

Short communication

Reconstruct of environment for sustainable regional development

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Theoretically this study emphasis on Arranging the reconstruct of urban and rural system for optimal distribution of population and services in the region. Khorassan, with a legacy of centralized planning system, is characterized by a high degree of regional disparity. natural limitations in Khorassan region and inappropriate economic and social structures including lack of necessary underlying structures low level of literacy and skills lack of appropriate patterns of exploitation lack of economic institutes etc. The activities performed to increase production capacity has been a strain upon the natural resources and has resulted in a lack of balance between urban and rural environment. The environmental, economical, and social structures should be reconstructed for moving towards constant development of the region. In the present study, it is tried to investigate the most important problems of the regional instability and several approaches are presented for improving the existing situation. Therefore action should be taken to improve natural, economic and environmental structures of the region to achieve a sustainable development.

Key words: Regional development, reconstruct, Regional planning, khorassan.

INTRODUCTION

The region of khorassan, which is selected for study is a region of natural and population specialties. The large area, unbalanced distribution of habitats due to the special situation of the natural environment, locating in arid and semi-arid region, proximity to the Salt and Central deserts in the west, neighboring Afghanistan and being in the course of 120-day winds of Sistan in the south and south-east, proximity to Ghareghom desert in the north and north-east caused natural particularities. The above particularities, on one hand, and improper settlement of the population as well as inappropriate activity and exploitation of the regional resources, on the other hand, caused severe shortage of water resources.

The low rate of rainfall and higher degree of evaporation, transpiration, and natural isolation as well as severe dispersion of habitats and spatial disorders. Spatial structure of the province is affected by the natural environment, policy of population settlement, and the production activity and infrastructures factors. Such a situation caused severe imbalance in the region and destroying basic resources of development. The large area, long borders and neighboring the Central Asian

countries and Afghanistan as well as nearness to Pakistan borders, being in the course of Silk Road and the path for transiting goods from the Central Asia to Persian Gulf have brought a significant geopolitical importance for the region.

The geographical factors including the natural environment, economical, and human characteristics have intervened in forming the major centers of population and activity in the province. Poles, axes, and major centers of activity are in conformity with the capacities of natural environment in some extent, but the measures taken and the investments done in erecting economical and social infrastructures as well as political and security considerations had a large influence on this matter. The intervention of environment capacities and restrictions such as motion of flowing sand and erosion by wind in 15 central and southern towns of the province and improper distribution of facilities and infrastructures as well as inharmonious development of infrastructures and artifact facilities resulted in forming poles and axes of development and the deprived and marginal regions in the province.

The environmental, economical, and social structures should be reconstructed for moving towards sustainable development of the region. In the present study, it is tried to investigate the most important problems of the regional instability and several approaches are presented for improving the existing situation. The rate of population growth in the province in the previous decade was 1.35 % and such a rate was about 3% and -0.4% in the urban and rural regions. The majority of the population of the province are residing in the foothill, alluvial and vast plains including the damage-susceptible plain of Mashhad. It is predicted that the population of the province will increase up to 8.7 million in the year 2015. In the same year, more than 50 percent of the population will be settled in Mashhad. [yasoori, 2009,p.17]

Analysis of the spatial structure

The large area of the province, geographical ruptures, and natural events and damages, susceptibility of the province in some regions, diverse ecological conditions, long borders, and neighboring Afghanistan which has been the center of the regional turmoil in the recent two decades, had a significant influence on forming some of the marginal and undeveloped regions. One of the important factors in forming the current spatial structure of the province is the influence of national policies.

