Evaluation of the Most Important Effective Factors on Sustainable Development in the New Towns: A Case Study in New Town of Parand

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Abstract. Rapid population growth and increasing immigration which has led to population concentration in big cities has gone up to the explosion limit in some cities and brought about numerous problems for decision-makers as well as the residents of these cities. Uncontrolled expansion of cities on the one hand have made managers and planners face the problem of providing infrastructure and services to the residents of these cities and on the other hand have led to more alienation between human and environment and have left people alone with complex issues and erosive forces around and made them disable in dealing with the suffering and misfortune complexity and problems. Therefore, the overflow of mother metropolis crowds without depending on the metropolis is the first and foremost philosophy of creating new towns which as the symbol of “modern civilization” are considered as the most important and best new age phenomenon. The basic foundation of new towns are self-sufficiency, independence, balance of population and employment which have been historically present in the world due to political, security, economic and demographic reasons and along with industrial revolution in Europe and the US, new laws on urban planning was formed. New Town of Parand which has been established based on the two necessity of settlement of the overflow urban population of Tehran, as well as accommodating Imam Khomeini Airport staff, is regarded really important in the government policy of housing projects due to its favorable and relative position. If sustainable development is added to the process of the formation of these towns it can be considered more important with higher position. The present study was kind of descriptive and aimed at investigating the most important effective factors on sustainable development in the new towns with the case study of New Town of Parand.

Keywords: Effective factors, sustainable development, new town, Parand

INTRODUCTION

After the industrial revolution and the tendency of agriculture forces to industry, urban population increased from day to day and created border issues and slums in the regions of the countries. Complexity of social problems led to the idea of creating garden cities and towns in the minds of administrators and planners of the communities. England, France, Hungary and … were the countries that have attempted to build new towns to heal the problems caused by high population of cities. Later, new towns were selected in other parts of the world as a way to get out of the complex problems of cities. The process of urbanization which had a slow growth in Iran in the mid-30s faced rapid growth and the trend was exacerbated urbanism after socio-economic development of country, especially after the land reform and the collapse of traditional production systems in the villages and beginning of capitalist expansion stage. Due to this trend, population and resources were concentrated in large cities while the role and performance of villages became weaker day by day.

Metropolis emerged one after another. As a result, the settlement system of national and regional scales was unbalanced. Congenital malformations and weakened social relationships, creating environmental problems, concentrating production and employment centers, etc. were revealed
from this time. This trend continued until the mid-fifties and caused many problems. Continuation of urbanism, made the need for decentralization and balancing in settlements inevitable, so one of the proposed mechanisms to solve this problem was the creation of new towns. Undoubtedly, the role of the towns in the formulation of national policies accommodation is noteworthy and important in line with the decentralization and reducing the problems of big cities. The council monitoring the development of Tehran approved establishing the subsidiary towns in the city's 25-year plan in 1978.

At the end of the 1984 government approved delivering land to establish subsidiary towns and three years later development plan of some new towns was signed by consultant engineers and in 1990 establishing these cities was formalized by the Supreme Council of Urban Development. Accordingly the creation of 26 new towns was on the agenda and positioning 20 new towns with a population ceiling until the year 2015 was approved. Parand is one of the towns. In this study, after expressing the history of creating new towns in the country, the purposes and principles of the formation of the towns were studied and in a case study through a descriptive method the factors affecting the sustainable development of the new town of Parand were assessed.

The history of the creation of new towns in Iran

The history of the creation of new towns in Iran is divided into the following periods: ancient and modern times. Conquest of Iran by Alexander caused new socio-cultural blending of completely different nations. This victory led to the fusion of Eastern and Western philosophy, one based on patriarchal despotism - dynasty and the other was the result of kind of aristocratic democracy. Crossing the two philosophies led to the development of many new towns that quickly turned into centers for blending between Greeks and natives and places for cultural interactions. In general, the Seleucid Empire founded nearly 400 cities in Iran often formed in the vicinity of existing military fortresses. Parthian were also interested in town planning and urbanization involved cities such as Ctesiphon, Hatra, Darabgerd, Firuz Abad and others established in their time (Nazarian, 2002).

