

Evaluating of Mashhad urban development plans from compact city viewpoint

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Abstract: - There are many problems especially in large cities due to producing of urban development plans in different time, on the other hand; changing traditional to strategies approach is other reason for creating today problems. Therefore, one of the main factors of sustainability development principles is smart growth by emphasis on compactly. Mashhad metropolitan need, presentation sustainable development pattern in urban development plans due to complex structure and important position. Due to, are prepared development plans in various times, should be adapted with sustainable development principles and compact city indicators. In this research at first were studied indicators of smart growth pattern, after that was evaluated development and comprehensive plans based on these principles.

Finding of research show, although there is mentioned viewpoint in urban development plans but haven't succeeded in order to achieving smart growth. On the other hand, Mashhad Middle West area is one of the main districts that smart growth principles are nearly, but it isn't success completely.

Key word: - *Compactly, smart city, Mashhad comprehensive and development plan*

I. INTRODUCTION

The concept of "smart growth" emerged in the early 1990's, driven by "new guard" urban planners, architects, developers, community activists, and historic preservationists (Masnavi, 2004: 90). It accepts that growth and development will continue to occur, and so seeks to direct that growth in an intentional, comprehensive way (Krizak, 2010:190). Smart growth principles are directed at developing sustainable communities that are good places to live, to do business, to work, and to raise families (Hal, 2010:30). Some of the fundamental aims for the benefits of residents and the communities are increasing family income and wealth, improving access to quality education, fostering livable, safe and healthy places, stimulating economic activity (both locally and regionally), and developing, preserving and investing in physical resources. There is a need to distinguish between smart growth "principles" and smart growth "regulations". The former are concepts and the latter their implementation, that is, how federal, state, and municipal governments choose to fulfill smart growth principles (vahidi, 2010). One of the earliest efforts to establish smart growth forward as a regulatory framework were put forth by the American Planning Association (Kafashi , 2010). In 1997, the APA introduced a project called Growing Smart and published "Growing Smart Legislative Guidebook: Model Statutes for Planning and the Management of Change (Rahnam, 2009: 41)." The U.S. Environmental Protection Agency defines smart growth as "development that serves the economy, the community, and the environment (Kamali, 2012). It changes the terms of the development debate away from the traditional growth/no growth question to how and where should new development be accommodated (zebardast , 2005 : 190).

At first the growth of Mashhad is calm, but after that growth sharply due to some extra factors. So was created urban mechanism phenomenon. Thus city growth horizontal and raid of its growth is faster than growth population. This issue has been led to some problems such as: environmental, social and etc. Smart growth strategies could be effected for achieving urban sustainable. Therefore the main question is what is development plan adapted to smart growth?

1.1. Research purpose

Total purpose is, evaluating urban development plans according to growth indicators.

Thus suboriented aims are:

- 1- Studying population density changes in urban development plan that effect to smart and compact growth.
- 2- Studying of aims of development plan ,also comparing with urban compactly growth factors

II. THEORETICAL PRINCIPLE

Urban compact and smart growth is an urban planning and transportation theory that concentrates growth in compact walk able urban centers to avoid sprawl. It also advocates compact, transit-oriented, walk able, bicycle-friendly land use, including neighborhood schools, complete streets, and mixed-use development with a range of housing choices. The term 'smart growth' is particularly used in North America. In Europe and particularly the UK, the terms 'Compact City' or 'urban intensification' have often been used to describe similar concepts, which have influenced government planning policies in the UK, the Netherlands and several other European countries (masnavi , 2012: 90) .

Smart growth values long-range, regional considerations of sustainability over a short-term focus. Its goals are to achieve a unique sense of community and place; expand the range of transportation, employment, and housing choices; equitably distribute the costs and benefits of development; preserve and enhance natural and cultural resources; and promote public health (Mehyari, 2005: 203).

