

Research Article

Strategy for Sustainable Urban Development: A Case Study of Urmia City, Iran.

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Abstract

The term sustainability development has been used in various forms and definitions. The earliest use of sustainability or sustainable development can be traced back to 1972. In order to cope with four decades of global economic, social, and environmental challenges, sustainable development was adopted as a mantra by international agencies, national and local governments, especially after Habitat II in the local level. On the other hand, new approaches in urban planning were employed in order to achieve a sustainable development. The purpose of this article is presentation of strategies for Sustainable Urban Development in Urmia city. This study is applied and the method of its investigation is descriptive-analytical. Findings indicate that the model of urban growth is sprawl and this leads to ecological, social and economical and urban form unsustainable. The Urmia 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 relatively rare in urban contexts. Third, it illustrates how the fastest rates of urban sprawl may correspond to middle size cities rather than large centers. , and fourth, it also illustrate how sprawl may also hide important internal land uses such as the presence of agricultural plots within urban boundaries. The end is clearly mentioned that achievement of urban sustainable development is a necessity strategy for tomorrow and that needs appropriated action plans to implement as soon as possible.

Key words: Urban planning, strategy, Sustainable urban development, Urban sprawl, Urmia city.

Introduction

The concept of sustainability was coined 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). According to emphasis and definition of environmental development world commission, in the name of "our common future" that means Brant Land Commission in 1987, our today function has a serious effect on earth in sequences of posterity to supply their needs. It means that sustainability development is a kind of development that considers supplying today s need without decreasing posterity ability to supply their needs. In fact, sustainability development and management is such a development consider creating, maintaining and increasing life quality of all human kinds in all periods of time(laghai,2010). 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 environment parameters. 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 affecting the long-term outlook of humanity. With the desire to achieve urban development that "meets the needs of the present without compromising the ability of future generations to meet their needs", urban development are 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 and waste absorption capacities to the levels which disrupt dynamic equilibrium of the ecosystem(chen and et al, 2008).

During the past century, the world's population had been rapidly congregating in urban areas. The urban population in the world was estimated at 2.4 billion in 1995 and a doubling is expected at about the year 2025 (Yu and Ng, 2007). According to United Nations estimates, 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 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. 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 (Zhangh and et al, 2011).

After (1961-1971), in Iran, having increased population of cities, because of both high natural growth and immigration of villagers to cities with high speed, 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). Following other great cities of Iran in recent years, Urmia City has had rapid and unorganized growth. And because of population natural growth, immigration, spread of services, the allocation of official-political identity to this city as a province capital, land grant by different governmental organizations within this city, state's construction plans, state's socioeconomic and political changes and ultimately, appropriate natural environment, this city has witnessed so many population and form changes. This city's population has increased from 67605 in 1956 to 583255 in 2006. Also, in accordance with the calculations of consultant engineers, in a twenty-year interval (1986-2006), urban area has a increase from 5939 to 8577 hectares in this city, which has been added 95% to the initial urban area during this period. Furthermore, these factors have resulted in the lack of land and housing, the split of urban texture, the disorganization of urban visage, the crowdedness of urban transportation (the congestion of urban traffic, especially in city center), the change of appropriate agricultural lands into residential and industrial spaces, thoughtless urban constructions and the termination of natural capabilities and services, endangered urban environment and contributed to the city instability.

Study area

The city of urmia, one of the more ancient cities of Iran, is the capital of the western Azarbaijan province. Urmia is located in a mountain environment with an annual precipitation of 42-78 mm. The most important economic activities in urmia are light industries (textiles, foodstuffs, and paper and furniture) occupying about 45% of the active population, and tourism which benefits from the desert architecture and the historical heritage of the city. Both activities alongside with the administrative functions derived from the condition of province capital serve as a factor of attraction for many immigrants not only from the province of western Azarbaijan but also from all Iran. Therefore, the city has experienced very rapid growth to the point that, among the Iranian cities with a population bigger than 100,000 inhabitants, Urmia has the largest growth in urban land development (Hampanejad, 2010).