In Sassanid era also numerous cities were established and named with the name of kings. Of course, the trend of establishing cities by kings in this period was not steady and when the kings were powerful more new cities were founded and when they were not powerful the number of new cities decreased (Ibid., P. 14). The first cities founded after Islam were used as camps for Muslim troops and refugees. Some of the cities with old towns, castles, and strategic points near the holy places, were built in line with Islamic objectives. The other category was the new towns built near Imam Shhadtgah and graves such as Mashhad, Qom, Karbala, Najaf, Kazemein mainly by Shiites and worked as the tool of power. Out of these two categories, many new cities were evolved and developed. The cities of Nishabur, Ghaznein, Shiraz, Isfahan, Balkh, Ray, Hamadan, Bukhara, and Yazd are the examples of the thriving and developed cities after Islam (ibid, p. 22). Mongol invasion in the seventh century AH was the endpoint of the impacts of urbanization and development of towns and villages so that the foundations of the country's urban areas were disrupted and close to a century urbanism was almost meaningless (Habibi, 1999). In this era the principles of urbanization were based on instant and arbitrary decisions of the Mughal rulers.

During Safavieh dynasty reconstruction of silk and spices continental roads, the buildings of Karvansars, castles and military buildings and creating new towns in areas that the ways of Karvansars were crossed along the river and streams and in areas near big harbors all are the signs of development in this era, but after that the urban development has been dropped till the recent century (ibid, p. 44). In the period before the revolution between the two world wars cities were formed with three political, military, economic goals and Kuye Karmandan in the vicinity of large cities (Masumi, 1991). Today, these cities are in the class of booming and major cities of the
country. After World War until the mid-1961 which coincided with the rapid growth of the oil-related industries and development of new industries and economic fields most major towns and cities established were oil towns and Kuye Karmandan.

The cities of Abadan and Mahshahr are the most significant ones that with regard to the aim of creating these cities, the expected result was not achieved. After mid-1961 till the Islamic Revolution (1978) the construction of a new independent industrial cities and towns were flourished around the big cities. Overall the creation and development of new towns in the period did not follow specific orders or laws although these cities had been raised in the context of land use. Therefore, the main objectives related to the creation of new towns in this period were to create new centers to exploit regional potential assets and economic growth, to fulfill social and national goals and to distribute the resources and investments in the country (Ziyari, 1998). Cities had begun increasing growth a decade ago, led to increasing in their population. The beginning and continuation of the war also accelerated this process. Displacement of population from the war-torn areas into areas away from war zones which pass them all together into the city, displacements of young people especially from rural areas to the front and eventually into the cities added the population of the cities. Foreign migrants from Afghanistan and Iraq, increased growth rate of cities as well (Nazarian, 2002). 17 New Towns were positioned and founded after the victory of the glorious Islamic Revolution. An important difference between todays proposed new towns with new towns before the revolution can be seen is in their functions. The purpose of the creating new towns during the years before the revolution was kind of single or multi-baseline an economic function, while todays new towns are considered as places to accommodate additional population of large cities (Ziyari, 1998).

In addition, new towns after the Islamic revolution with goals such as reforming structures, proper use of natural resources, prevention of concentration of population in urban areas and modifying the urban system regulation was considered a new and evolving process (Salehi, 1998). Therefore, to improve the quantity and quality requirements of big cities and to provide basic necessities such as housing and employment according to the Resolution in 1985 of the Council of Ministers, the Ministry of Housing and Urban Development began studies in the large cities and towns and the outcome of the decision was initially to anticipate establishing 26 new towns within the periphery of big cities and regional mother cities.

