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Urban Development of zone22 of Tehran's Municipality toward Smart Growth Strategy

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Abstract

The importance of urban form on sustainable development has been recognized in recent years. Since the late 20th century, a number of countries have adopted urban form policies in environmental planning. Urban form Urban form directly affects habitat, ecosystems, endangered species, and water quality through consumption, fragmentation, and or replacement of the natural cover with an impervious surface. In the recent years, the growing process of the increase of urban population in Iran has brought many problems. One of the consequences of this issue is urbanization's outpacing urban development and urban sprawl development which has lead to urban instability and many social, economic, cultural, physical and environmental problems in major cities especially Tehran. This study attempts to investigate the urban development type and how to apply smart urban growth principles for organizing and improving this growth in zone22 of Tehran city.

This study is an applied research and adopts a descriptive-analytical method. In order to

assess smart growth indexes (economic, social, cultural-educational, physical and land functions, healthcare, urban facilities and equipment, environmental and accessibility) the ranking of districts and the selection of the best section of TOPSIS model was used as the multi-index decision-making method. At last, the study investigates the correlation between the research variables and the urban smart growth integrated index by employing the regression test.

The research findings reveal that the environmental sections have the most influence on the spatial and physical structure of smart urban growth in zone22 and the physical and land use and the cultural-educational sections occupy the next ranks. Besides, the findings resulted from integrated indexes of smart growth indicate that district 1 with the TOPSIS grade of 0.9156 is known as the top development, and district3 with the TOPSIS grade of 0.5078 is considered as the low development district among Tehran's 22zone.

Keywords: smart growth, sustainable development, sprawl growth

1. Introduction

Sustainable development as a concept has been gaining popularity across various sectors including the land use research area, since the publication of Brunt land Commission Report (WCED, 1987). After the Brunt land Report, consequent debates pointed out that economic interests and environmental considerations are not opposed to development discourse. Also order to secure intergenerational equity, these sides should meet some agreed consensus (Holden, Roseland, Ferguson, & Perl, 2008). The applicability of sustainable development to real settings has been one of the most discussed issues in conferences and the literature. For example, Habitat 1976 officially launched the worldwide dialogue on the topic of urban cities at the nation level. The major formal outcome of Habitat II was the Habitat Agenda, a ‘‘global call to action’’ for adequate shelter and sustainable human settlements for all. A new sustainability framework, triple bottom line approach (TBL), was first put forward at the corporate level to measure and report corporate performance against economic, social and environmental parameters (Elkington, 1980; Suggett & Goodsir, 2002).

After that, the United Nations 2005 World Summit Outcome Document refers to the “interdependent and mutually reinforcing pillars” of sustainable development as economic development, social development, and environmental protection (United Nations, 2008). Urbanization emerges as the result of the increasing number of people who move from rural to urban areas. However, rapid urbanization often comes at the expense of agricultural land to satisfy increasing urban demands. Natural and agricultural landscapes have been modified into urban landscapes. This is a tendency that has been rapidly experienced in recent years and is expected to continue and increase during the coming decades (United Nations, 2008). In this context, if the current and future urban areas continue with the same land use conversion practices without regarding the future needs, environmental, social and economic problems are inevitable (Daily, 1997; Millennium Ecosystem Assessment, 2003).The urban areas are estimated to have accommodated about 50 percent of the world's population in 2000. From 1990 to 2030, the urban population will increase up to 3.3 billions 90 percent of which will live in the urban areas of the developing countries (Flood, 1997). The increasing

development of urban population caused by uncontrolled population growth and migration has lead to unplanned construction and uncontrollable spread of cities (Barton et al, 2003: 18).