The existing severe regional imbalances in the country resulted in polarized structure in the region and forming and intensifying imbalances in the province. In spatial organization of the environmental centers of the province, Mashhad with a population more than 2.5 million in the year 2012 is considered as the center of rendering better services with the regional and ultra-regional function. This city as the most important and the only population center of gravity enjoys specialization and supra-specialization services in the various fields such as education, health and treatment, commercial and services. Present increase of population, and over-exploitation of resources has caused concerns about deficiency of resources for coming generations (Yasoori, 2001, p.107)

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the province.[Organization for Planning and Budget, 2000,p.131]

Birjand as the largest town located in the southern part of the province with a long history and sub-regional function in rendering better instructional, health and treatment, commercial, and services and Bojnord, Sabzevar, Neishabour, and Torbat. There are 7770 villages in this region the characteristics of which are: their smallness, population and economical instability, dispersion and not enjoying from better services. In the spatial structure of villages of the province, the hierarchical system, three-level (systems, set, and district) is predicted. In such a structure, identifying the big villages which are considered as centers, will play their role as the centers for rendering better and particular services. The rate of population growth in the province in the previous decade was 1.35 % and such a rate was about 3% and -0.4% in the urban and rural regions. The majority of the population of the province are residing in the foothill, alluvial and vast plains including the damage-susceptible plain of Mashhad. It is predicted that the population of the province will increase up to 8.7 million in the year 2015. [Organization for Planning and Budget of khorasan provance, 2003, p.17]

During the years 1986-2002, Mashhad had the highest rate of growth. The rural population of the region in the year 1996 was 2.6 million. The rural population of the region during the decade of 1986-99 and 15-year period (1986-2001) were -0.4% and -0.25% respectively. Such a rate was negative not only because of decreasing the pregnancy rate in rural regions but also changes in population (rural, urban) and increasing several big villages to the city as well as village immigrants to the city.

In general, as you see, the rural population of the province was decreasing. Population decrease mainly as a result of immigration from villages to towns and cities (such as Mashhad) and the big villages were changed to towns.

In the year 1996, about 80% of the villages of the region had a population less than 100 families. Only 26% of the rural population of the region resided in these villages. 74% of the rural population live in villages with a population more than 100 families which constitute 20% of the villages of the region. The spatial dispersion of the villages in the province has caused to impede rendering services to them rapidly and brought many problems in service supply to the villages of the region.[Yasoori, 1999,p.13]

The population and towns have increased from 1986 up to now. The number of towns reached from 47 in the year 1986 to 79 in the year 1996 and 84 in the year 2002(Mojtahedi 2003, p.42)

The increase of the number of towns and the immigration from villages to town especially to the provincial capital, the second metropolitan city of the country, caused the urban population of the province to

increase. It is expected that such a process will be continued and the rural population of the province will be decreased. Arranging the hierarchical urban and rural system for optimal distribution of population and services in the region is inevitable.

Regional disparity in this region

General configuration of the spatial organization of the province is in such a way that the most important pole of development and centralization of the province is Mashhad and its surrounding regions 55% of the urban population of the province reside in Mashhad, 20% in five towns and the rest in 80 towns of the province. About one-third of the population of the province and the severe gathering of the production and workshop facilities (more than 60% of industrial workshops with 10 personnel), financial and credit institutes, International Airport of Mashhad, the Holy Shrine of Imam Reza, etc. (Yasoori, 2008). caused the centralization of this city. In the recent two decades, Mashhad city with a population of about 2 million has been the second big city of the country after Tehran and has had the highest rate of growth among the metropolitan cities of the country after Karaj which caused the difference of this city with the second city of the province to be eleven folds [Majnoonian, H. 1997, p.35-37] With consideration to the role of this city as the main pole of development in the eastern part of the country in national work distribution and decentralization in the national level, a population growth more than the past is not far of expectation.

The procedure for decreasing the imbalance and preparing the ground for regional development and growth, is reconstruction of environment. Some of the reconstruction grounds include: reconstruction of spatial, economical, and residential structures; amending the regional and planning policies; applying proper methods of managing environment resources; optimal exploitation of basic resources of the development; benefiting from the regional situation and opportunities such as establishing economical and regional relations with Central Asian countries and Afghanistan. Emphasizing on the transit situation, tourism attractions, partnership planning and developing the infra-regional political, economical, and commercial relations are considered as essential priorities to materialize the goals of regional stable development.

