



Evaluating Iranian Urban Development Plants in order to develop a Development Plan for Sirjan City of Iran

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Abstract: The term sustainable development has been used in various definitions. The earliest definition can be traced back to 1972. In order to deal with four decades of global economic, social, and environmental challenges, sustainable development was adopted by international agencies, national and local governments. On the other hand, new approaches in urban planning were employed in order to reach a sustainable development. The aim of this study is presenting strategies for Sustainable Urban Development of Sirjan city. This study is applied and the method is investigation is descriptive analytical. Researches indicate that, the model of urban growth is sprawl and this leads to ecological, social, economic, and urban form. The Sirjan case is interesting for several reasons: first, it is a case of very fast urban growth even for a developing country; second, it portrays a land substitution process in which agricultural land is not the primary provider of urban land which is almost rare. Third, it illustrates how the fastest rates of urban sprawl may correspond to middle size cities rather than large centers.

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Key words: Urban planning, strategy, sustainable urban development, urban sprawl, Sirjan city

1. Introduction

The concept of sustainability was introduced in 1972 at the United Nations Conference on the Human Environment in Stockholm. This definition was also used in 1992 during the United Nations Conference on Environment and Development in Rio de Janeiro, approving the Agenda 21 in order to promote Sustainable Human Settlement Development; it was further employed in 1996 during the Habitat II, focused on the implementation of the LA21 in urban areas (Rasoolimanesh and et al, 2011). In fact, sustainable development and management is such a development consider creating, maintaining and increasing life quality of all human kinds in all periods of time (Iaghaj,2010).

After that the United Nations 2005 World Summit Outcome Document refers to the “interdependent and mutually reinforcing pillars” sustainable development as economic development, social development, and environmental protection (Zhangh and et al, 2011). As the rapid growth of world population and its concentration in cities around the globe takes place, sustainable urban development has constituted a crucial element. With the desire to achieve urban development in order to meet the needs of the present without compromising the ability of future generations to meet their needs, urban development is required to minimize threats from wasteful use of non-renewable resources, to avoid the

uncompensated geographical or spatial displacement of environmental costs onto other places, and not to draw on the resource base (Chen et al, 2008).

Within the past decades, the world’s population had been rapidly congregating in urban areas. The urban population in the world was estimated at 4.2 billion in 1995 and a doubling is expected at about the year 2025 (Yu and Ng, 2007). According to United Nations’ estimations, the population living in urban areas exceeded 50% of the world total in 2006 and will approach 60% in 2020. Urbanization emerges as the result of the increasing number of population moving from rural areas to urban areas. However, rapid urbanization is often at the expense of the loss of agricultural land for satisfying urban needs. Natural landscapes have been modified into urban landscapes. This is a tendency that has been experienced in recent years and is expected to continue during the coming years. In this regard, if the current and future urban areas grow with the same land use conversion practices without regarding the future demands, environmental, social and economic problems are inevitable (Zhangh et al, 2011).

Within 1961-1971, in Iran, population of cities have increased, because of both high natural growth and immigration of villagers to cities, the growth of urban form and urban constructions did not happened

based on needs but land mongering. This led to unorganized urban land market, especially the uselessness of great part of lands within urban limits and the negative distribution of cities' sprawl and horizontal expansion (Athari, 2000).

2. Material and Methods

2.1 Sirjan City

Sirjan is a city in and the capital of Sirjan County, Kerman Province, Iran. At the 2006 census, its population was 167,014, in 40,605 families.

At 1730 m, it is situated in a depression between the southern Zagros Mountains to the west and the Kuh-e Bidkhan massif to the east. It is well known for its pistachios and "geleem" rugs and also for its Badgiir Choppoghi (calumet louver).

2.2. Population growth and urban sprawl in Sirjan

Regarding the first official census (1956) the population of Sirjan was 67,605. During the 1960s and early 1970s, land reform and other agricultural policies in Iran resulted in mass migration from villages to cities. The Islamic revolution of 1979 followed by the Iran-Iraq war one year later increased further rural migration to cities. Between 1975 and 1987, the annual rate of population growth in Sirjan was 5.1%. In 2000, the population reached 132000 people with an annual growth rate of 3.4%. In the most recent official report (2010), the population of Sirjan attained 245000 persons (Sirjan Municipality, 2010).

The rate of population change is high although smaller than the increase in urban land. Employment in industrial sector is mentioned as the major reason for migrating to Sirjan. As it is often the case, the lack of urban planning forced immigrants to settle in the periphery of the city where land and accommodation prices are much lower than in the city center. The economic factor or the differential land rents thus appears as a major driver of urban sprawl in Sirjan. Finally, in the last studied period, Sirjan presented the largest growth in buildup area. The expansion of urban land between 2000 and 2010 almost equals all urban land developed during Sirjan 2000 year history. In 2009, urban uses occupied 5943.12 ha of land, and the population density had decreased to 32.78 persons per hectare. This form of development shows a disordered pattern that, among other impacts, reduced spatial solidarities. Since 1981, and in addition to rapid expansion, urban growth has remained disproportional, scattered and leapfrogged.