In Iran, since the 1960s that the urban population dramatically increased both because of the quick natural growth and the immigration of villagers to cities, the physical growth and the growth of construction took place based not upon the needs of cities but rather, upon exchange game and land speculation. This issue led to disorder in urban land market and disuse of a major part of the lands inside urban boundaries as well as the negative and horizontal growth of cities (Athari, 2000: 36). Tehran was once known as the city of plantains so that passengers often complained about the excessive density of the surrounding trees and gardens (Madanipoor, 2002: 1). Like other major cities, this city, too, has undergone fast, uncontrolled growth in recent years and due to being the capital city and experiencing substantial immigration it has undergone many population and environmental changes so that it accommodates a quarter of the country's urban population. Tehran, with a population of 2270000 individuals and an approximate area of 180 square kilometers in 1986 has turned into a city with a population of 7200000 individuals and an area of 707 square kilometers in 2001. According to the census conducted by Iran's center of statistics, Tehran's population had reached 7872220 individuals and 2287664 families (Iran's center of statistics, 2006). Therefore, a kind of unplanned and instable urbanization has happened in this city. After the Islamic revolution, Tehran experienced rapid development in different areas out of legal boundaries and this city continued its development in different areas without following rules and restrictions. Besides, the restrictions previously enforced both inside and outside the area of urban services were totally ignored (Nazarian, 1991: 115). Tehran's continuous and non-continuous growth and its merging into areas surrounding it has made it into a collection of outspread, heterogeneous foci integrated into a network of economic and social relations (Hamidi et al, 1997: 73).

Today, despite having urban and regional development plans, this city is facing various challenges. Population growth and vast immigration into this city, have created an integrated network of economic, cultural, social and environmental issues comprising the inefficiency of urban development plans, the lack of people's active participation in urban management and the lack of integrated management of this metropolis. Land and housing shortage, heavy traffic, unemployment, formation of informal settlement places in different parts of the city, high housing costs, environmental problems, air pollution and inequitable distribution of services and facilities in the city and the formation of the uptown-downtown phenomenon have lead to the citizens' discontent. The sum of these factors indicates the conditions of instable development of the major city of Tehran.

In such conditions, it is essential to correct the negative consequences of the unreasonable spread. However, few solutions have been proposed to tackle the negative phenomenon of population growth. In this regard, strategies such as smart growth, smart management, green belts and land use management have been offered as solutions for the spread problem (Ghorbani and Noshad, 2008: 164).

Considering the issues and problems mentioned in Tehran, this study attempts to investigate the spatial development of the area under study based upon the principles of smart growth. In other words, the study's main focus is to investigate the role of urban smart growth in the sustainability of the area under study (zone22 of Tehran's municipality).

2. Theoretical Framework of Research

A review of the related literature reveals that in the two last decades, the smart growth strategy had been based upon the sustainable urban development theory and the support of the compact city model. In fact, because of the undesirable effects of the sprawl development model in political ands bio-environmental areas, attention to the compact city and smart methods has increased. Proponents of this approach emphasize the compact form of the city because it enhances the efficiency of urban environment in terms of energy consumption and the reduction of travels within the city (Azizi, 2003: 58-59).

In fact, the smart growth strategy attempts to reform cities and direct them toward being able communities with desirable accessibility and environment. Focusing on the revitalization of cities and the development of transportation costs, smart growth aims to build places which appeal to the people. Attempting to build a community with a unique concept of place and emphasizing the minimum use of automobiles, smart growth is, in fact, looking for high understanding, interpretation and improvement of the environment. Other objectives of smart growth include: protecting urban resources and re-investment in reconstructing their structures, preserving monuments, and designing new districts so that shops, offices, schools, religious places, parks and other facilities are near houses and residents could have choices for walking, biking, access to transportation systems or driving cars.

In fact, smart growth is a tool-centered concept whose proponents agree upon its 10 principles proposed by the American environmental protection agency (EPA). These principles comprise:

developing complex uses, emphasizing benefits of designing compact buildings, providing various choices for housing, Constructing districts with access to sidewalk, attractive neighborhoods away from one another having a high sense of identity, protecting open spaces, farmlands, beautiful nature and sensitive environmental areas', improving development in line with the present communities', providing a variety of transportation choices, predictable development decision-makings, encouraging communities and beneficiaries to participate in the development (www.smartgrowth.com).

In fact, in addition to the compact form of the city, smart growth also emphasizes the optimal use of urban spaces in order to establish communities enjoying walking accessibility. Of course this approach has opponents who believe smart growth does not have much relation to sustainability (Sabery, 1390: 1-17). Figure 1 shows the characteristics of smart growth and sprawl growth. This characteristics has in term of density, growth pattern, land use mix, scale, services (shops, schools and parks), transport, connectivity, Street design, Public space, Planning process.