Smart growth is related to, or used in combination with the following concepts:

- New Urbanism
- New Community Design
- Sustainable Development
- Traditional Neighborhood Development
- Resource Stewardship
- Land Preservation
- Preventing urban sprawl
- Creating Sense of Place
- Development Best Practices
- Preservation Development

The smart growth approach to development is multifaceted and can encompass a variety of techniques. For example, in the state of Massachusetts smart growth is enacted by a combination of techniques including increasing housing density along transit nodes, conserving farm land, and mixing residential and commercial use areas. Perhaps the most descriptive term to characterize this concept is Traditional Neighborhood Development, which recognizes that smart growth and related concepts are not necessarily new, but are a response to car culture and sprawl. Many favor the term New Urbanism, which invokes a new, but traditional way of looking at urban planning.

There are a range of best practices associated with smart growth, these include: supporting existing communities, redeveloping underutilized sites, enhancing economic competitiveness, providing more transportation choices, developing livability measures and tools, promoting equitable and affordable housing, providing a vision for sustainable growth, enhancing integrated planning and investment, aligning, coordinating, and leveraging government polices, redefining housing affordability and making the development process transparent.

Related, but somewhat different, are the overarching goals of smart growth, and they include: making the community more competitive for new businesses, providing alternative places to shop, work, and play, creating a better "Sense of Place," providing jobs for residents, increasing property values, improving quality of life, expanding the tax base, preserving open space, controlling growth, and improving safety.

There are 10 accepted principles that define smart growth:

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walk able neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective

10. Encourage community and stakeholder collaboration in development decisions

III. STUDYING OF EFFECTIVE URBAN DEVELOPMENT PLANS IN MASHHAD METROPOLITAN

In 40 decade in Iran was started, preparing comprehensive plan due to accruing some changes that created some problems such as increasing population , rural migration to cities , urban sprawl development . Until now has been produced three comprehensive based on special position of Mashhad. They are: 1- first plan is Khazeni; second plan is Morazán and third plan is as metropolitan development plan (comprehensive). Also, it has been prepared before end of previous plan by Farnahad consultant engendering (2007-2027). On the other, there wasn't district development plan and urban contribution plan while preparing first & second plan (mentioned above). Thus, Khazeni & Morazán plans don't comprehensive and regional regards. So, they hadn't succeeded due to this reason.

3.1. Khazeni comprehensive plan (1967- 1992)

This plan according to current condition has been led to horizontal development. But increasing population has been more than city development. Thus, city has been expanded more than forecasted. Therefore the, the approach had been "expanded city" due to population density. Density population was 75 people in hectare.

3.2. Morazán comprehensive plan(1992- 2017)

By comparing proposed density in previous plan, there was compactly approach in this plan. But, forecasting of population wasn't true, so city growth as horizontally. The population in 2007 was 2.247.000 people. Also, density population was 60 people in hectare. Although, there was horizontal development and hadn't achieve proposed population, but there was compact city influence nearly rather than Khazeni plan. On the other hand, second plan was succeeded more than first plan to reach "sustainable development" strategies due to old fabric renovation and maximum using from vacant capacity in order to infill development .

Table 1: forecasted population in future plan of Morazán plan

Proposed development area		1989	2002	2017	Area (hectare)	Density
City boundary		1480000	2460000	2800000	18500	151
Continues development	North east	190000	280000	350000	1750	200
	West	-	100000	700000	3500	200
	South	-	20000	150000	750	200
Total		1670000	2860000	4000000	24500	163
New cities		-	200000	1400000	-	-
Total		1670000	3060000	5400000	-	-

Source: Mashhad comprehensive plan, 1994

3.3. Development plan (comprehensive plan) of Mashhad district (Farnahad consultant engineering- 2006) and Mashhad conurbation plan (2008)

Centralization development plan of Mashhad have created some problems such as: physical, economical, social and environmental issue. These problems have been led to other problems for example, imbalance of population, services and etc. these problems have been led to imbalance natural capacity. So city has been grown sprawl. So, the important issue in planning Mashhad district, creating balance between environment and other population and activities centers. Thus the main strategies by sustainable approach, is creating balance in studied area. Also decentralization is other and main approach is research. So, should be prevented horizontal development. Also increase population density.