Figure 1: European Urban Sustainability Complex Concept

2.3. History of urban planning in Iran and in Sirjan

It is useful to confront our data on urban growth with the realities of urban planning in Iran and in Sirjan in specific. The Application of the models to examine the type of urban form urban planning system of Iran is based on master or comprehensive plans. These plans are mandated by ministry of Housing and Urban Planning and constitute the most important instrument of the Iranian multilevel system of land-use planning. In Master plans, maps of projected land uses are provided laying down binding provisions on how land can be used in practice. Furthermore, plans set urban growth and development models for the future based on population growth rates and on land per capita. In this case, plans establish the boundaries between developed and non-developed zones. All constructions are prevented in non-development areas. However, these restrictions are seldom respected and almost all Iranian cities expand beyond the determined boundaries of master plans (Zanganeh shahraki and et al, 2011).

The first master plan of Sirjan was enacted in 1972. Estimating the population growth rate of 2.5% and the population density of 100 persons per ha, this plan estimated that, the city would occupy some 1760 ha of land in 1992(Municipality of Sirjan, 2010). Comparing this with the predicted area in Master plan has revealed a vast process of urban sprawl. The second master plan of city was enacted in 1989. Acknowledging a large quantity of unused and vacant spaces inside the city, this plan offered not to expand and develop the city in the fringes but to follow the so-called infill development approach. However, the boundaries pictured in the master plan were contravened again in the following years. In the latest master plan of Sirjan enacted in 2007 the estimated urban area of city for 2020 was set at 13,415 ha. In total, the developed projections of all master plans

have been failed by the dynamics of urban growth fuelled by the high number of immigrants in need of inexpensive habitation. One major problem with Iranian master plans (which is common to many other planning figures in both developed and developing worlds), is the lack of enforcement of growth control measures. Due to the lack of this enforcement, newcomers usually construct and settle everywhere they want.

2.4. Methods of urban planning

The approaches have been generalized into the following categories: master-planning, urban design and Strategic urban development planning framework. The overview of each approach is provided hereunder.

2.4.1. Master Planning

Master planning to prepare and implement an urban general planning scheme leads to a coordinated but predetermined framework for city form and pattern in terms of a citywide rigid zoned land-use pattern. The approach was practiced in United States of America since early 20th century in the form of, say, 1917 Zoning Regulations for New York City. It was practiced in England and the rest of Europe beginning the end of World War II in the form of, say, British 1947 Town and Country Planning Ordinance (Halla, 2007). The practice was replicated to the rest of the world as a mission activity along with the then colonization process. It was introduced in Sirjan since 1981 in the form of Sirjan Master Plan. Most of the outer parts of the city's built-up area owe much to the master-planning concepts of adherence to legislative and process procedures, technocracy and comprehensiveness, land-use zoning, and land development control. The approach has since its inception been criticized for manifesting inefficiencies, ineffectiveness, rigidity, dictatorship, robotism and developer unfriendliness. As an approach to planning and managing cities, it has since 1990s ceased to be adopted in Iran, generally, and in Sirjan, specifically.

2.4.2. Urban Design

Urban design approach to preparing and implementing an urban general planning scheme leads to uncoordinated city form and pattern in terms of packaging spontaneously a series of detailed planning schemes of various and diverse environmental neighborhoods such as residential, industrial, commercial, institutional and etc. The approach was practiced in England and, thereafter, in the rest of Europe since the 19th century as a response to critical development issues that cropped up due to dynamics of the then industrial revolution (Ibid, 2007). The practice was replicated to the rest of the world as a mission activity along with the then colonization process. It was introduced in Sirjan since 1891 along with the then German colonization process and,

thereafter, continued by the British colonization process.

2.5. Strategy for sustainable urban development in Sirjan city

Strategies for sustainable urban development are presented in 5 sections:

1. Environmental goals
2. Urban development planning goals
3. Urban activity and land use goals
4. Strategic goals in social problem solving
5. Physical and space development goals

2.5.1. Environmental Goals

- Using the present law for preparing the national land use plan based on carrying capacity of the environment.
- Defining achievable horizon of National Sustainable Development.
- Application of the results and outputs into the national level programs (SNDS).
- Using environmental impact assessment in national, regional and local planning.
- Good governance and management through present law for air pollution control and finding the necessary cooperation, and public participation (NGOs).
- Organizing youth participation for neighborhood recreational programs.

2.5.2. Urban Development Planning Goals

- Preparing a new law for urban planning and design as well as their implementation process and providing monitoring systems.
- Defining a new complementary role for Ministry of Housing and Urban Planning in cooperation with Department of Environment.
- Planning to achieve the necessary rate for research and use the global experiences to satisfy crescent social needs.
- Preventing the gaps with systematic continues monitoring and planning.
- Decentralization of the new settlements.
- Regional strategic planning development and site selection in coordination with EIA.
- Focusing on small town and cities in relation with development axes.