**The goals of establishing new cities formation**

The predicted function of a new town is the main condition for positioning, organizing the population internally and creating employment there. On the other hand, new towns are mainly created with two main goals:

1. New towns created only for a specific business or service.
2. New towns created only for the purpose of organizing regional spaces and regional areas of big cities (Talachian, 2005)

From the new towns created due to economic activities, the new industrial ones can be noted that are often founded far from urban areas close to natural resources such as coal, iron, oil and natural gas wells and the purpose of their creation was population distribution, utilization of groundwater resources, the creation of centers and industrial centers and the like. New towns in the former Soviet Union are an obvious example of the new industrial towns. Apart from the new industrial towns, new towns are created for specific services such as scientific or academic new towns. These new towns are often established near metropolitan and high-tech industries.
Principles of formation of new towns in the world

1) To regulate the economic, political, administrative activities of the large organization of the country: These towns or new capitals are in the suburbs and almost 30 km away from the cities (Shakuei, 1994).

2) To decentralize big cities and distribute the population throughout the country and the region: The new towns like planets around mother cities are located inside the urban areas and involve some functions in the high level of big cities which can be transferred into small cities far from big cities (Mokhberi & Nazemzadegan, 2006).

3) Centralism in backward areas with potentials for development: In this case, new towns act as growth centers or poles associated with the regional development and are far from major cities and they are positioned in poor and scattered places (Mokhberi & Nazemzadegan, 2006).

4) Organizing regional spaces and regional areas of big cities: New towns built in the suburbs of the big cities, are known as new subsidiary towns in typology and their functional role. The main reason of their creation is organizing regional spaces and regional areas of large cities (Talachian, 2005).

5) Social objectives: social objectives are other objectives of creating new towns in the world and express the importance of the social problems and the needs to predict and dealing with them rationally from recognition stage to planning and execution stages and accommodating population and forming socio-physical structure of new towns. This is why the main parts of planning and urban management are devoted to social issues (Arjmandnia, 1999).

6) Social imbalances: social imbalances were experienced in Poland. Social imbalances cause lack of social mobility in urban spaces. New towns showed that they are suitable sites for the construction of social housing and reduce social tensions in other cities (New Towns Development Corporation, 2003).

Sustainable development in new towns

Since the term sustainable development includes all social, economic, political, physical and environmental concepts and achieving it requires a national commitment and cooperation of all government and non-governmental agencies and comprehensive programs in the field, sustainable development can be defined as follows: managing a clean and healthy environment based on effective utilization of natural resources and ecological principles that the goal of designing sustainable buildings is to reduce its damage on the environment and energy resources and nature. New towns are suitable for sustainable development and efficient use of land and housing so that in addition to controlling prices, effective steps were taken in order to balance demand and supply of land and housing in the major cities. In addition to these goals, other goals have been involved in the creation of new town which includes:

- Sustainable development;
- Prevention of uncontrolled increase in the price of land and housing, development of marginalized areas and the destruction of agricultural land around large cities;
- Reducing traffic congestion in big cities;
- Preventing the imbalance between population and urban infrastructure and the cost due to it in the big cities (Salehi, 1998);
- Creating a healthy and quiet environment in crowded cities and potential conflict of social classes in it (MadaniPoor, 2006).
In general it can be said that the new towns under construction can be divided into two main categories:

1. The new towns as metropolitan development;
2. The new cities as industrial development of the regions.

**Evaluating effective factors in sustainable development in Parand**

**The formation of a new city of Parand**

The new city of Parand has been established due to two basic needs of accommodating the overflow population of Tehran as well as accommodating Imam Khomeini Airport staff.

![A view of the new town of Parand](image1.jpg)

**Figure 1.** A view of the new town of Parand.

**The position of the new town of Parand in the vicinity of Tehran**

According to the defined borders of Tehran and the southern boundary of the new town of Parand with the southern vicinity of Tehran, the new town of Parand is well located within the border of Tehran. However, due to legal conflicts in the area of vicinity of Tehran and by the time of modifying or deciding about the borders of Tehran, The scope and vicinity of Parand, based on the master plan studies, from the East is to Robat Karim, from the south to Shoor River, from the west to the borders of Shariyar city and from the north to the Takhte Rostam Mountain.
Development plan (comprehensive) of new town of Parand approved in 1998

The general characteristic of the new town of Parand whose development plan and studies carried out from 1995 to 1997 and approved in 1998 are as follow:

- Place and Location: 35 km south of West Tehran near Imam Khomeini International Airport;
- predicted area: 953 hectares without borders and 1013.6 hectares with borders of urban edge;
- predicted population: 80500 people with gross density 79.5 individuals per hectare;
- proximity to urban centers of Robat Karim, Tehran- Saveh highways and Imam Khomeini airport;
- Creating a separate town to attract part of the urban population of Tehran to improve the environment in urban districts of Tehran.
- Determining linear pattern as the most appropriate structural model in urban planning and design;
- Determining the spatial structure of the city consists of 3 zones (with an average population of 27,000 people) and 9 districts (average population of 8,500).

