urban regeneration: panacea or placebo, Environment and planning A (0308-518X), 24, 361.

82-Twichell, A.A.(1953).*Measuring the quality of housing in planning for urban redevelopment.* In C. Woodbury (ed.), Urban Redevelopment: Problems and Practices (pp.3-98). USA: The University of Chicago Press.

83-UN (United Nations) (1997). Earth Summit +5: Special session of the general assembly to review and appraise the implementation of Agenda 21, retrieved March,2015,fromhttp://www.un.org/esa/earthsummit/coverage.html.

84-UN (United Nations) (2002). *The road form Johannesburg: World Summit on sustainabledevelopment.*

85-UN-Habitat(United Nations Human Settlements Programme)(2009). Planning Sustainable Cities- What was achieved and the way forward, retrieved from http://www.un.org/esa/sustdev/media/Brochure.PDF.

86-UNDESA (United Nations Department for Economic and Social Affairs) (1992).Agenda 21, retrieved from http://www.un.org/esa/sustdev/documents/agenda21/index.html

87-Vallance, S., H. C. Perkins & J. E. Dixon (2011) *What is social sustainability? A clarification of concepts, Geoforum,* vol 42, No 3, pp 342-348

88-Vandell, K.D., Lane, J.S. & Kain, J.F. (1989). The economics of architecture and urban design: Some preliminary findings. *AREUE Journal*, 17(2), 235-265.

89-Visic, M.(1995).*Sustainable brownfields redevelopment*. Unpublished MSc thesis, University of Toronto

90-WCED (World Commission on Environment and Development) (1987). *Our common future.* UK: Oxford University Press

91-World Conservation Union. (1991).*Caring for the earth: A strategy for sustainable living.* Gland, Switzerland: World Conservation Union