

Contents lists available at Sjournals

Scientific Journal of
Pure and Applied Sciences

Journal homepage: www.Sjournals.com



Original article

Urban sustainable development (case study Darreh Shahr city)

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ARTICLE INFO

ABSTRACT

Article history:

Received 25 June 2014

Accepted 21 July 2014

Available online 25 July 2014

Keywords:

Development

Urban sustainable development

Sustainable city

Dahreshar city

Appraisalment and report of cities sustainable development have started in some counties especially in the developed countries, for some years and their main goal is investigating the sustainability or unsustainability of development of cities. According to the investigation of varying parts of city and its comparison with country average, it is found that most of social economic and environmental indices are low in comparison with the average value of the country. Keeping the livestock, low per capita of green area, problems of potable water, weakness of the garbage collection system, incompetence in wastewater disposal, constructions, air pollution, urban traffic and etc. are the problems of this city making unstable environmental, social and economic conditions of Dahreshar city. Based on the lack of clarification of all aspects of a sustainable city and impossibility of presenting the definite solutions to achieve the sustainable city, there are some solutions to achieve the urban sustainable development of Dahreshar city such as: Increasing urban use density, reduction of reliance on cars in transportation (especially personal cars), modification of city management system, protection and renovation of natural systems around city, reduction of resources consumption to decline the pollutions. It seems that the basic cause of unsustainability of

Dahreshar is dedicated to weakness of city management, and urban management review if presented for its solution (e.g. definite authority, plans, goals and executive methods and etc).

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1. Introduction

More than two decades ago, Mrs. "Brunthland¹" report "our common future" and Rio statement with the signature of more than 150 countries in 1993 in UN was presented. In this short period, sustainability and sustainable development is turned into a strong movement, concern of the future of environment and its resources is an unavoidable reality with the special emphasis of government (Asadi, Iraj, 2003, 41).

Today, the necessity of considering sustainable development is one of the issues considered by all people. Human activities in the earth by current use of resources endanger the future generation opportunities and facilities and cities are considered as the main position of human activities and the greatest consumer of natural resources. Thus, to achieve the highest sustainability in cities is vital. Urban sustainability is not only restricted to environmental issues and achieving economic dynamics, livable social environment are one of the important issues in this regard. A sustainable city is not only a clean city, it is a city of which a fair income, good shelter is achieve and all people feel comfortable and they spend their time and effort to protect the city image.

Despite the increase of the number of cities in the country and census of 1996 of great cities (population of more than 250,000) and metropolises with 23 urban locations have 55% of urbanization population and Dareshahr city had 53501 population in census 1996 (Iran statistics center, 2004, 90).

Initial statistics of census 2006 of total population of the town was 5782 people, 22184 (39%) in urban locations and 35540 (60.70%) in rural areas, of which 18400 people live in Dareshahr city (Planning and management organization of province, 2006, 3).

2. Statement of problem

Urbanization dates back to 5000 years. Until 1900, of 8 people, only 1 person was living in urban regions (Gilbert and Gagler, 1996, 7). In 1950, the population of the cities in the world was 737000000 people (29% of total population in the world). Until 1995, this value increased to 2603000000 people (45% of total population). By 2000, urban regions had about 50% of the world population and during 1990 to 2030, urban population in the world will increase to 2.3 billion people, of which about 90% live in urban centers of developing countries (Shakuyi, Hossein, 1994, 14).

As urban development is a global phenomenon, the majority of urban developed is occurred in developing countries. In most of these countries, cities are increased and urban population is increased compared to rural population.. PI(David Darkakais)Smith-1995).

The important issued in urban geography based on the scale can be a small or big city, a metropolis, all cities of a province or all big and small cities in the world (Asayesh Hossein and Moshiri, Seyed Rahim, 2002, 116). Also, urban environmental problems in developing countries like Iran are more and these problems are harmful in some sectors include health, production and social development.

In Iran, urbanization is doubled during forty years 1956 to 1996 and is increased from 4.31 to 3.61%. In this period, the numbers of urban locations are increased from 199 centers in 1956 to 469 cities in 1986 (Etemad, Giti, 1984, 151) to 612 urban locations in 1996 and only by 2006, it increased to 1034 cities (Ministry of internal affair, 2006, 2).