Population growth and urban sprawl in Urmia

According to the first official census (1956) the population of Urmia 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. Hence, at the time of the second official census (1981), the population of the city reached 164419 people. 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 Urmia was 5.1%. In 2000, the population reached 435200 people with an annual growth rate of 3.4%. In the most recent official report (2010), the population of Urmia attained 604000 persons (Urmia Municipality, 2010).

As shown in Fig. 3 and Table 1, 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 Urmia. As it is often the case, 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 Urmia. Finally, in the last studied period, Urmia presented the largest growth in built-up area. The expansion of urban land between 2000 and 2010 almost equals all urban land developed during Urmia 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.

Table 1: Population, area and their percentage increase in study area.

Year	Population	Percentage increase n population (%)	Built-up area (ha)	Percentage increase in built-up area (%)
1981	164419	-	1643.94	-
1991	300746	54.67	2935.37	56.00452
2000	435200	69.10	3761.54	78.03639
2010	604000	72.05	5943.12	63.29234

Source: Iranian Statistic Center (2010), Urmia Municipality (2010).

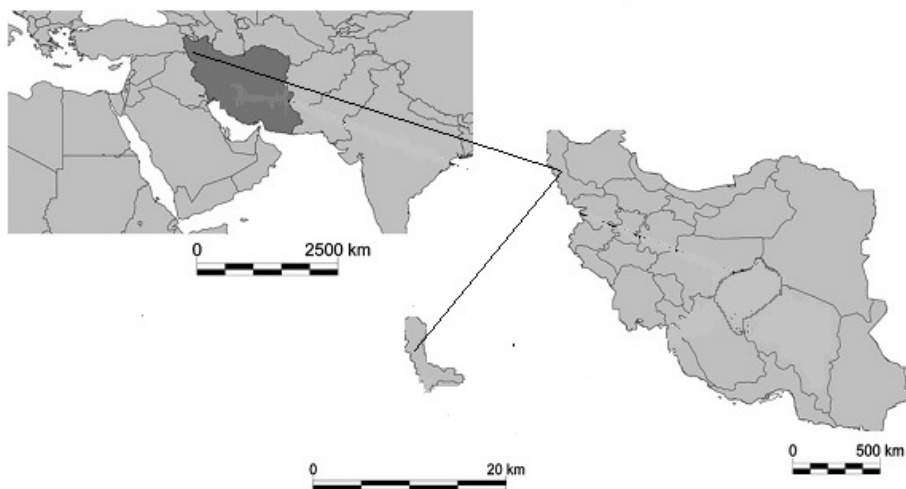


Fig. 1. Location of study area.