Explaining the regional particular situation of Parand in order to fulfill sustainable development principles

New town of Parand has a great regional location with the main characteristics summarized as follow: Crossing point of the areas of Karaj-Shahriar, and Aslamshhr- Robat Karim which is regarded as the main crossing point and overlapping of the two important urban areas of Tehran; being located between the three centers of exchanging goods and passengers (Imam Khomeini airport, Payam airport, and Aprin Station) of the country beyond the third ring of Tehran; the plan of moving Tehran Customs and all its facilities to the lands adjacent to Aprin station; being located within one of the three vertices of the triangle of Parand, Tehran and Karaj; Proximity to major communication networks such as Tehran-Saveh highway, Imam Khomeini International Airport, Tehran-Qom highway, Tehran- south railway and urban rail of Tehran-Parand.

Parand on the horizon Panorama of Strategic Plan is an active metropolis with advanced services and industries with new technologies that interacts directly with Imam Khomeini airport city as the city located in outer edge, Tehran world region. The success of Parand town in performing its joint role with Imam Khomeini airport city is due to the following major frameworks:

- Communication performance (transit) as part of major international airline systems with a range of complementary functions such as tourism, cultural meetings, holding exhibitions...
- Communication performance (information) facing data and information with regard to infrastructure of Parand and its special position in relation to the joint metropolitan area with international space that have changed it into the media focus centre.
- Production performance and providing services with high technologies in wide ranges of various activities that global city-region of Tehran provides it.
- Academic- research performance in completion of the ring of technologies centre facilities, temporary accommodation, meetings and demonstration centers and interaction with the most important educational and research centers inside and outside the country, which has extended to Shahr e Aftab.
- Control and management performance of economic flows through main business-administration centres and providing better metropolis services.
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The relationship between attracting population of Parand and Mehr housing

Due to the position and relative appropriate location of Parand in relation to road network of Tehran-Saveh highway, project of subway line network of Tehran-Parand, adjacent to Imam Khomeini airport and ... received more importance and effectiveness in plans and programs of devolving more housing in the new government's policies. The city in the form of giving 99-year land lease (Mehr housing) received excellent position in attracting population and organizing them and their activities in urban areas of Tehran. Several factors in order to determine the acceleration of the process of new towns in general, and including the new towns in urban areas of Tehran can be seen which are as follow:

Increase in the population of Tehran; accelerating the increase of population in central cities through Mehr housing; problems in the field of municipal infrastructure; problems in the field of development of business centers. Therefore, the facts in the context of the possibility of delay or non-fulfillment of programs despite the significant progress of construction of housing greatly influenced the demographic changes in the cities and accordingly the minimum and maximum scenarios, by regarding normal acceleration and maximum possible acceleration in the process of realization of development projects and programs have been developed. It should be noted that in the plan of "studying and redefining the urban population of Tehran" projected final capacity of population for Parand is considered a population of 485000 and for the year of 2026 is a population of 294,000 which is less than the number in the two scenarios and this represents an acceleration and expansion of operations beyond the current practice and anticipated initiatives in this respect.

The Prospective of social status of Parand town

In the hasty development process of Parand in the decades leading to the year of 2021, continuation of construction work in the first years of the decade cause the widespread presence of building workers but gradually with the progress of construction operation and also due to delay in forming work and activities centers the town of Parand practically will change to a city for hiring and dormitories in the first ten years. In the second ten years leading to year of 2031 with the formation of Imam Khomeini airport city, special economic – tourist zones of Zarandieh, developing industrial cities Parand will gradually with changes in the residential character turn into a city supporting work and activities center around and within itself. According to the changing patterns of employment of the residents, changes in social stratification and the pattern of living, education and training and leisure time will also be predicted which all affect the future development of the city altogether.