3. Study method

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According to theoretical issues and practical and quantitative principles, various methods are used. Historical method based on information is used in theoretical issues and existing theories of documents and library sources. Next, based on theoretical and practical researches, we analyzed the information extracted from the city in all fields (population and its features, existing use in city and environmental conditions of city). Next, by presenting theoretical frameworks and using others experience, we determined a suitable and initial framework of the models used in urban development plans and the relationship of urban sustainable development and urban problems and city size and its toleration capacity were also considered.

Dareshahr is located in the southeast of Ilam province in the northern east of Kabirkuh and it is one of the sub basins of Simre River bounded on south to Kabirkuh and Abdanan town and on north to Male Mountain and Simre river. Dareshahr is located in eastern longitude 50°, 17',37 to 42°,22',37 and northern latitude of 31°,03',33 to 18°,90',33.

Minimum and maximum and average height of sea level is 1985, 633 and 125m, respectively. Total area of 365 hectare of Dareshahr has slop of less than 2% of south to the north of city. Dareshahr is bounded from three directions with high land. On west and east to low valleys with the difference of 10 to 12m. These valleys are with the slopes 15, 12, 25, 10% to Dareshahr city (Mehripour, Ezatollah, 2001, 91).

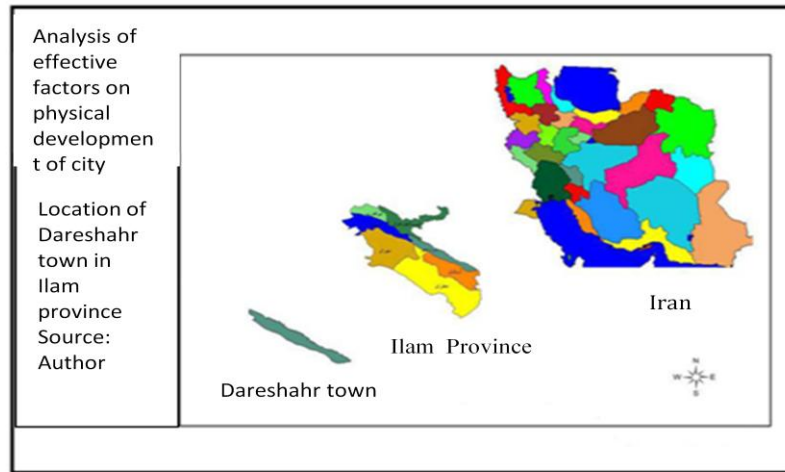


Fig. 1. The location of DarrehShahr town in province.



Fig. 2. Satellite images of DarrehShahr city.

Human being settlement and residential areas in Dareshahr town is very old. The valleys, mountains with natural weather as climate, water, soil and pasture are the initial centers of human settlements. Surface water of Simre, Kolam, Sikan and Dareshahr and Sheikmakan River with abundant springs in entire town and appropriate pastures are suitable factors considered by primary people and the first residential areas were created in this region. There is limited information regarding the residency in Dareshahr town, and we can refer to the historical record of town residential areas by them. In the book "Ilam and its old civilization" by Iraj Afshar Sistani, it is referred that Dareshahr or Simre was called Mehr Janghazagh or Mehr Jankade. In this book, cited in Ahmad Ibn Yaghub, writer of Albalal book: Simre is an ancient city called Mehr Janghazagh and there are various springs and ponds in the villages and the people are a combination of Arabs, Persian and Kurdises.

In his trip diary, Abodalf said: Simre is a pretty city with various date, olive and walnut trees, snow, mountain and plain. It can be said that Dareshahr town was residential area from the past and it was used for the activities and life of people.

Simre (Dareshahr) was prosperous in Sasanid era and it was the house of kings in summer. Simre-Darashahr " Shahr Der". Eskandar Beig, historian of Abasid era said about Dareshahr: There is a very pretty city called "Madakto" in the Coast of Simre River and Simre term is called due to abrasion of phonemes and it was originally "Sadmere". Due to the great fertility of the land in this area, this area was called Sadmere (Far was the count unit on that time).²

Dareshahr is a historical city and we can find, Dareshahr is one of the great civilizations and the historical monuments of Sasanid era as the destructed city of Mehrjandagh Mehrgankade is other ancient works in this town.

In other words, Dareshahr is in challenge of civilization and culture history. Historical city of Dareshahr is faced with many events and because of this it has many names as Mehrkankade, MehrJangahz, Darashahr (Dare city), Madakto, Darab Shahr, Seimare and Dareshahr.³

Various civilizations in Dareshahr and Lorestan showed that this region is taken into consideration more, old city of Dareshahr is destroyed many times but is constructed also many times and this show the consideration of people to this region. Thus, good condition of living and adequate water for drinking or irrigation as river of Dareshahr namely Simre River, fertile land in the past turned the city into one of the population centers⁴.