Table 1. Comparing Smart Growth and sprawl

	Smart growth	Sprawl
Density	Higher-density, clustered activities	Lower-density, dispersed activities
Growth pattern	Infill (brownfield) development	Urban periphery (greenfield) development
Land use mix	Mixed land use	Homogeneous (single-use, segregated) land uses
Scale	Human scale. Smaller buildings, blocks and roads. Designed for pedestrians	Large scale. Larger blocks, wider roads. Less detail, since people experience the landscape at a distance, as motorists
Services (shops, schools, parks)	Local, distributed, smaller. Accommodates walking access.	Regional, consolidated, larger. Requires automobile access
Transport	Multi-modal transport and land use patterns that support walking, cycling and public transit	Automobile-oriented transport and land use patterns, poorly suited for walking, cycling and transit
Connectivity	Highly connected roads, sidewalks and paths.	Hierarchical road network with numerous dead-end streets, and unconnected paths and sidewalks
Street design	Streets designed to accommodate a variety of activities. Traffic calming	Streets designed to maximize motor vehicle traffic volume and speed
Planning process	Planned and coordinated between jurisdictions and stakeholders	Unplanned, with little coordination between jurisdictions and stakeholders
Public space	Emphasis on the public realm (streets, sidewalks and public parks)	Emphasis on the private realm (yards, shopping malls, gated communities, private clubs)

VTPI, 2006, 11

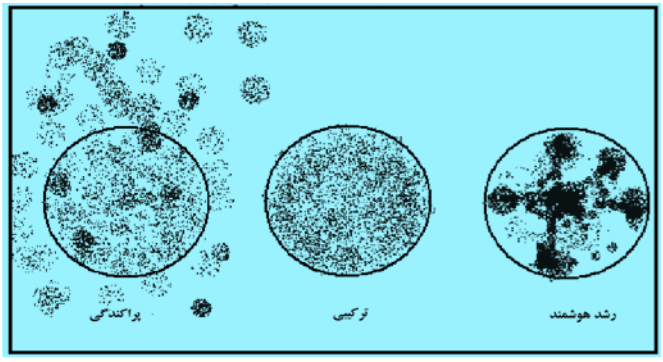

Figure 1. urban compactness and dispersion in three samples of the urban development model

Source: (Littman, 2004: 11)

All the three cities might have the same population. In dispersion, however, the growth is directed out of city boundaries, smart growth is clustered, and the composite development

occurs within city boundaries. Generally, smart growth has economic, social, and environmental benefits. The following table shows a summary of these benefits. The benefits of three cities have in term of economic, social and environmental.

Table 2. Smart Growth Benefits

Economic	Social	Environmental
Infrastructure cost savings	Improved transport options, particularly for non-drivers	Greenspace& habitat preservation
Public service cost savings	Increased housing options	Energy savings
Transportation efficiencies	Community cohesion	Air pollution reductions
Economic resilience	Cultural resource preservation (historic sites, traditional neighborhoods, etc.)	Water pollution reductions
Agglomeration efficiencies	Increased physical exercise and health	Reduced “heat island” effect.
Supports industries that depend on high quality environments (tourism, farming, etc.)		

(Littman, 2005: 122)

In the following part(table 3), the ideas of some of urban planners on urban sustainable form are represented:

Table 3. The viewpoints of Urban Planners on How to Achieve Urban Sustainable Form

	The Studied Urban Form	Conclusions
Breton	Compression (City)	The effects of compression on the social justice were investigated. 41 indices were used and it was determined that urban compression and compactness had the most influence on the social justice such as the access to super markets, the access to green spaces, more space for walking and biking, more employment opportunities for less skilled individuals, better access to facilities. Also, it had following consequences: the decrease in housing inner space, lack of acceptable housing, and higher death rate because of respiratory diseases. Ultimately, Breton concluded that the positive effects of compression on the social justice were more that negative ones.
Williams	The Increase in Urban Compactness (Intensification of Land Uses)	The effects of increase in housing density on ecology, economy and quality of life ofEnglish people were investigated and it was determined that its advantages were the sustainable use of lands, the increase in dynamism and some economic advantages. Also, some of the most important policies of increase in urban compactness were investigated and its most important outcomes were as follow: the decrease in traffic extent and social advantages were unknown. In addition, important disadvantages such as bad neighbors, social conflict and the decrease in the quality of living environment were seen. Finally, Williams concluded that the increase in housing density in urban central parts using mixed land uses is more beneficial that suburbs.
Masnavi	Compactness	The effects of housing density and mixed land uses on the trip pattern, facilities availability