Fig 2: European Urban Sustainability Complex Concept

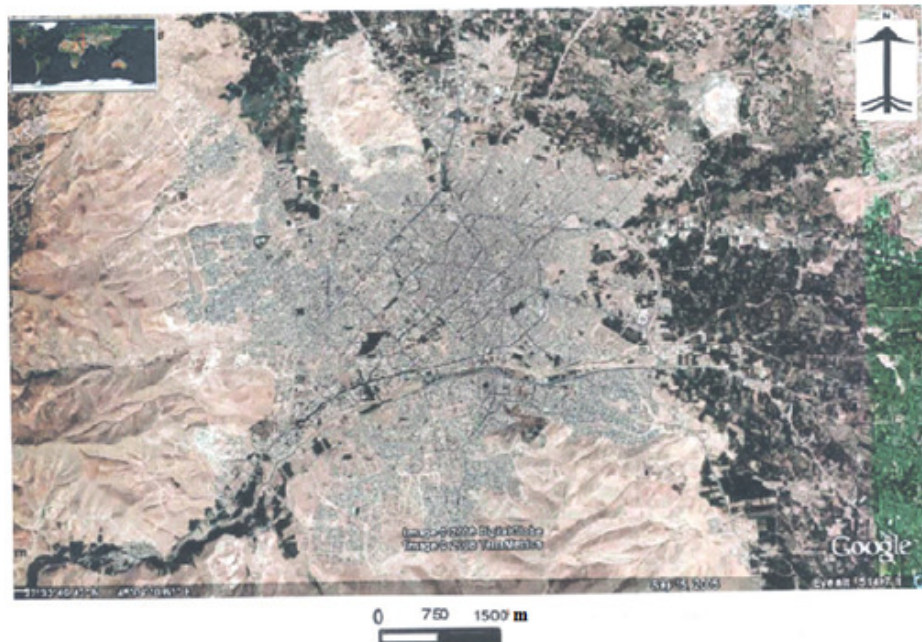


Fig 3: Urban growth and sprawl in Urmia

Urban planning in Iran and Urmia

It is important to confront our data on urban growth with the realities of urban planning in Iran and in Urmia in particular. The Application of the Models to Determine 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. In addition, plans set urban growth and development patterns 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 construction is prohibited in non-development areas. However, these boundaries and limits 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 Urmia was enacted in 1972. Estimating the population growth rate of 2.5% and the population density of 100 persons per ha, this plan calculated that the city would occupy some 1760 ha of land in 1992 (Municipality of Urmia, 2010). Comparing this number with the predicted area in Master plan revealed a vast process of urban sprawl in this period. The second master plan of city was issued 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. Nevertheless, the boundaries envisaged in the master plan were contravened again in the following years. In the latest master plan of Urmia enacted in 2007 the predicted urban area of city for 2020 was set at 13,415 ha. In sum, the established projections of all master plans have been defeated 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. Because of this lack of enforcement, newcomers usually construct and settle every where they want and can afford.

Approaches to 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.

Master planning

Master planning to preparing and implementing 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 comprising a series of general planning schemes of various-but-conforming environmental neighborhoods. 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 Urmia since 1981 in the form of Urmia 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 Urmia, specifically.

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 Urmia since 1891 along with the then German colonization process and, thereafter, continued by the British colonization process. Most of the central portion of the existing central business district of the city owes much to the urban design concepts of architecture and municipal engineering. The approach is still valid and usefully practiced today as part and parcel of any of the other two major approaches to planning and managing urban development.

Strategic urban development planning framework

Strategic urban development planning framework approach to preparing and implementing an urban general planning scheme leads to a coordinated- but-flexible framework for city form and pattern in terms of a mixed land-use pattern comprising a series of general planning schemes of various-but-diverse environmental neighborhoods. To this end, the then United Centre for Human settlements and now the United Nations Programmed for Human Settlements, played a major catalytic role in providing financial facilitation and technical backstopping(Ibid, 2007).

The approach is a logical response to millions of critical issues obtaining in cities of the developing countries in the manner they emerged in cities of the developed countries during the industrial revolution era. In Iran, the practice continues to be replicated from Urmia to the rest of the country and the world as a rejuvenated mission statement of the profession of URDPM. Currently, most of the successful development planning stories in Urmia and the rest of the country and the world owe much to the managerial concepts of adherence to legislative and political-economy realities, stakeholder participation and partnerships, being strategic in choice and action, mixed land-use assignment, and development promotion. The approach has since its inception been monitored as to whether it is rendering the profession of URDPM to be efficient, effective, flexible, stakeholder inclusive, realistic or organic and developer friendly.

Unsustainable factors in urban program in Iran (Urmia)

Before representing strategies for sustainable urban development it is better to take consideration the important unsustainable factors in urban development in Tehran that are mentioned below.