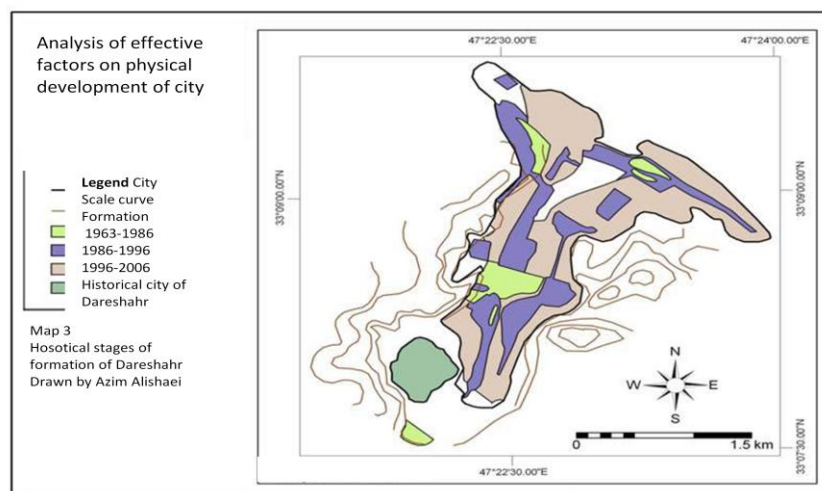


Fig. 3. Historical stages of formation of Dareshahr city.

² Eskandar Beik Monshi, Abasid history

³ Governor office of Dareshahr publications, View of Dareshahr city, 1996, p. 3

⁴ Mehripour, Ezatollah, Spatial planning of Dareshahr city, MA thesis of Tehran University. 2001. P. 91.



Fig. 4. The limitations of city development and **Fig. 5.** The monument of a dome building with four columns in.

Sasanid era Rolling hills in southeast and west of Dareshahr



Fig. 6. Limitations of city development from south, southeast and southwest directions of Darreshahr.

The development of Dareshahr city was started since the establishment of Municipality 1963 as the center of town to present services to the surrounding villages. Before this period it was only a village and some households with husbandry and farms beside Dareshahr River. After transforming Ilam from total governor office in 1974 to province and selecting this city as political divisions caused that Dareshahr city is selected as town center. Some factors as administrative, political centrality, creating various service facilities, geographical centrality, the presence of agriculture land, high and dispersed population were effective in the development of this city.

The first stage of city development was done under the conditions of the lack of urban plan without required direction. In this period, the city is the relative reflection of social and cultural conditions of residents as it was formed as organic with social separation. The urban development model as dense in the current Jomhuri Islami intersection beside Darreshahr river as linear was agriculture and service location until 1976.

The study of this area showed that during 1986 to 1987, the increase of job opportunities arising from new administrative and service units and urban constructions in Dareshahr city were effective factors in rapid growth of population of this city. In this period, the city had 14.4% annual population growth. During 1986 to 2006, the city development of Dareshahr was considerable compared to the previous period. The increase of rural population of town, development of state organizations in city, development of service, industrial units and communicative ways and finally the presence of immigrants

are the most important factors in changes of this period of city development. Now, Dareshahr city has three sections, 8 rural districts and 93 villages.

Population of Dareshahr city was increased since 1956 and the population of 32581 in 1966 increased to 56822 in 2006 and the number of households increased from 5563 to 11529 with non-residential areas in 2006 and various factors can be the reason of population changes of town and population growth rate in 1976-1986 had the highest growth in the town compared to other periods. In 1976-1986, total population of the town was 4.09% and it reached 0.95% in 1986-1996 and it showed reduction of population growth and during 1996-2006, population growth reached 0.60 and in the final decades, it showed the slow population growth and population growth rate can be seen in urban and rural areas (Table 3-14). Obligatory residency of nomads in villages, formation of new households due to marriage and the increase of the number of immigrants from the neighboring towns namely Abdanan to Dareshahr town (due to income good conditions) in recent years and these factors increased the number of households and population of town and the number of households and their development in urban areas and reduction of population was occurred in rural areas. The average household growth in urban areas during 1976-1996 was 0.2% and in rural areas 0.7%. The investigation of statistics showed that Dareshahr town population in Aban 2006 was 56822 people, of which 39.04% were living in urban areas and 60.79% in rural areas and the rest were not living.