	and Traffic of Land Use in Neighborhood Unit Scale	and social topics such as regional security, appeal and beauty were investigated. It was determined that regions that had high housing density and used mixed land uses were more appropriate in terms of access to facilities, but regions that had low housing density were better in terms of living environment. Furthermore, regions that had compact texture and only one type of land use (housing) were the best in terms of social exchange and security. It is said that compact city could decrease car use up to 70% and urban trip (no related to occupations and commuting to workplaces) up to 75%, but it could not satisfy the need to private car for special cases.
Newman	Compactness (Density)	It was determined that there was a relationship between housing density (compactness) and dependence to cars in all cities and it was proved that between housing density (compactness) was a main variable for the extent of energy use. In addition, the higher the housing density, the lower the costs related to urban transportation. Therefore, some strategies including compacted nodes (points) and corridors, the increase in the movement of urban central parts, the increase in the housing density of regions around railroads, general transportation development and the restriction of urban sprawl growth and their combination with the creation of new villages in suburbs will be advantageous.

(Williams and et al, 2001).

3. Research Methodology

Considering the research objectives, this study is an applied research and adopts a descriptive-analytical analysis method. The required data have been collected through the use of questionnaires, the descriptive results of the census of population and housing, the city's comprehensive and detailed plan, the current situation plans (the comprehensive and detailed plan), as well as the use of journals, documents and the related books. The indices investigated in this study comprise socio-economic, cultural, physical, and environmental issues as well as issues relating to accessibility and urban equipment and facilities. The statistical population comprises the 4 districts of22 zone Tehran's municipality. This zone is comprises 4 district.

The TOPSIS model and the SPSS and EXCEL programs have been employed for data analysis. TOPSIS model is one of the best multi-index decision-making models. This model is based upon the idea that the selected choice must have the least distance from the ideal positive solution and the most distance from the ideal negative solution (the worst possible situation). The TOPSIS grade ranges from 0 to 1. The closer the index is to 1, the more ideal its rank (Mo'meni, 2008: 24-29).

4. Study Area

Having a population of 128958 (Iran's center of statistics, 2011) and an area of 10000 hectares, zone22 is known as one of the low densely populated areas in Tehran. The 6200 hectares of them is services area. Occupying an area of 6200 hectares, this zone constitutes 14 percent of the city's area. In this regard, the zone ranks 1 among Tehran's zones. About 8.04 percent of this area comprises residential area, 59.17 percent of this public services, and 15 percent comprises official, commercial and educational areas, and about 4.9 percent is devoted to transportation systems.

The proportion of population is 78.6 people per hectares (public census of population and housing, 2011) which put the zone in the 1th rank. The annual growth of the population of ordinary families living in the zone in the 1991-1996 decade has been 5.44 percent and the zone have increased 20284 people of its population in 2006-2011 period The zone comprises 4district and 9 neighborhoods. Table 4 shows the system of district divisions of the investigated zone.

Table 4. System of district divisions of zone22 of Tehran's municipality

district name	2006 population	Area (hectare)
1	40911	608
2	27274	1452
3	8182	1958
4	32307	2185
Total Numbers	108674	6203

Detaille plane of 22 zone Teharan, 2007

In the intended internal divisions, the mean of the districts' are is 1550 hectares and the mean of the population is estimated at 27168. Among these districts, district1 with a population of 40911 has the greatest population and district3 with a population of 8182 has the smallest population. In terms of area, district4 and 1 are the biggest and the smallest districts respectively.

5. Investigation of zone22 Based upon Smart Growth Indexes

In order to rank district of zone22 of Tehran's municipality in terms of smart urban growth indices, the study employs the multi-index decision-making model (TOPSIS) and the entropy model to investigate the spatial structure of the 4district of zone22 of Tehran. Table 5 reveals the findings resulted from the prioritization of district of zone22 of Tehran's municipality in terms of development indexes.