While in the current situation, the city is confronted with a severe limitation of environmental resources. The majority of the industries of the province is focused on agricultural and food industries. About 78% of the total capital of industry has been invested in Mashhad in the recent years. The settlement of a population more than the capacity of the city and the activities done caused a severe damage to the basic resources of the development of the region. Severe contamination of

the water resources (high rate of nitrate and other contaminants) led to severe fall of the subterranean water basins and frequent digging as well as the increase of charges for drinking water supply and other activities (Khorassan Rezavi Management and Planning Organization, 2009).

Contamination and severe fall of water resources of Mashhad plain is to the extent that the managers of the province and planners of the region think of supplying water from other regions, for example, the transfer of the water of Doosti Dam from Turkmenistan border with a distance of 190 Km. to Mashhad city which is under the way since several years with a lot of expenses. This city is the second polluted city after Tehran. On the basis of the studies done, the rate of pollution in Mashhad in most of the days of the year is more than the permitted limit. Air pollution is the other consequence of severe centralization of the population and activity in Mashhad. (Mousavi 2001, P.35).

Neishabour, Sabzevar, Bojnord, and Birjand stand in the subsequent ranks as the population poles which enjoy public facilities and infrastructures and play a regional role and function focusing in agriculture, industry, service, and business. In the same scope, Neishabour and Toos Complex are considered as tourism poles in the province.

Regional imbalance in the province is to the extent that even the major axes of development are branched from Mashhad. The axes include Mashhad-Chenaran-Ghoochan axis which is the most important axis of the industry in the province (Khorassan Rezavi Management and Planning Organization, 2009).

In spite of prohibiting the settlement of new units and the necessity of displacement of the industrial units of the province from Mashhad-Chenaran axis, the majority of industrial units of the province are located in this axis. (more than 60% of the provincial industries). In spite of industrial units especially food industries in Mashhad-Neishabour axis, it enjoys an importance especially in the field of agriculture. Mashhad-Fariman axis which is one of the industrial axes and Fariman-Torbat Jam and Tayebad is very important for its agriculture.

Regional imbalances concerning the activities

Concerning agricultural activities, the northern, Mashhad, central, and southern regions of the province enjoy 28.5%, 15.4%, 44%, and 12% of the cultivated area of the province respectively. In the field of animal rearing, the percentage of existing animal husbandry are as follows: northern region :21%, Mashhad region:18.5%, central region:43%, southern region:18%. (Khorassan Management & Planning Organization, 2010, p.72)

From the total area of the region, the total area on which various agricultural products are cultivated is about 8%. The major part of the lands of the region is desert

which is salty with shallow depth of soil and protruding rock, in brief, they are unsuitable regions for agricultural and industrial operations. One of the main problems of traditional agriculture in Khorasan is that the agricultural pieces are small and dispersed. Sometimes the agricultural land which is only 2 hectares [Geographical research, 2002, p.722]

The status of geology, soil, especially, the severe ecological limitations prevented from forming suitable vast areas for human activity. The main part of the lands used for agriculture in the province are formed as patches in Neishabour, Mashhad, Torbat Heidarieh, Torbat Jam, Ghoochan, and several other towns. In fact, the formation of agricultural usage of lands in the various regions of the province depends on the potential of soil, and more important than it, on access to water resources including subsurface, surface, and reserved water. In the same line, the major part of the lands on which irrigated cultivation is done, is located in the central regions of the province. [Organization for Planning and Budget of Khorasan province, 2002, p.3]

Such a matter is due to severe ecological limitations including the shortage of rainfall and high rate of temperature the result of which is the high rate of evaporation and transpiration. In these areas and with aim of regional development, optimum utilization of water through changing in crop types, improvement of natural infrastructure and improvement of economical aspects [Javan, 2002, p.20]

The northern regions of the province with relative equilibrium of ecological status are faced with shortage of suitable soil. The most part of the lands in the region are farms and orchards with small areas and in the high regions, dry farming is common.