However, the household 6.06 people in 1996 reduced to 4.9 people in 2006. Immigrants, opportunity to go outside Dareshahr town, population movement from rural areas to urban areas due to the concentration of services in urban centers (not controlling the villages and turning the rural areas to the center of town) during 1976-2006 are effective factors in low growth of household in total area, negative rural growth and high growth in urban locations of town. In 1996, Dareshahr city had 2491 households including 14542 people and it increased to 3862 households including 18400 people in 2006. During the mentioned decade, annual growth of population in this city was 5.09% and it showed the frequency of this city as with natural growth of population, there was migration and nomads' residency in Dareshahr city.

Table 1
The changes of urban system of Darreshahr during 1966-2006

%	Population	Year
-	1071	1966
7.9	2292	1976
14.4	8851	1986
5.09	14542	1996
2.38	18400	2006
2.37	23279	2016

Source: Iran statistics center, 2006 , the detailed results of census and housing and guidance plan of Dareshahr

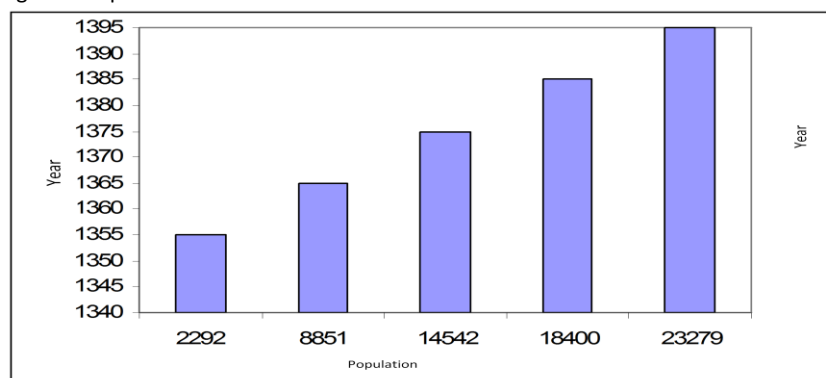


Fig. 7. The changes of urban system of Darreshahr during 1976-2006.

In investigations of urban use , total net urban area was 300 hectare in 1996 and it reached 651 in 2006 (master plan of Dareshahr 2006, dynamic consulting of City and building).

The area of residential use in 1996 was 156304 m² and 860371 in 2006 and it showed high residential density of Dareshahr and imbalance in this ground.

The educational space per capital now is 2,37 m² and is not far from the per capita 3-5m² of the cities of the country and has relative balance.

Health per capita in Dareshahr has relative balance and this per capita is 27.38m².

The per capita of urban utilities is 46% and in total country 39% and Dare Shahr city has imbalance to other uses. Commercial use has 2.38 m² and in the country is 2-4m²and Dareshahr city has balance but it has imbalance compared to other uses. The per capita of sport is 2.41m² and the country 2-5.2 m² and this shows the balance in this regard. The cultural per capita is 0.51m² and it is far from average country level (1.5-0.75m²). The per capita of green space is about 1.43m² and it is far from average value in country (12-15m²) and there is imbalance (Maleki Saeed, 2002, 84).



Image 4. Non-organized constructions, photo of author.

Air pollution is one of the environmental problems of metropolises and this is due to the great number of vehicles and urban disturbing workshops. Fortunately, air pollution is not an environmental problem in Dareshahr city and air quality is high. The sources of air pollution are not environmental problems and air quality is good. The major sources of air pollution in Dareshahr city is including natural factors, heating sources, motorized vehicles and industrial workshops. Natural factors mostly increase dust in the air of city and they are created in dry seasons due to the entrance of dust from neighboring countries. According to the results of evaluation, dust is about 1.6 times of clean air standard. This issue indicates relatively high dusts of Ilam air compared to global standards and the main reason is natural factors (Environment of Ilam province, 2005, 301).



Image 6. The pollution of dusts in the early morning, photo of author.

In the past, there were about 40 gardens with approximate area 40 hectare in Dareshahr city and most of the gardens are destroyed now. There were some old wells (10 wells) and there is only one in Darehshar city now. There are four active parks in Dareshahr and 11 local parks are also used. The green space of this city is about 30 hectare and the per capita green space in Dareshahr is about 1.43m² and

compared to country per capita is 12-15m² and global per capita 25-50 m². There are about 36 centers to keep livestock and poultry with the frequency of 1 to 20 in various parts of the city north, south to east and west and central urban areas and the urban and environmental development is not faced with unduly development of the city and the minimum environmental standards are not observed in this city (Environment of Ilam, 2005, 270).