3.4. Farnahad Development plan (comprehensive plan) (2007-2027)

Was cleared basic mistakes of the end periods in Morazán plan. The basic precaution is mistakes, so was reviewed at the end of period. On the other hand, density population is due to expanding of boundary of city. Also it hasn't relation to proposal of plan . Could be considered 81 people in hectare as basic population density for starting research.

In this plan was suggested macro aims, they were:

- 1- giving unique religious identify , historical and cultural in world scale
- 2- achieving sustainable development principle by globalization approach
- 3- improving quality of urban environment
- 4- sustainable preservation from resident healthy and their security

In order to, infill development policy for achieving "compact city" concept was important aim in plan (Farnahad, 2006).

Density of population should be achieved to 130 people in hectare that was created compact viewpoint.

Existence boundary and proposed boundary in Farnahad plan 2027 were 30558 & 55502 hectare. So mentioned plan has regarded compactly phenomenon rather than Morazán plan.

3.5. Detail plan of Mashhad middle west area -2011(Parsomash consultant engineering)

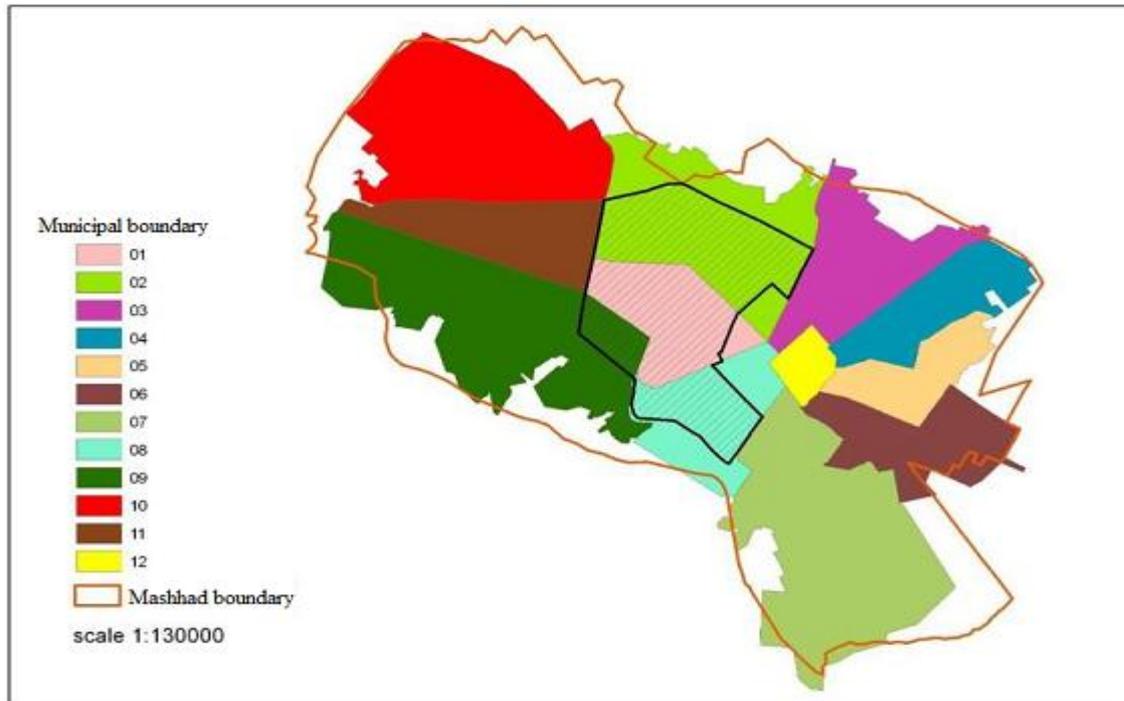
Middle West area has especially condition in Mashhad. Also, its area 4011.5 hectare. These districts have structure and functional importance in Mashhad. Important factors are:

- 1- appropriate local position
- 2- easy access to other districts
- 3- there is high level services in this area
- 4- there is urban and extra urban land- uses
- 5- there is various functional area & high population

The roles of Middle West area from viewpoint comprehensive plan are:

- 1- completing spaces of different land-uses (complex entertainment & purchase location with cultural activities
- 2- prospecting of especial physical structure according to their position
- 3- creating capacity of macro lots in order to improving spatial quality and increasing security of studied area

Figure 1: Middle West area position of Mashhad



Density population was 129 people in hectare. Also it would be increased to 200 people in hectare. Proposed population was calculated for end of time plan (Parsomash, 2011, 45). So, based on its position mentioned density is false. But, didn't achieved the aims of compact city due to, don't emphasis on functional goals.

Attracting of population is different due to strategies and above policies such as: increased density, distribution of population, urban services, services per capita and etc. undoubted , studied area have potential for increasing

of population that should be planned based on comprehensive plan strategies for distribution of them (Parsomash, 2011, 44- 48) . Middle West of Mashhad has better function in some factors such as: residential density, complex locations and etc. Totally, this plan has been succeeded in order to achieving "compact city pattern" concept.

Table 2: existence and proposed boundary, population and density based on each plan

Plan	Area			population			density		
	existence	Proposed	End of plan	Start of plan	Proposed	End of plan	existence	Proposed	End of plan
Kazeni (1967- 1992)	3200	17000	33000	0.409	1.465	1.9	128	86.1	57
Morazán (1992- 2017)	33000	24500	30000	1.9	4	2.427	57	163	81
Farahad (2007-2027)	30000	30558		2.247	3.8		81	130	
Mid-west area	4011			0.518	0.802		129	200	

IV. RESULTS

- Totally, in proposed Khazeni plan vast agriculture areas were in legal boundary. So, the city has been grown horizontal. But in other issues such as: residential density and complex functional areas was better. Indeed, comprehensive khazeni plan has been led to horizontal growth. Thus, mentioned plan hasn't succeeded for compact city concept.

- Besides that Morazán plan, although has forecasted the most population, but also didn't succeeded for presenting compact city pattern. On the other hand, second plan was succeeded more than first plan to reach "sustainable development" strategies due to old fabric renovation and maximum using from vacant capacity in order to infill development .

- Current comprehensive plan has compact city policy in functional and physical structure. Moreover, current plan has been more prosperous than other plan for achieving mentioned phenomena. In the same way detail plan determine comprehensive plan position. Therefore, in order to creating harmonic and sustainable city should be study about them.

- Development pattern of Middle West detail plan has attempted, to achieving compact city concept items. The proposed population was 800.000 people for studied area. Also, there are 650.000 people now. So in this matter, mentioned plan don't succeed. But in other elements is better that other plan such as: residential density in hectare and complex land-uses.

Therefore, should be prepared urban development plan and district development plan at the same time. Totally, development pattern of compact city in Mashhad should be provided quantitative and quality indicators of "compact city". Also, it is ideal that all will improve of the quantitative and qualities. On the other hand, should be attempted that achieve maximum factors of sustainability and compact city. So, should be produced compactly indicators from above plans.