In the central regions and Mashhad, due to settlement of the major part of the population and imbalance between the rate of population and resources, pressure is transferred to agricultural lands. Without paying any attention to the fact that the capacity of the subterranean water basins are very limited, unlicensed wells have been dug and the water has transferred from depth to the surface for more exploitation of the lands. In the recent years, the majority of the plains of Khorasan province were declared as critical and super-critical (From among 78 plains existing in Khorasan province, 65 plains are declared as the prohibited ones) [Khorasan Regional Water Organization, 2000, p.17].

Government and local departments were not strict in executing the environment laws due to the social pressures and economical problems resulted from war (Ministry of Agriculture, 1994, p.36). The result was digging a great deal of unlicensed wells. Discharging more than the authorized limit caused severe fall of water level which doubled the farmers' problems. Because of such an operation, the drainage, using stronger motor pumps and fossil fuels were encouraged. In addition to high rate of production costs and fall of

farmers' income, it brought environment problems either Lack of suitable lands for cultivation, limitation of water resources, lack of proper policies in using lands, lack of necessary infrastructures such as installations for storage and reserving surface water, access roads, not using appropriate technology, lack of proper pricing policies, legal and ownership restriction of the lands and production resources, etc. had an effective role in inappropriate exploitation and environment instability in the agricultural sector. [ibid, p.38].

With consideration to the previous decisions made and the policies of the planning policies of the recent decades, there are imbalances in the industrial usage of the lands which is mainly originated from environmental, economical, and political factors. Providing facilities for living and activity as well as the concentration of population in the central and mainly in suburb of Mashhad city, infrastructures were formed for erecting industrial units (Yasoori, 2009, p.68). The lands were mainly used as industrial regions and estates; in some cases, the industrial units are erected individually. Such activities are done in 20 industrial estates and 16 industrial regions. About 63% of the industrial workshops of the province are located in Mashhad city. After Mashhad, Ghoochan, Neishabour, Bojnord, Torbat Heidarieh, Sabzevar, and Birjand with 5.8%, 5%, 3.8%, 3.5%, 2.4%, and 2.3% respectively stand in the next ranks. Other towns of the province (19 towns) have only 14.7% of the industrial workshops. [Department of Environment, 1995, p.76.] (figure 1.)

Using land for constructing urban and rural residential units is another usage. A large area of the lands with high quality for cultivation in about 86 urban and 7770 rural regions are allocated to residential infrastructures and structures. One of the essential challenges in land usage of the province is the destruction of agricultural lands in the margin of cities towns and horizontal expansion of the cities and towns. Such a phenomenon is observable in the marginal regions of Mashhad, Neishabour, Torbat Heidarieh, etc. One of the most important challenges of the urban development in Khorasan region is the high rate of urbanization and urban system as well as weakness of management and marginalization in the outskirts of the cities including Mashhad. On the basis of the available information in the year 2002, a population of about 600,000 reside in the marginal regions of Mashhad city in a non-standard situation. Such a problem caused social abnormalities, uncontrollable and inappropriate expansion of the city, destruction of cultivated lands, and unlicensed construction which has faced the urban management with a crisis. [Department of Environment, 2001, p.125] Approaches for balancing and achieving a stable development in this region is:

Preserving basic development resources through taking measures, preventing the waste of water resources, increase of productivity of production factors, reserving surface waters, amending the cultivation