- Absence of single and centralized urban management
- Shortage of comprehensive strategy for development
- Momentarily decision making system
- Neglect assessment of success in development programs
- Giving no worth to world experiences
- Sectoral excessive technicolize
- Disbelieving to ratified programs
- Discordance among further programs and country development previsions

- Non measurement of success levels in reforming programs
- Bureaucratic and eroded office systems
- Absence of permanent planning center and control
- Managerial Poor belief to planning
- Excessive centralization of country
- Inability in applying citizen's power
- Inattention to cultural identities of towns and cities
- All mentioned factors have fundamental role in creating unsustainably in the cities.

Effective factors in sprawl growth and unsustainable development of Urmia city

From the height point of view, the Urmia City is a short-figure city and from the perspective of intensity of urban physical loadings is an open city whose main part composes of regions with dominant aspect of one- or two-floor buildings and land units with large and average sizes. Three- and four-floor buildings are gradually accepted as usual form of construction in this city. According to available information, of all construction permits issued for this city in 2006, about 55.4% is for one to two-floor buildings, 38.7% for three or four-floor buildings and only 5.9% for five and more-floor buildings (Davodpour & Ardalan, 2009). Of effective factors on the Urmia City's development, these cases could be pointed: 1) Developments in the result of immigration (immigration residence). (In this case, one could refer to the role of villages around cities in the reception of immigrants of villages); 2) Developments in the result of population growth of the city itself; 3) After Islamic Revolution of Iran (1979), the lack of obvious policy in the gardens within the limits of the city was one of the obstacles that for its tackling, the city was forced to occupy around-city spaces and to develop in the sprawl manner in marginal regions; 4) Not to transmit some of land uses to the outer parts of the city and to construct some of urban facilities outside urban boundaries are of factors encouraged the city and breached urban boundaries; 5) Activities performed legally by some of offices and organizations for possessing and separating lands. Of these activities, one may name urban land offices and housing cooperatives which meddle in urban affairs and get construction permits for the lands which have ownership issues within urban limits and authorities have indifferent behavior about this problem; 6) Available economic, natural and legal existing within urban boundaries which contribute to land shortage and urban development beyond the boundaries of urban master plan; 7) Not to change residence patterns and not to grow the culture of apartment living have contributed to occupy spaces in a level beyond the prediction of urban master plan. Generally speaking, the city's social and economic disorganizations have led to disorganization in the city's physical development and the termination of natural process of development. Also, it is necessary to note that the specification of boundary for the-lack-of-control conditions in using urban lands made land prices increase and this was one of the main factors in developing the city beyond the boundary either planned and by the Organization for Urban land or unplanned (in the form of immigrant habitation); 8) Of other important factors in the irregular expansion of the Urmia City, one may refer to urban wandering assets which have illogically and irrationally led to land speculation and the activities regarding land trade. Beside the increase in land prices which contributed to the emergence of new generation in the society, constructive activities which have mostly luxurious aspects have expanded in the city; and 9) Ultimately, not to pay attention to the city limits which itself is influenced by beyond-city systems has entailed widespread margin living, the increase in housings without urban facilities, the sprawl growth of the city, towns and suburbs without urban qualities.

Strategy for urban sustainable development in Urmia city

The strategies for Sustainable Urban Development represent in 5 parts:

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

Environmental goals:

- Use the existing law for preparing the national land use plan based on carrying capacity of the environment.
- Define achievable horizon of National Sustainable Development.
- Application the results and outputs into the national level programs (SNDS).

- Use the environmental impact assessment in national, regional and local planning.
- Good governance and management through the existent law for air pollution control and finding the necessary cooperation, and public participation (NGOs).
- Organize Youth participation for neighborhood recreational programs.

Urban development planning goals

- Preparation of a new law for urban planning , urban design and their implementation process and providing monitoring system .
- Define a new complementary role for Ministry of Housing and Urban planning in cooperation with Department of Environment.
- Planning to achieve the necessary speed for research and use the global experiences to satisfy crescent social needs.
- Prevent the gaps and pitfalls with systematic continues monitoring and planning.
- Decentralization of the new settlement with
- Regional strategic planning development and site selection in coordination with EIA.
- Focus on small town and cities in relation with development axes.