Table 5. Ranks and TOPSIS grades of the 4district of zone22 of Tehran municipality in terms of development indexes

Indices	Accessibility		environmental		urban facilities and equipment		physical and land function		Healthcare		cultural-educational		Social – economic	
District	**rank**	**TOPSIS value**	**Rank**	**TOPSIS value**	**rank**	**TOPSIS value**	**Rank**	**TOPSIS Value**	**rank**	**TOPSIS Value**	**rank**	**TOPSIS Value**	**rank**	**TOPSIS Value**
1	1	.8879	3	.8024	1	.6789	2	.8345	1	.7986	1	.7327	1	.8756
2	2	.7327	2	.9128	2	.5531	1	.9327	2	.7318	2	.6971	2	.7652
3	3	.3764	4	.7134	4	.3325	3	.8259	4	.4583	4	.3116	4	.5167
4	4	.2873	1	.9437	3	.4974	4	.6426	3	.4813	3	.4558	3	.6695
Average	.5710		.8430		.5154		.8089		.6157		.5493		.7067	
St.D	.2474		.0914		.1244		.1047		.1497		.1983		.1521	
C.V	.4333		.1084		.2413		.1295		.2425		.3611		.2152	

Source: Author's calculations

Investigations reveal that in terms of socio-economic indexes, district1 with the TOPSIS grade of 0.8756 and district2 with the TOPSIS grade of 0.7652 occupy the first and the second ranks respectively. In terms of cultural-educational indexes, district1 with the TOPSIS grade of 0.7327 and district2 with the TOPSIS grade of 0.6971 occupy the first and the second ranks respectively. This might be due to the location of Cultural centers, libraries, arts centers, schools, more teachers number of residents with graduate and large number of educational and art centers such as cinema theatres in these districts of zone22. In terms of health-treatment indexes, district1 with the TOPSIS grade of 0.7986 and district2 with the TOPSIS grade of 0.7318 occupy the firs and the second ranks respectively. District3 with the TOPSIS grade of 0.8259 occupies the last rank in terms of enjoying health-treatment indexes.

In terms of physical and land use indexes, district2 and district1 with the respective TOPSIS grades of 0.9327 and 0.8345 rank first and second respectively. That is because of empty spaces, landscapes, public uses, and various services in these districts. Other reasons include the great extent of these districts and the low population density as well as the highest income per capita. In addition, district4 with the TOPSIS grade of 0.6426 occupies the last rank. In terms of urban equipment and facilities indexes, districts 1 and 2 with the respective TOPSIS grades of 0.6789 and 0.5531 occupy the first and the second ranks respectively in enjoying these indexes. In terms of environmental indexes, district4 with the TOPSIS grade of 0.9437 and district2 with the TOPSIS grade of 0.9128 occupy the first and the second ranks respectively. The reasons are considered to be closeness to recreational centers, parks, landscapes, etc.. In fact one of the richest urban areas of Tehran in terms of enjoying environmental indices is zone 22 of Tehran's municipality and district 4 and district 2 of this zone respectively rank first and second in terms of enjoying these indexes.

Besides, among the 4districts of zone22 of Tehran's municipality, districts 1 and 3 with the respective TOPSIS grades of 0.8024 and 0.7134rank 3 and 4 respectively in terms of enjoying environmental indexes. Proximity to the central part of the city, existence of heavily-trafficked and polluted routes, insufficient highway, etc. are the reasons of this issue. In terms of accessibility indexes, districts 1 and 2 with the respective TOPSIS grades of 0.8879 and 0.7327 occupy the first and the second ranks respectively. This indicates the existence of balance in accessibility of various urban services in these districts.