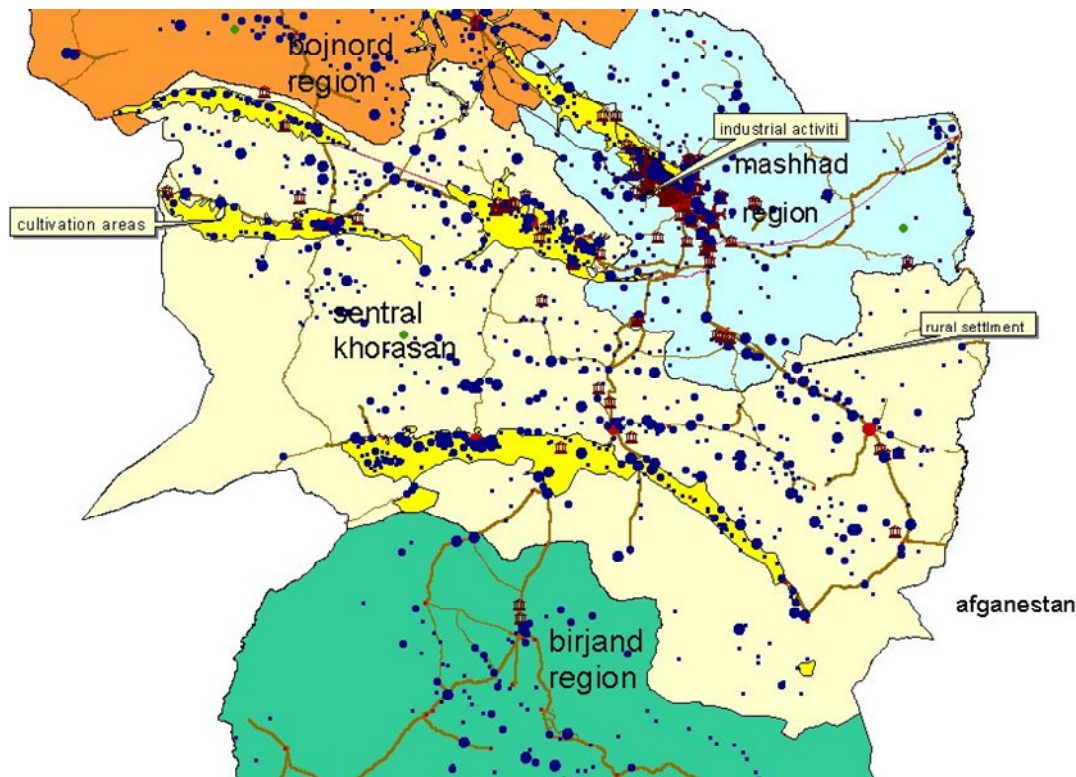


Figure 1: distribution of the economic activities and settlement

pattern and exploitation and irrigation systems(in the long-term development plan, it is predicted that only the development of water resources will be 1.5-2 billion cubic meters the total volume of which in the province will reach to 13827 million cubic meters.[Khorassan Regional Water Organization, 1990, p. 35].Developing complementary and processing industries in the agriculture sector and establishing appropriate relations among the production units in various sections.

Equipping Mashhad and Birjand cities with research, technology, education complexes and industrial services concerning the local resources including mines as well as establishing financial and trading stock markets in these cities the long-term objective of which is increasing the value of the goods exported from the province to the amount of 1.2 billion dollars.[Ghassemi, H., 1998,p.21]

CONCLUSION

Severe centralization of population(%34) and activities(%67) in Mashhad and the suburbs caused the severe destruction of environmental resources including the soil and water resources and severe air pollution, deprivation of other regions from development and formation of critical centers, severe displacement of population especially the skilled and specialist workforce, capital etc.

For decreasing the imbalance and providing the grounds for stable regional growth and development and preserving the basic resources of development, the environment should be reconstructed and the spatial structures and population and activity settlement to be reviewed. Reviewing the spatial, economical and residential structures - Amending the regional policies and planning - Applying proper methods for environmental resources management - optimal exploitation of basic resources of development,- Exploiting the regional situation and opportunities such as developing regional communications are some the measures that should be taken for achieving regional stable development.

On the other hand, with regard to the severe shortage of water resources, stable regional development may rely merely on activities of the first sector (agriculture). Emphasis on transit situation, tourism attractions, partnership planning and expansion of infra-regional political, economical, and commercial relations are considered as the basic priorities.

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