



The Paradigm of Physical Development and Growth Realization in the Arena of Future Changes in Guidance and Control of the City

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Received: 01.02.2015; Accepted: 06.06.2015

Abstract. Physical development of cities is a dynamic and continuous process in which the physical space of the city expands vertically and horizontally. The growth of cities is one of the essential characteristics of urban societies, because change and evolution are among the fundamental and necessary features of any city. One of the problems facing humanity in the present century is increased and uncontrolled growth of cities, which has caused planners to seek a remedy. Among these problems, it can be pointed to the uncontrolled expansion of cities into suburbs where the construction is carried out without a previous plan. Physical development of cities is a dynamic process, and various natural and man-made (artificial) factors are effective in the formation and future development of the city. Achieving sustainable development requires awareness and recognition of the environment and identifying the factors affecting the development process of the city. To more deeply identify current issues and problems and make policy and plan for future developments of cities, it is necessary to recognize the factors and forces affecting the growth and development of them over the past decade. The present paper entitled “The paradigm of physical development and growth realization in the arena of future changes in guidance and control of the city” aims to investigate the factor affecting the physical development and urbanization growth in Yamchi-Iran. This study attempts to review the contribution of each of urbanization growth factors and determine the factors playing a role in the physical development and directing the urban development. Hence, the present study, based on a descriptive-analytical method and using the data available in the statistics center of Marand County as well as interview and observation, investigates the effective factors in the physical development of the city. The results of this research show that the physical development of the city has not been constructed in a balanced and principled manner; also, it can be said that the physical growth of the city has not been in harmony with the population growth; and natural and topographical factors have not played a major role in the physical development of the city. In addition, the peripheral results indicate that the initial core of the city has been formed on the Agh-Chay River which had been an old thoroughfare between Isfahan-Jolfa and has continued its growth trend. The final section of this paper addresses the localization of Yamchi and determining the direction of its urban development; the results indicate that the north and north-east directions of the city are suitable for the future development of it.

Keywords: physical development, dynamic process, natural and man-made factors, urbanization growth

INTRODUCTION

The Formation and changes of urban texture and its development and growth can be explained within the framework of relations governing socio-economic systems and political structures of the society; and the formation of new textures will be realized in line with the above factors. Identifying and analyzing the internal and external factors and forces affecting any city, with regard to socio-economic and political structure of the city, and investigating its changes over time has led to a new concept in urban geography as urban dynamics (Chaline, 1993). Physical development of cities is a dynamic and continuous process in which the physical space of the city expands vertically and horizontally; and if the process is accomplished in a rapid and unplanned manner, it will not lead to a balanced and harmonious physical development of urban spaces; and as a result, it will causes many problems for urban systems (Farahi Bakhshayesh, 2002). The city of Yamchi, like most small towns, has faced problems for its physical development. The city has grown organically up to 2001. In 2001, the village became a city and followed a planned development in 2004 through implementing the Guide plan; however, there

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The Paradigm of Physical Development and Growth Realization in the Arena of Future Changes in Guidance and Control of the City

is still neighborhood development in the city as well. Although, this city has become a city in the recent decade, its physical development has been very rapid and not followed a planned program.

The results of this study give a clear and logical model for understanding the complex and changing issues in the city; it can also provide a means for managers and planners involved in municipal affairs to take into consideration all effective factors to forecast the future development of the city; in other words, it provides them a systematic attitude in this regard. The present paper entitled “The paradigm of physical development and growth realization in the arena of future changes in guidance and control of the city” aims to investigate and evaluate the role of natural barriers and other factors affecting the physical development of the city and finally propose the optimal directions of the future development of Yamchi-Iran.

The research objectives

- 1- To investigate the physical development of Yamchi in terms of being in accordance with the planned program, detailed studies and predetermined goals.
- 2- To investigate the population growth and its influence on the environmental factors in physical development.
- 3- To identify causes of the emergence, growth, and expansion of Yamchi.
- 4- To identify the factors affecting the physical development of Yamchi and offer suggestions for the logical development of it.