The Prospective of economic status of Parand town

The Prospective of economic status of Parand town drawn from a combination of new jobs of in the future are in the form of three models of residential, industrial services (airport) city and town indicates that the overall trend of jobs in Parand with respect to various events can be different. The conclusions of economic decisions in Parand in the form of anticipating jobs in each section shows that the total number of jobs in the city will be 330000 that 70% of them, almost 231000 jobs, will be in the services section and the rest of them will be equally in the sections of industry and residential jobs.
Major goals

The major goals proposed for the town of Parand are as follow:

- Formation of efficient metropolitan city of Parand near urban areas of Tehran;
- Establishment of an independent multi-functional city of Parand with two-way interaction with Tehran;
- Promoting Parand to an integrated urban legible and safe city with independent identity and active urban spaces;
- Development of Parand as an open, temporal, organic system with flexibility and variability;
- Creating appropriate environment for the life and welfare of the city away from any pollution and urban traffic;
- Creating and attracting specialized workshops and service centers and social welfare in the preparation phases of new town of Parand;
- Considering the principle of preventing environmental damage by using some ecological factors in the design and planning of new town of Parand.

Suggestions to promote sustainable development quality in the future of Parand

- Strategic plan to protect the borders of Parand with the approach of protecting the lands surrounding the proposed range of Parand;
- Preparing detailed design basis as the missing link in the process of precipitous development of the city;
- Urban design of urban centers with the approach to strengthen the role and metropolitan Skeleton;
- Organizing and urban design of arrival-departure gates with the approach of creating identity and legibility of the arrival-departure gates of the city;
- The Garden City complex on the edge of the river with the approach of maintaining green structure along the river.

CONCLUSION

Despite the previous efforts a population of 200 thousand people lives in more than ten new towns in the country and it was predicted to go up to 3.5 million people in 2021. The complex issues of city and urbanization (especially the issue of housing) in recent years have made the policy makers of urban land use planning in the country since the mid-60s create a wave of projects as well as preparing the ground for building new towns. Nowadays, to create new towns in which the volume of construction is unprecedented in the history of Iran’s urbanization and even among developing countries important goals resulted in the problems and requirements have been predicted. However, after several years of construction of new cities, there is still the question that how establishing new towns can meet the anticipated goals or on the other words with what fields this solution can be ideal and beneficial or maybe loses its effectiveness and turns into a serious problem. Undoubtedly, the way to administrate the cities is the most effective index that directly influences the various aspects of life in the cities. Hence, to answer the question the new towns should be recognized as residential places with particular conditions and the goal of establishing them should be studied as well. Overall, the policy of sustainable development of the new town of Parand near Tehran was executed according to the following objectives:

- Planned and proper distribution of the population in urban areas of Tehran in terms of leading Tehran's overflow population to the new town;
- Decentralization of the metropolis by assigning some of its roles to the new towns so that they could do joint role between small and metropolis population centers;
- Refining Tehran and improving the standards of living and services in it;
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- Preventing excessive rise in the price of land for housing as well as areas of marginalization and destruction of agricultural land, around Tehran;
- To meet these goals, the town of Parand was positioned in urban areas of Tehran by the following considerations:
  - Convenient access to the main communication networks, and appropriate distance to major cities in the region;
  - The possibility of supporting basic needs to infrastructures such as water, electricity and energy;
  - The possibility of exploiting potential economic resources;
  - Lack of adjacency to agricultural areas
  - The appropriateness of the location of the city in terms of creating balances between poles and cities in the area;
  - Having proper climatic, topography, environmental conditions and good prospective;
  - Having the right conditions to establish the city in terms of manpower and materials needed.

In general, new towns are social-economic phenomenon in the world with specific behavioral pattern in population issues and special role in the treatment of social ills, industry and social housing issues. These towns are like tools used for different issues of urban life.

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