Table 6. Ranking of the 4districts of zone22 of Tehran's municipality in terms of synthetic development indexes by means of TOPSIS model

Indices	Spatial development value	urban smart growth integrated index	
District name	-	Final rank	TOPSIS value
1	top development	1	.9156
2	Developed	2	.7856
3	under developed	4	.5078
4	semi development	3	.6339
Average	-	.7107	
St.D	-	.1538	

C.V	-	.2164

Source: Author's calculations

In synthetic indices, the mean of the TOPSIS grade of the districts of zone22 of Tehran municipality is 0.7107 and the standard deviation of these indexes is 0.1538. According to the calculations, the sprawl coefficient of this index is estimated at 0.2164 percent which indicates difference and dispersal in enjoying indexes among the districts of zone22 of Tehran. Of course this difference and dispersal is not great and somewhat indicates the smartness of this zone. In general, district1 with TOPSIS grade 0.9156 occupies the first rank (top-developed), district2 with TOPSIS grade 0.7856 the second rank (developed), district3 with TOPSIS grade 0.5078 the third rank (low-developed), district4 with TOPSIS grade 0.6339 the fourth rank (semi-developed).Because of being located in the city center, high population density, high traffic volume, lack of regular and timely access to services, etc. district3 enjoys low smart growth indexes in comparison with other districts.

The study employs regression analysis in order to predict indices influential in smart urban growth. The findings of the regression analysis generally indicate that among the 7 indexes (socio-economic, cultural-educational, health-treatment, physical-land use, facility-equipment, accessibility, and environmental), the environmental, physical and land function and educational-cultural indexes have the greatest impact on the development of the spatial-physical structure of smart urban growth of the 4districts of zone22 of Tehran (table 7).

Table 7. Statistics of the coefficients of the regression model of smart urban growth indexes

Indices		T	Sig
Social – economic	-.041	-.197	.455
cultural-educational	.279	1.321	000
Healthcare	.078	.532	.234
physical and land function	.763	5.789	000
urban facilities and equipment	.002	.236	.000
Environmental	.876	8.678	000
Accessibility	.072	.543	.231

Source: Author's calculations

As shown by table 7, one unit of change in the the environmental, physical and land function and educational-cultural sections respectively causes 0.876, 0.763, and 0.279 units of change in the synthetic indexes of smart urban growth. This indicates that the environmental sections have the greatest impacts on the synthetic indexes of smart urban growth. Other sections have small and in some cases reducing effects so that the socio-cultural indexes have had negative impacts on the dependant variable of the research (synthetic indexes of smart urban growth).

6. Conclusions and Suggestions

In recent years, because of so appropriate natural prerequisites, the development of roads and housing construction beside them, immigration, cooperatives for town building, development and construction of disorganized settlements and urban margin living, and the issues of

ownership, the Tehran City has had the rapid growth of population and urban area. As every city's model of physical development has a great influence on the sustainability of its development, urban managers and planners should have enough information on the existent models of urban physical and spatial expansion in order to conduct the model for urban sustainable development. In the present study, to investigate and analyze the Tehran City's model of physical growth, the Smart Growth Strategy were employed.

The findings resulting from the ranking of districts indicates inequality and difference in some indexes. The greatest inequality is seen in accessibility indexes and the smallest inequality is seen in the environmental indexes. According to the synthetic results of the smart urban growth, district 1 with TOPSIS grade 0.9156 occupies the first rank and district3 with TOPSIS grade 0.5078 occupies the last rank. These two districts are considered the highly-developed and the underdeveloped districts among zone4districts. Considering the inequality in the smart growth indexes of the zone, district3 which is deemed the underdeveloped district must be the first priority for development planning. In the socio-economic index, district1 occupies the first and district4 the last ranks. In the cultural-educational index, district1 ranks first and district4 ranks last. In the health-treatment index, district1 occupies the first and district4 the last ranks. In the physical and land use index, district2 ranks first and district4 ranks last. In the urban equipment and facilities index, district1 occupies the first and district3 the last rank. In the environmental index, district4 ranks first and district3 ranks last. Finally, in the accessibility indexes district 1 occupies the first and district4 occupies the last ranks.

Of the above-mentioned indexes, the environmental section exerts the greatest influence on the spatial structure of the smart growth of zone22. The obtained coefficient 't' (8.678) indicates a significant correlation between the two above variables so that there is 0.876 unit of change in the synthetic indexes of smart growth per one unit of change in the environmental section.