The research methodology

The present study is a descriptive-analytical research in terms of its purpose while it is an applied study considering its type. The sample under study is the city of Yamchi which has been purposefully selected. The research has been conducted according to the three major steps as follows:

First step: using library studies to collect information required for the research. In this regard, the information of scientific websites has been used; also, the required statistical information has been obtained from the statistics and statistical yearbooks of the Statistics Center of Iran.

Second step: using field studies, the supplementary information has been collected through observation and imaging.

Third step: proposing the optimal directions of the future development of Yamchi through evaluating the natural, economic, social, and physical potential of the city along with the integration of different layers of processed information as well as investigating the current bottlenecks and the physical development of Yamchi in past periods.

The geographical location of the region under study (the city of Yamchi):

Yamchi (the center of Yamchi District) is located in the north west of the city of Marand as well as in the west of the Isfahan-Jolfa and north of the Marand-Khoy transit roads. From the north, the city is limited to the Aras River and the central part of Marand, and from the south and east to the central part of Marand, and from the west to Koshksaray and Qarah Zia Od-Din. The distance of the city from Marand is equal to 18 km and from the Chercher station is equal to 10 km. The city is located in a plain with an area of 843.2 square kilometers, whose height from

sea level is 1140 meters. The seasonal river of Agh-Chay (also known as Zenouz Chay) passes through the city and the river of Zilbir Chay crosses its lands. Yamchi is connected to the Marand-Khoy road by an asphalt road located at a distance of 13 km from this road; and from the north-west, it is connected to the Khoy three-way by an asphalt road with a length of 15 km.

Since the city is located on a plain, it has not been overshadowed much by natural elements; instead, it can be said that factors such as physical studies and socioeconomic factors play an important role in the development of the city.



Figure 1. The location of Yamchi in the country, province and County levels.

Source: the detailed plan of Marand, 2006

The physical development process of Yamchi

Road networks should be deemed as one of the most important causes for the emergence of cities; and factors such as water and fertility of lands are the other factors involved in the creation and survival of them. Also, having a central and passage location compared to the surrounding villages can be considered as another reason for the formation and development of cities. The initial core of Yamchi has been formed on the Agh-Chay River which is a tributary of the Zilbir-Chay River; due to the absence of topographical constraints, the city has developed around the river and communication ways by following the alleys; also, the city has been located in a thoroughfare between Isfahan and Jolfa, which had been used as a place for livestock replacement. The initial core of the city has developed towards the south and north. The growth and development of the main and old core of Yamchi, like other old cities of Iran, has begun from the village. In this period, geographical and socioeconomic factors have caused the physical development and growth of Yamchi. The development and growth has been along with changes in the social organization of the city and residential neighborhoods.

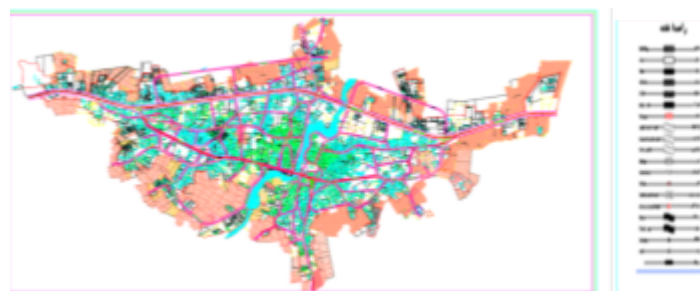


Figure 2. The physical development of Yamchi.

Source: the detailed plan of Marand, 2006

A) The physical development of Yamchi up to 1961

Due to the importance of river and water in settlement economic life of any country, they are considered as determining and sometimes ruling points in the formation of the initial core of a settlement. The city under study was also formed along the river and gradually expanded in different directions. The relatively dense central texture and the shrinking of density with moving away from the center reflect the fact that the city has expanded from the center (riverside) towards four directions. The city of Yamchi has composed of four neighborhoods including Bazar, Dizaj-e-Gharib, Dizaj-e-Paein, and Keikhali. The old texture of Dizaj-e-Gharib and Bazar-Ghar Kolvah neighborhoods constitute the initial core of the city. The Initial development and growth of the city was formed in the heart of the development of Bazar, Dizaj-e-Paein, and Dizaj-e-Gharib neighborhoods. The population of Yamchi was equal to 4575 people in the 1960s. In 1961, the area of this city which was a village at that time has been equal to 20 hectares.

