

## Evaluation of Changes in Land Use and its Impact on Rural Areas (Case study: Suburban in Zabol)

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**Abstract:** Broad functional changes of suburban agricultural and non-agricultural land use that over the last few decades, some part of it comes into existence because of the population growth and other part due to the formation of spontaneous and un-programmed population nuclei in the lands is the most important issue that the city of Zabol is facing currently. In fact, this phenomenon is a spontaneous response to the housing needs of low income groups who have no remedy except unlawful occupation of land and possession of unofficial land and in some part, it is also formed as a result of the performance of governmental and non-governmental organizations and institutions in the form of policies and legal provisions that is partially contradicts with sustainable development. The consequences of these two factors that was in some part unplanned and illegal and some was planned and legal but unconsidered had led to chaotic and indiscriminate occupation of agricultural and remaining unused portions of the legal limit and city's boundary without adherence to certain plans and pattern and endangerment of most fertile agricultural land, especially land in the North and East of the city's suburb. This paper attempts to split and analyze various factors affecting the changes in agricultural and non-agricultural land use in the suburb of Zabol. To test the proposed hypotheses three methods of libraries, survey operations and data processing have been used. Information has been collected through direct interview via questionnaires. The statistical population of 1181 households total samples of suburb of Zabol and its surrounding villages. The aim of this paper is to examine the status of suburb land and suburban in Zabol and its impact on rural areas and to provide guidance to those responsible for policy changes in order to prevent indiscriminate agricultural land, natural resources.

### Keywords

Land use, Suburban, Unlawful Seizure, Zabol city

### 1. Introduction

In recent decades, expansion of urbanization has been the most important topics of debate in the field of land use and lands. Social and environmental consequences of urban sprawl are often one of the problems that gripped urban management, especially in developing countries. This issue has been and is one of the challenges of urban planners especially since the industrial revolution and rapid population growth in urban areas. The subject of horizontal urban sprawl and the integration of agricultural land and the rural areas surrounding represents a competition between urban and agricultural lands and rural areas surrounding the cities. In other words, agricultural land and the rural areas surrounding

the city was the primary purpose of urban development that the consequences of development in this area require encroaching agricultural lands [1]. The issue of land in urbanism rose with the creation of new cities after industrial revolution. Before that the slow growth of cities and the property (feudal) caused the lands around the city of no particular importance. Along with the industrial revolution in countries calling the revolution, nationalization the land issue was brought up. Urban sprawl caused the land around them to suddenly have great demands. And the price of the land that could be bought and sold in the market rose sharply; in order to solve this problem, planners and policymakers presented

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several solutions [2]. Before starting a new urbanization in its modern form in Iran, urban land tenure was under the feudal relations and urban land was not entered the market system. But urbanization sprawl in 1962 decade that comes with the expansion and deepening of the market in Iran, turned ownership of the land around the city and its sales into profitable sales and villages near cities were inevitably became regular in the process of urban development and their farmland were immediately separated and sold. The important thing here is to discuss agricultural production that in the current situation is a strategic issue. While there are no strategies for indiscriminate analysis of this land [3]. Accordingly the aim of this paper is to review the status of Zabol urban land use and its impact on rural areas and provide guidance to those responsible to adopt policy to prevent indiscriminate changes in agricultural land and natural resources.

## 2. Materials

This study tries to split and analyzed various factors affecting the agricultural and non-agricultural land use changes in suburb of Zabol. To test the proposed hypotheses three methods of libraries, survey operations and data processing has been used. Information collected has been through direct interview via questionnaires. The statistical population of 1181 households total samples of suburb of Zabol and its surrounding villages. After completion of the questionnaires and preparation, data obtained for final processing from the questionnaires were analyzed by spss software. In this study, orders in descriptive statistics such as the percentage related to each data, frequency data, data description and for statistical analysis Kai-square was used to determine the relationship between two variables and then to determine the extent of the relationship of Kendall's correlation Taavbi (to determine the correlation between two variables ratings) and Parametric and Nonparametric tests were conducted to test the hypotheses.

### Research hypotheses

In conjunction with identifying factors influencing agriculture and national land use change, (natural resources) and consequently explaining the spatial organization of rural settlements in Zabol suburb and responses to posed questions are provided the

following assumptions: 1-The difference between interest rates on the value of urban land compared to agricultural Landis the factor of agricultural land use change in Zabol suburb. 2-Rural migration and tendency in urban low-income people to urban suburban for economic reasons, has important role compared to other factors in the spread of marginalization and agricultural land use has been changed accordingly.

The overall goal of this research is the effort to achieve solutions for agricultural and non-agricultural lands in Zabol suburb and villages.