The information regarding the water consumption in Darreshahr during 2000 to 2004 showed that annually about 1.5 is added to the water consumption in city. Since 1996, the stud and executive phase of wastewater and design of wastewater treatment of the city was started and in 2005 about one fourth of city regions were linked to the collection network and first phase of wastewater treatment was started. One of the problems of water and wastewater treatment plan in Dareshahr is being located in dominant wind path to city. Due to using aerobic system in biological treatment of wastewater, bad odor and gas were less and it didn't create any problem (Environment of Ilam province, 2005, 356).

The per capita of garbage production in various regions in Dareshahr city is not uniform based on the cultural, social features or even municipality function. Thus, in some regions as Ghalegol, despite low economic condition, per capita of garbage is high and this is due to the livestock excretion and 53% are excretion of keeping livestock with urban garbage and 6% via burning, 1.2% via disposal in open channels of the region and 4% via disposal in deserted areas and 9.4% via municipality cars are disposed and other households didn't give any comments in this regard. Based on the data, about 14.7 of excretions of livestock are disposed with urban garbage. The per capita of production per day is about 1.3 kg and it is three times more than production per capita of the country and 6 times the garbage production per capita in European countries (Environment of Ilam province, 2005, 382).



Image 7. The garbage inside Darreshahr river

Despite the great benefits of recycle, there is no specific and controlled design regarding urban garbage recycle in Dareshahr and some people with beneficial goals (stealing garbage) recycled some garbage. Also, some components of garbage as dry bread, plastic, metals and etc are recycled by some people and sold to some pedlars and the lack of supervision of health organizations can impose great dangers in the society.

4. Conclusion

Indeed, we can not imagine a sustainable city clearly and define the ways to achieve it. On one hand, sustainability issue is different from global scale to local scale (city is in this scale), on the other hand there are contradictory views about the outcomes of most of the development processes (Sarafi Mozafar, 2000, 11).

What is raised as standard index at global level is a good model for a society with urban management and planning and people participation in planning can be used. Dareshahr city is one of the cities far from the standards raised. What is considered as sustainable development and sustainable city is not achieve suddenly and it requires long-term planning and exact supervision.

Recommendation

Based on the investigations and evaluation of various sectors of the city, the followings are done to achieve sustainable development in Dareshahr city.

1. Increasing physical density: Increasing population and construction density, guiding physical development and city structure as dense and along public transportation to use the most out of urban land and old textures based on the considerable cost of land and avoiding the elimination of surrounding agriculture land.
2. Reduction of reliance on car (namely personal cars) in movements: Despite petroleum rationing with its positive effect on traffic reduction, it seems that due to physical structure of the city and narrow streets namely in the city center, urban traffic serious at some hours. To reduce traffic of Ilam city, it is proposed that by combining land use planning (detailed plan of city) with intercity transportation and more time and place limitation of personal cars, new paths of bus, taxi and bicycle, new services by computer and remote communication are considered.
3. Modification of urban management system: non-centralization of city management system as city division into four or five urban regions with uniform urban management, relying on local gathering for city management, face to face response plan system of city authorities with people to stabilize citizenship and the importance of people views in city affairs.
4. Protection and renovation of natural systems of city: Keeping the existing agriculture land around the city, creating green belt around spatial units of city, development of parks and green space in the city, determining natural sensitive regions around the city and avoiding any construction in them.
5. Reduction of resources consumption to reduce pollution: Making energy protection rules for private and state buildings, research and promotion of non-renewable, local energy, implementation of cars pollution standards, training and advertising garbage recycling, creating township services centers in various parts of city, increasing public transportation, encouraging people to weekly and monthly purchase instead of daily purchase.
6. The lack keeping live stock in the city: Increasing urbanization culture and making people familiar with specific urban life not to use livestock in living place. Local media with making norms and municipality with execution of rules can be important in this regard.

There was no clear manifestation of ideal sustainable city for Dareshahr city in this study and by investigation of various parts of the city, we referred to the weaknesses and it was an attempt to present theoretical framework and strategic policies in various aspects as consideration of applied researches to achieve solutions to achieve sustainable city. Achieving the achievable Utopia called sustainable city is the order of current planners and managers that by recognizing the above orders, it is doomed to destruction. Sustainable city is built by democratic method. This is forgotten not only in Dareshahr but also in most of the small and big cities in the third world.

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