B) The physical development of Yamchi in 1961-2001

At this period, the city has expanded towards the north and northwest, namely, in Keikhali neighborhood and accordingly more people have inhabited this part of the city. The growth rate of Yamchi reached 2.18% in 1966-2001. During the same period, the population of the city increased from 4575 to 9725 people; in other words, the absolute increase in population has been equal to 5150 people. Population and manpower has a close relationship with urban development and growth. Hence, in this period, due to the increased population, the city has been also developed in different directions.

C) The physical development of Yamchi in 2001-2013

This period mostly includes the new development of the city; so that according to the studies carried out in this regard, the city has experienced its greatest physical development, which can certainly be related to its new position as a district causing the establishment of government offices and probably migration of people from villages around towards this city. In this period, the city has mostly experienced a dispersed development along the development observed in previous periods; hence, in this period, the development and growth of the city has occurred in all directions. If there was no human intervention, the city would radially expand and form an integrated texture. However, some civil acts such as the 35-meter street of Velayat has caused the construction to be accelerated more in the same way and form the current situation of the city. Development trends of the city have been mostly to the north, northeast and northwest as well as south and west. In 2001, the population of the city, with a growth rate of 1.57%, reached 9725 people; and in 2003, the city had a population of 9894 people; but according to the latest census carried out by the Health Center of Yamchi in 2013, the city has a population of 10644 people. In this period, the urban area has expanded to be 243.66 hectares. These figures show that the physical development of city has been higher than its population growth, showing the low population density in this region; so that the highest and lowest net residential density of the city is respectively 104.14 and 87.40 persons per hectare; accordingly, the city achieves an average net residential density of 91.91 persons per hectare while the average net residential density in cities of Iran is 200 persons per hectare. According to these figures, the average net residential density in Yamchi is even lower than the average net residential density in the whole country. In the explanation for this finding, it can be said that Yamchi has already been a village and based on its agricultural functionality and performance, the residential areas are large; on the other hand, there are a lot of empty lands in the city.



Figure 3. The physical development of Yamchi in 2001-2013.

Source: the detailed plan of Marand, 2006

Development directions in Yamchi:

1- Development in the northeast and northwest

The northwest of the city leads to Yekanat villages and the communication road with these villages; on the other hand, it is connected to the Khoy three-way by an asphalt road with a length of 15 km. The neighborhood of Keikhali is located in this direction with a population of 3566 people and a total area of 86.82 square kilometers. Also, there are a lot of empty and arid lands within the legal area of the city, playing an effective role in supplying the needs of the city. These lands located in the north of the city have little agricultural water and faced with water shortages; so they are suitable for development of the city. However, in recent years, there were floods coming from the north of the city towards the settlements of that place, and destroyed many homes and created a lot of damage there. Hence, urban development planners should think of strategies to prevent such accidents, because this side of the city is suitable for future development of the city.

2- Development in the south and southeast

The south and southeast of Yamchi leading to Bazar neighborhood is connected to the Marand-Khoy road by an asphalt road located at a distance of 13 km from this road. The lands of this part of the city are valuable due to their fertility and having enough agricultural water and being suitable for agriculture. This neighborhood has a population of about 2014 people and its total area is equal to 82.46 square kilometers.

3- Development in the west of the city

Dizaj-e-Paein which is a small and sparsely populated neighborhood with a population of 1222 people and a total area of 21.72 square kilometers is located in this direction. The lands of this part are fertile; also, the villages of Markid and Koshksaray are located here where the Mehr Housing project has been implemented during the recent years.