Urban activity and land use goals:

- Prepare new vision and policy focusing on urban and rural sustainable development in consideration the changing world and entity of new population and their needs, using existent law for preparation new settlement texture.
- Prevent the new centralization with urban regeneration in old cities with public participation in process of planning, design, and implementation monitoring.
- Create a new and sustainable vision 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.
- (Thinking room of decision makers)
- Use the national traditional knowledge and combine it with up to date environmental, social, technical and economical sciences.
- Create new policies for urban good governance with public participation and stockholders and their organizations to prepare new policies for implementation and instruments.

Strategic Goals in Social Problem solving:

- Prepare and organize public participation policy at neighborhood level, with responsibilities to approve local land use and plan.
- Provide land destination for the new social activities and centers (neighborhood city center and NGOs center).
- Create social communication center in the metropolitan area and give the necessary importance and authority by the law.

Physical and space development goals:

- Use analytical hierarchy process (AHP) for defining priority of development zones and its potentialities to define objectives and projects.
- Provide 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.
- Prepare the local development plan and use local authority and initiatives for partnership in context of national policies.
- Provide the coordinate urban managing system and prevent uncoordinated implementation.

The presentation of optimal pattern for achieving sustainable urban form in Urmia city

To achieve the optimal model of urban sustainable development, following approaches have been experienced all over the world: 1) the first approach formed under the influence 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; 2) the second approach is decentralized centralization within cities, which has been well accepted all over the world. In this method, it is attempted to change unicentral city into multicentre city based on compact construction and the multiplication of activities in selected sub centers in relation to transportation and development pivots; 3) the third approach, perhaps the most important method of compact construction in the recent years, is "transition development or basic transportation development". In this approach, the restoration of transportation system structure is based on changing vehicle, discouraging the need to trip and limiting car use and urban growth is directed toward certain nodes and pivots equipped with transit routes; 4) the fourth method is the reconstruction of cities for compact construction of empty and compact spaces of cities. In this approach, compact construction process is used for the renovation of historical centers, lands and unused spaces; 5) the fifth one is land sharing approach. In this approach, housings and lands under the ownership of governmental divisions and individuals are submitted to private sections in order to carry out high compacted housing projects and after reconstruction, a part of submitted land is allocated to communication and service networks and remaining part is submitted 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 avoid the sprawl growth of the Urmia City, the decentralized centralization (changing the one polar city into multicentre city based on compact construction and the multiplication of activities in selected sub centers) with the emphasis placed on urban smart growth strategies and principles is the best model for the future urban development. To achieve this model, 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.

Conclusion

Urmia city In recent years, because of so appropriate natural prerequisites (so desirable lands for agriculture and many water resources), the development of roads and the construction of housings beside them, immigration (which led to the approach of lands around the city to the city itself (these parts joined to the city boundary), cooperatives for town building, development and construction of disorganized settlements and urban margin living), and the issues of ownership, the Urmia City has had the rapid growth of population and urban area. This matter have had many consequences in different economic, social and biological divisions including the termination of agricultural lands around the city, the devastation and contamination of water and soil resources, the increase in the cost of delivering civic services, the increase in the time and length of inner city trips and as a result, the increase in the consumption of fossil fuels like petroleum, social segregation, lack of care about land use or irregular use of this important resource and so on and Here is clearly mentioned that achievement of urban sustainable development is a necessity strategy for tomorrow and that needs appropriated action plans to implement as soon as possible. According to the findings of this study, uncontrolled urban growth in Urmia has caused many changes in the land use of the peripheral areas. The causes of having such widespread urban sprawl should be studied in order to develop strategies for controlling the city's growth. Some of the strategies and policies that can be used for controlling the urban sprawl are: creating 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 Urmia. This would cause the continuous settlement of population in these areas for living and would prevent migration from center to the suburbs. Also, 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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