The most efficient strategy for moving urban development toward sustainability is the smart urban growth strategy which requires designing and planning land use based upon walking accessibility as well as adding to the services in the whole of the city. In order to achieve such growth, some suggestions have been offered such as providing all citizens with spatial equitability in accessing urban services, encouraging residence by constructing complexes and small residential units, reducing the use of private transportation vehicles, using integrated and smart urban management, using the compact city model in urban constructions, managing parking lots proficiently, improving the design of the zones' street, involving citizens in urban development decision-makings, valuing nature, developing a culture which uses less pollutants in order to have a cleaner city, developing approved subway lines in the zone, and finally, improving public transportation.

In the end of, we believe To achieve the urban sustainability on based Smart Growth Strategy in zone 22, following cases are recommended:1) Decreasing the use of private vehicles, increasing the use of public transportation vehicles and encouraging walking trips through the appropriate design of urban and local walking pivots.2) Making use of

aggregation and compact (compress) model in new construction in order to avoid urban sprawl growth.3) Encouraging settlement in small housing units; high housing densities allow settlement of high numbers of people as well as the increase in social interactions.4) Guaranteeing security and safety in urban environment (especially in districts 2 & 3) through the distribution of mixed land uses.5) Managing the city in legal and smart manner (in order to continue urban development with competitive capability).6) Centralizing local activities in local communities and as a result, elevating life quality, security and dynamism as well as supporting occupations and services, meaning the creation of environment for flourishing economic and commercial activities.7) Providing a wide range of housing options for different classes of people.8) Creating a connected network of connected and joint streets. 9) Encouraging citizens to participate in the decision regarding development.

References

Athari, K. (2000). Toward Government's Proficient Mediation in Urban Land Market. *Journal of housing economy, National organization of land and housing*. No. 18.

Azizi, M. M. (2004). Density in Urbanism. Tehran: Tehran University press.

Barton, Hugh and et al. (2003). Shaping neighborhoods: Agued for health, sustainability and vitally, sponpress, London and New York.

Daily G. C. (1997). Nature's services. Societal dependence on natural ecosystems Island, Press. p47.

Elkington, J. (1980). The ecology of tomorrow's world: Industry's environment, London: Associated Business Press. p143.

Flood, J. (1997). *Urban and housing indicator, urban studies, 34*(10), 1635-1665.

Ghorbani, R., & Noshad, S. (2008). Smart Urban Growth Strategy in Urban Development: Aspects and Strategies. *Journal of geography and development, Sistan and Balochestan University Press, 12*, 163-180.

Hamidi, M. SirousSabri, R., & Hababi, M. (1997). Tehran's skeleton. 1st Vol., Tehran: Tehran municipality.

Holden, M., Roseland, M., Ferguson, K., & Perl, A. (2008). Seeking urban sustainability on the world stage. *Habitat International, 32*, 305-317.

Iran's Center of statistics, results of the public census of population and housing of the years 2006-2011.

Littman, T. (2004). Understanding smart growth saving, Victoria transport policy institute.

Littman, T. (2005). Evaluating Criticism of smart growth, Victoria Transport Policy Institute.

Madanipoor, A. (2002). Tehran, Emergence of a Metropolis. Translated by Zararound, H., Tehran: urban planning and process publication.

Mo'meni, M. (2008). A View of the Theoretical Foundations of the Current Geography by

Emphasizing Urban Geography. Classroom pamphlet, department of geography, faculty of geology, Tehran: ShahidBeheshti University.

Nazarian, A. (1991). Spatial Development of Tehran and the Emergence of satellite towns. *Journal of geographical research, 20*, 97-139.

Saberi, H. (2011). Spatial Analysis of Smart Urban Growth Indexes: the case of Isfahan city. *Journal of human geography researches, the University of Tehran, 77*.

Smart Growth Network (SGN). 2002. About smart growth. http://www.smartgrowth.org/about.

The detailed plan of zone 6 of Tehran's municipality.

United Nations. (2008). World urbanization prospects e the revision.p142

VTPI. (2006). Online TDM Encyclopedia, Victoria transportation policy Institute.

Williams, K. Burton, E. Jenks, M. (1996). Achieving sustainable urban form.

World Commission on Environment and Development/WCED. (1987). Our common future. Oxford: Oxford University Press.p216.

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