4- Development in the east of the city

Dizaj-e-Gharib neighborhood with a population of 2091 people and a total area of 46.11 square kilometers is located in this direction. The lands of this part are not as fertile as the lands of the south of the city; also, there is little agricultural water here as well. The cattle market of Doab which is one of the important markets of the region is located in this part. This area of the city has enjoyed an appropriate development.

5- Development in the center of the city

The Paradigm of Physical Development and Growth Realization in the Arena of Future Changes in Guidance and Control of the City

The center of Yamchi due to having an old and worn out texture, where the initial core of the city located, has some limitations. Here, the development and repairment of the worn out texture can be performed considering the economic power of households. The center of Yamchi encompasses parts of the four neighborhoods, and there is no historic building or other man-made or artificial barrier to its development except one natural factor, namely, the seasonal river of Agh-Chay with a width of about 100 meters passing through the city. There are lots of arid and empty lands within the city, along the main and secondary streets. Most of these lands have not been cultivated for a long time, and in the case of making a proper use of them, they can be effective in the physical texture of the city.

6- Development connected to the city

Although Yamchi is located in a plain and can be developed from all sides, considering ecological effects, development of the city towards orchards and fertile agricultural lands will not be beneficial to the future of the city and residents.

The role of natural barriers in the physical development of Yamchi:

1- Watercourse

There is a wide variety of geomorphologic phenomena and processes affecting residential areas and urban facilities, one of which is watercourse. Watercourses are drying beds of water flows, which may have water for a few days every year or every few years. Considering the fact that watercourses are lowlands, the important point in positioning cities is to take into account the nearby lands and accidental surface water absorption; because as a result of these factors, buildings built on watercourses may face with the threat of land subsidence, loss of floor, and cracks in foundations and walls. Since Yamchi is located in a plain, there is no natural barrier around the city except the watercourse of the seasonal river flowing in the northeast-south direction and passing the city. This factor as a natural one has caused fissures in the physical texture and organization of the city. The total area occupied by this watercourse is equal to 6.55 hectares, whose bed has been blocked in some parts by retaining walls. This amount of land devoted to the watercourse encompasses 2.66 percent of the city area and is considered as a barrier to the development of the city.

2- Fertile agricultural lands

Lands of any city are the basis of its formation; in other words, the existence of cities depends on their lands; accordingly, the way of using lands and positioning and designing for kinds of land use plays an essential role in determining policies and directions of physical development of the city.

The indices of land use are weighted based on the two following principles:

A) According to the Resolution of the Supreme Council of Architecture and Urbanism of Iran, arable lands must not be used for the development of urban spaces.

B) Military applications within the city or sticking to the city limits (except police stations) must be moved outside the city and placed at the correct distance from the city. Considering the fact that the fertile agricultural lands are located in the southwest and south side of the city, this part of the city would not be appropriate for physical development. Yamchi is surrounded by farms, gardens, and woodlands. Farms make up a large part of the surrounding area, which have considerably developed and lead to adjacent villages. Gardens have also scattered in the area and based on their access to water resources, they have created low or high-density vegetation

cover. The density of woodlands is high or low depending on the land dewatering. In general, there are few low-yielding lands that can be used in the future development of the city, but the only problem of the lands is the lack of sufficient water for farming and gardening.

The role of man-made barriers and other effective factors in physical development of Yamchi

Around and inside Yamchi, there is no historic building or other man-made or artificial barrier to the physical development of the city. In the center of the city, there are worn houses and narrow and winding passages, which should be rebuilt; also, the arid and empty lands within the city should be used for construction.