2.5.3. Urban activity and land use goals:

- Preparing a new vision and policy focusing on urban and rural sustainable development considering the changing world and entity of new population and their needs.
- Preventing of new centralization with urban regeneration in old cities with public participation in process of planning, design.
- Creating a new and sustainable perspective for surveying and reviewing urban planning process and its out com in various levels as regional, municipal, and rural planning.

- Up-to-date the methods of preparation of plans in sense of continue planning.

- Using national traditional knowledge and combining it with up to date environmental, social, technical and economical sciences.

- Creating new policies for urban good governance with public participation and stockholders and their organizations to prepare new policies for implementation and instruments.

2.5.4. Strategic Goals in Social Problem Solving

- Preparing and organizing public participation policy at neighborhood level, with responsibilities to confirm local land use and plan.

- Providing land destination for new social activities and centers.

- Creating social communication center in the metropolitan area and delegating the necessary importance and authority by law.

2.5.5. Physical and Space Development Goals

- Using analytical hierarchy process (AHP) for defining priority of development zones and its potentialities in order to define objectives and projects.

- Providing the management organization and interrelation between parts for good governance and management.

- Continuous land survey (remote sensing) and serious control for prevention undesirable settlement growth.

- Preparing the local development plan and use local authority and initiatives for partnership in context of national policies.

3. Results

In order to achieve the optimal pattern of sustainable urban development, the following methods have been experienced all over the world:

- First approach, formed under the impact of the Modernism thinking in the Eastern Asia, has paid attention to measures such as high rise construction, high densities, short trips to workplaces, easy access to services and facilities and widespread use of public transportation in the city, and it has taken steps toward socioeconomic sustainability;

- Second approach is decentralized centralization within cities, which has been well accepted all over the world. In this model, it is tried to change the unicentral city into multicenter city based on compact construction and the multiplication of activities in determined sub centers in relation with transportation and development pivots;

- Third approach, maybe the most important method of compact construction in the recent years, is transition development or basic transportation development. In this method, the revival of transportation system structure is based on replacing

vehicle, discouraging the need to trip and limiting car use and urban growth is guided toward certain nodes and pivots equipped with transit routes;

- Fourth method is the reconstruction of cities for compact construction of empty and compact spaces of cities. In this model, compact construction process is benefitted for the renovation of historical centers, lands and so on;

- Fifth approach is land sharing model. In this model, housings and lands under the ownership of governmental divisions and individuals are transferred to private sections to carry out high compacted housing projects and after reconstruction, a part of transferred land is allocated for communicational and service networks and remaining section will be transferred to previous settlers in the form of compacted and high quality housings and at the same time, investor's costs and benefits are satisfied (Ghorbani and Noshad, 2008).

In order to achieve compact growth and prevent the sprawl growth of the Sirjan City, the decentralized centralization with the emphasis placed on urban smart growth strategies and principles is the best method for future urban development.

To achieve this goal, the following are recommended:

- Decreasing the use of personal vehicles, increasing the use of public transportation system and encouraging walking trips through the proper design of urban and local walking pivots.

- Making use of aggregation and compact model in new construction to prevent sprawl urban growth.

- Encouraging settlement in small housing units.

- Guaranteeing security in urban environment through the distribution of mixed land use.

- Managing the city in an appropriate legal manner, in order to continue urban development with competitive capability.

- Centralizing local activities in local communities and subsequently, elevating life quality, security and dynamism as well as supporting occupations and services.

- Providing a wide range of housing alternatives for different classes of people.

- Creating a connected network of joint streets.

- Encouraging citizens to participate in the decisions regarding the development.

4. Discussions

Sirjan city, in recent years, due to the appropriate natural prerequisites, the development of roads and the construction of housings beside them, immigration, and the issues of ownership, has had the

rapid growth of population and urban areas. This matter have had many consequences in different economic, social and biological sections, including termination of agricultural lands around the city, contamination of water and soil resources, increase in the cost of delivering civic services, increase in the time and length of inner city trips and finally, increase in the consumption of non-renewable fuels like petroleum, social segregation. Lack of the attention about land use or irregular use of this important resource and clearly indicate that, achieving sustainable urban development is a required strategy for the future that needs appropriated action plans to implement as soon as possible. Based on our work, uncontrolled urban growth in Sirjan has caused many changes in the land use of the peripheral areas. The reasons for such widespread urban sprawl should be investigated in order to develop strategies to control the city's growth. In order to control the sprawl urban development, establishing a regional balance to reduce migration from rural areas to urban areas or the renewal and improvement of the central-historical fabric and the inner city of Sirjan is important. This would cause the continuous settlement of population in these areas for living and would prevent migration from center to the suburbs. In addition, the policy of infilling development can be used to provide for the future growth of the population, and for implementing strategies addressed to manage the construction in the undeveloped peripheries.

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