REFERENCES

- [1] J. Bowen, K., and Modares. (1388). City and environment. (M. Tabibian, Translator), Tehran: Tehran University Press.
- [2] J. Krizak. (1388). Guide for planning of sustainable development. (H. Hatami race, and S. Amirian, Translator) Tehran: Wheel spillway.
- [3] Rahnama, M. The. (1387). Physical principles and models of assessment forms. Mashhad: Mashhad University Jihad publications.
- [4] Zebar dast , Esfandiar, 1383, Optimum city size, Urban and Architectural Research Center
- [5] Shakeri, M. and others, on issues of urban planning, Jihad, Mashhad University Press, 1389
- [6] Kafashi, M. (1389). The concept of compact cities and sustainable urban form. Tehran
- [7] Kamali. (1390). Sustainable Development
- [8] Masnavi, MR, 1381, a new paradigm of sustainable development and urban (city-wide compact city), Journal of Ecology (3)
- [9] Parsomash Consulting Engineers, August 1388, Mid-Western model of development and detailed design, development studies and prerequisite for model development, Volume I
- [10] Parsomash Consulting Engineers, August 1388, Mid-Western model of development and detailed design, development studies and prerequisite for model development, Volume 2

- [11] Parsomash Consulting Engineers, August 1388, Mid-Western model of development and detailed design, review and analysis of housing, Volume VI
- [12] Parsomash Consulting Engineers, February 1389, and the detailed design of mid-western development model, the development model development, Volume XII, Second Edition
- [13] Farnahad Consulting Engineers, in October 1384, comprehensive plan , the second volume of Mashhad, public recognition of the region, the Department of Housing and Urban Development
- [14] Farnahad Consulting Engineers, December 1384, Development Plan (Comprehensive) District Mashhad, Volume VIII, of the city of Mashhad, Department of Housing and Urban Development, Second Edition
- [15] Farnahad Consulting Engineers, September 1384 Development Plan (Comprehensive) District Mashhad, Volume IX, programs, plans and projects
- [16] Farnahad Consulting Engineers, September 1384 Development Plan (Comprehensive) District Mashhad, Volume IX, programs, plans and projects , second edit
- [17] Farnahad Consulting Engineers, July 1388 Development Plan (Comprehensive) Metropolis Mashhad, Development Vision, Goals, Strategies and Policies, Third Edition
- [18] Farnahad Consulting Engineers, April 1388 Development Plan (Comprehensive) basic studies and human activity (population), First Edition
- [19] Farnahad Consulting Engineers, May 1389, a development plan for the city of Mashhad, Mashhad Metropolitan Development Plan, First Edition
- [20] Farnahad Consulting Engineers, September 1388, analysis of the condition of existing plans and programs;
- [21] Farnahad Consulting Engineers, 1388 Development Plan of Mashhad, Mashhad reference bank locations, man-made environment, urban development plans
- [22] (GIS)
- [23] Mehdizadeh, J., strategic planning, urban development, department of Architecture and the Department of Housing and Urban Development, 13
- [24] Mehyari , 1388 , <http://www.javanemrooz.com>
- [25] V, G. (1389). The city is compact, sustainable urban form. Conference on sustainable urban development
- [26] Hall, Peter, Pfeiffer,. (1388). Urban Future 21 th century. (L. sadeqi, & N.. Safai, Translator), Tehran: Iranian Society of Consulting Engineers
- [27] [.http://fa.wikipedia.org](http://fa.wikipedia.org)
- [28] <http://yissr.blogfa.com>. <http://www.smart-cities.eu/>
- [29] Elkin, T .et al. 1991. Reciving the City: Towards Sustainable Urban development, Friends of the Earth, London.
- [30] Crane, R. and Daniere A. (1996): "Measuring access to basic services in global cities: descriptive and behavioral approaches" Journal of
- [31] the American Planning Association, Vol. (2)
- [32] Gordon,P,Harry,W.Richarson(1997)Are Compact Cities a Desirable Planning Goal, Journal of the American Planning Association
- [33] Ewing, R (1997) Is Los Angeles-Style Sprawl Desirable?, Journal of the American Planni Association
- [34] Glaster,G,et.al., (2001) Wrestling Sprawl to the Ground: Defining and Meaturng an Elusive Concept, Housing Policy Debate, Volume 12,
- [35] Issue 4
- [36] Tsai, Yu-Hsin (2005) Quantifying urban form: Compactness versus Sprawl, Urban Studies, Vol.42, No1