1- The role of economic factor in physical development of Yamchi

Awareness of the economic structure and function of a city is necessary for planning at all levels including urban, regional and national levels as well as the analysis of land use in the city. The area of an urban center is determined using the quantity of production, income and in general its economic activities. Studying the economic fundamentals of these activities can help to discover the effective role of them in the economy of the city (Hadili, 1995). In general, economic activities create jobs and causes many people to be attracted to these centers; hence, studying the urban economy can lead to important results regarding the planning and design of land use in the city. By awareness of the process of growth, balance, increase or decrease of economic activities, city planners will be able to better identify the criteria that guide them in determining the amount and condition of the required lands; for example, studying the employment situation helps to evaluate the population and population estimation helps to predict the required land for creating industries and other activities in the city; as a result, the issues such as employment of people in retail and wholesale jobs and other jobs that should be created in relation to the population are proposed. Then, in planning for physical development of cities, it is necessary to take into consideration the level of employment and unemployment in the city. Accumulation of economic amenities in some cities has caused their polarization and population growth, so that there is no proportion between facilities and income; on the other hand, the wave of immigrants with low financial resources and illiteracy and lack of expertise as well as employment in low-income and temporary activities will lead to uneven development of the city (Azizpoor, 1996). In general, economic activities are divided into three categories as agricultural, industrial and service sectors. Each of these sectors contains subdivision as follows (Motiei L., 1998):

- Subdivisions of the agricultural sector include agriculture, horticulture, animal husbandry, livestock, fishing, hunting, and forestry.
- Subdivisions of the industrial sector include activities related to industries, mining, construction, water, electricity and gas.
- Subdivisions of the service sector include wholesale and retail, restaurant and hotel industries, transportation, communications, warehousing, financial and clerical services, insurance, public, social and personal services, and so on.

Economic factor as one of the most important factors affecting the physical development process of cities has played an essential role in this regard, so that it has sometimes overshadowed the role of natural barriers in physical development of cities. Accordingly, it can be said that the economic factor affects the role of natural barriers in physical development of cities. Among economic indices, employment is an important index influencing the financial power of families, provision of suitable housing, and urban development. After conversion of Yamchi to a city and determination of its urban limits and services, the value of lands located

The Paradigm of Physical Development and Growth Realization in the Arena of Future Changes in Guidance and Control of the City

around and within the city increased, which caused opportunistic people to segment the agricultural land near the city into small pieces and sell to low-income people due to their cheaper prices compared to lands within the city. Such circumstances have led to the problem of marginalization and thereby bad-shape alleys and passageways.

2- The sphere of influence of a city and its impact on physical development of the city:

Each city has a more or less certain sphere of influence, in relation to which the actual role of its central part is shaped.

Urban equipment and facilities such as administrative, educational, hygienic, cultural and commercial ones are created not only to meet the needs of the people of the city, but also, to a certain radius, to serve the population around the city. The importance of services of any city and the level of their specialization depends on the level which is allocated to the city in the hierarchy of cities (Hoshyar, 2002).

In such a circumstance, relations between the city and its sphere of influence are very strong. The relations depend on the demographic and geographical distribution conditions as well as the role of the city and spatial structures of the region. The city of Yamchi, from all four directions, leads to the villages whose people go to this city for some of their needs. Since the city of Yamchi is the center of Yamchi District, it is the center of political and administrative activities as well; hence, at city level, it is needed to replace some activities in parallel with Yamchi District; however, there are many deficiencies for the establishment of new activities. Last year, the police station was established and the Islamic Revolution Court is about to be established. Increasing the number of offices and providing more services for surrounding urban and rural areas has provided the ground for development of the city. At present, due to the weak market and lack of administrative use, the people of surrounding villages go to Marand County to meet their requirements.

3- The communication network and its impact on the physical development of the city

The communication network, due to affecting many urban infrastructures, is considered as one of the important factors in the development of the city and distribution of major activities. Almost all facilities and public services (such as water, electricity, telephone, and sewage networks, etc.) are a function of the communication network of the city and highly follow it. In fact, many urban regulations, zoning, and urban land use are under the communication network (Hoshyar, 2002). From past to present, the traditional transit network of Yamchi, in its organic state, has provided the relations between residential units, proximity units of neighborhoods, and the center of the city. Networking of streets and passages is partly in accordance with the approved Guide plan. Considering the traffic and the existing conditions, the length and width of passageways and streets are appropriate and more than the per capita share. Existence of wide and further streets and vehicles has undoubtedly played a significant role in the development of the city.

4- Education and development of Yamchi

Literacy and education is one of the indices affecting human resources and the industrial development and plays an important role in development process (Hosseinzadeh, 2010). Services in the education sector, at the two levels of general and higher educations, play an important role in urban growth and development in terms of attracting professional manpower and college and high school students beyond the legal boundaries of the city as well as developing educational and physical infrastructures, providing ancillary services (such as

stationery and book stores and publishing services), and even affecting the urban housing market (Hoshyar, 2002).

Yamchi, at the public education level, has four primary schools (two for boys and two for girls) and two 2-shift middle schools (one for boys and one for girls) as well as two 2-shift high schools (one for boys and one for girls). There is no higher education in Yamchi. In fact, higher education, due to the importance and nature of its educational effects, in addition to quantitatively affecting the physical development of the city, can favorably provide the ground for the growth of the city through attracting students and professors from other cities and regions and expanding research centers and improving the educational, scientific, cultural and artistic level of the city. Through building a university, it is possible to push the development of the city towards the north or northeast directions where infertile lands are located.

5- Health and treatment and physical development of Yamchi

In terms of the establishment, development and delivery of health services, Yamchi as the center of a district does not have important role in providing such services for nearby villages. Actually, due to the lack of hospitals, specialist doctors and childbirth facilities, people of Yamchi and nearby villages mostly go to Mrand County in this regard. Health indices suggest that specialized medical services attract people and affect daily visits to the city; as a result, they can cause the urban growth. In terms of the number and distribution of health care centers, Yamchi has a health center and a welfare center. The staff of this clinic includes a general practitioner, a dentist, two midwives, two practical nurses, and three nurse aids. Accordingly, building a hospital can be effective in attracting people from nearby villages and the physical development of the city.

CONCLUSION

Although Yamchi is not deemed to be a large city, it has a great sphere of influence in terms of enjoying some administrative and economic services in the region and being the center of a district and providing services for nearby villages. On the other hand, providing higher education, building a hospital, and increasing administrative and political services can lead to economic boom, increase incentives to live in this city and attract migrants from nearby villages.

Despite the historic background and being the center of a district, Yamchi has not made progress as it deserves. The reasons for this insufficient progress are lack of adequate income, migration to other cities, the lack of some state institutions (such as a court), and lack of higher education institutions, hospitals, and markets equipped with a variety of requirements of people. In this regard, also there is another important factor, namely, unreasonable neighborhood prejudices. Although due to infertile lands located in the north of the city, this part is appropriate for physical development, in recent years, there have been floods coming from the north and northeast directions, which highly damaged parts of the north of the city; hence, the housing planners should think of measures to prevent such accidents, because the city has potential to be developed properly from the north direction.

SUGGESTIONS

- 1- Internal development of the city to utilize empty and arid lands within the city and prevent fertile agricultural lands from being used for construction.
- 2- Increasing the size and stories of buildings to prevent the degradation of lands and gardens.

The Paradigm of Physical Development and Growth Realization in the Arena of Future Changes in Guidance and Control of the City

3- It is recommended the municipality of Yamchi to give special attention to constructions and build buildings according to a regular plan to prevent the city texture from losing its rural status.

4- The establishment of some government agencies such as the court and judiciary, increasing the health care use such as building a hospital, and creating equipped markets, green spaces and public parks to spend leisure time as well as stadiums and swimming pools can play an important role in the progress and development of the city and also attracting migrants from nearby villages and achieving an economic boom and preventing people from migrating to Marand County.

5- Creating higher education centers and attracting students from surrounding areas can play an important role in the progress of the city and raising the scientific level of the city.

6- It is recommended the municipality, county government, education department, and city councils of Yamchi to make all efforts to raise the cultural level of Yamchi, eliminate neighborhood prejudice, and make land uses compatible with proper positioning not based on neighborhood prejudice; because it should be thought of the total interests of Yamchi as a unit composed of small neighborhoods.

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