Partial goals: 1-Understanding law disorders and legal regulations and policies governing land. 2- Identifying factors influencing land exchanges and prevent unreasonable loss of agricultural land and also determine how land is developed and maintained by observing capabilities fertile lands 3- Recognize the interactions between land use change and urban suburban of rural residents as well as residents of Zabol city. One of the phenomena of modern cities is the lack of clear boundary between urban and rural conditions, which are measured in terms of land-use and community organizations [4]. Geographically the city with its surrounding villages surrounding itself with strong geographical link and whatever leads to economic development, social inequality and geographical areas, it can be found its reflect in the geographical landscape of cities and uneven growth. Irregular urban sprawl is formed particularly after World War II. In general, after this period, there are two types of growth in the urban suburb: 1-Suburb of town: (the margin) is the part of the metropolitan areas that are not dense enough to be called as (Urban). New construction, new commercial buildings and low-density housing, is the cause for urban growth in their areas. 2- Beyond the suburb: Other types of development in rural areas occur far from the city which is located outside the edge of the current urban boundary and often adjacent non-urban areas. Growth in existing developed suburban areas, gradually become segregated land development in rural areas around the city. Thus, there is no clear geographical division between the two types of growth [5]. These two types of growth have different impact on agriculture and the environment. One consequence of this uncontrolled growth is reducing dependency of

cities to the surrounding rural areas; now day's cities are not dependent only on rural areas to meet their needs. This lack of needs and its reduction on one hand and physical and urban development over time and the need for new space to meet the needs on the other side has led urban areas in recent decades become oblivious to the surrounding villages and make these settlements supply their physical development needs in future. In fact nowadays agriculture and urbanization have been considered two opposite phenomenon [5].

A brief introduction of the study area:

Zabol city is located in the northern part of the Sistan and Baluchestan Province and Sistan plain with an area of 8 square kilometers, which is fertile areas of the province, is located in this city. Zabol city from the North, East & South East is adjacent with Afghanistan and Sistan plain is shown as a precursor of Iran's in Afghanistan. Generally, the city of Zabol consists of smooth lands that in all its area the height difference barely exceeds 900 m and the most important mountain is mount Khaju that is located in Zabol plains. Zabol city is located in hot and dry climate and the average yearly temperature reaches about 21.8 degrees Centigrade. Rain fall survey in the area over a 25 years period shows that the average yearly rainfall is approximately 7.58 mm and during high rainfall it reaches 8.122 mm. The Hirmand River is the main source of water supply in Sistan region that Narui-town section, PoshtAb and ShibAb, the area of Sistan plain that is the main territory of population concentration and activities of the city's territory. The river is now arid due to drought and lack of rainfall in the upstream basins. In the wet period, the annual rate of 78 cubic meters per second, or 2,454 million cubic meters per year. Statistical analysis shows that in each period of ten years, this plain faced with drought and these periodic droughts has put Zabol city's population living in at risk of serious injury and the great changes of population. Hence, the economic life of the inhabitants of Sistan plain is heavily dependent on the state of the Hirmand River [7].

**Table 1.** Population changes during the years 1936 to 2006 in Zabol

Year	Households	Population	Rate of Growth
1966	2636	12221	_____
1976	3720	18806	4.40

1986	5846	29404	4.57
1996	13736	75105	9.38
2001	17887	100887	3
2006	27995	136956	4.57

Evaluation of droughts in recent decades and its impact on informal settlements

One of the causes of irregular migration in recent years is consecutive drought in the Sistan and Baluchistan province. Droughts have severe social, economic impacts. Province due to being the dry zone of the world in and also staying away from humid places is faced with low rainfall, dehydration and growing population. Limited water resources as a mainstream agricultural production has put water shortage issue very serious for the province. Statistics indicate that the amount of water per capita has been declining steadily so that over the last 40 years more than 7,000 cubic meters per capita water use has been reduced to 2,000 cubic meters. On the other hand, in addition to the lack of atmospheric fallout, it is also faced with poor temporal and spatial distribution of rainfall, which adds to the complexity of the issue. Rainfall over the past several years has brought irreparable damage to the province so that according to accomplished estimation; the loss during 77 till 82 years is amounted more than 13,372 billion rails. Continuing drought and water shortages will appear when the current trend of reduction in water levels and deficit intensified Tank (perceptions of indiscriminate and continued droughts) and finally, the ground water storage due to land subsidence and compressible layer was encountered with serious risk. Statistical analysis of sampled census households in Zabol suburb showed that over the past few years 4/5 per cent of the samples are the migrant villagers that due to recent droughts in South Khorasan and Sistan and Baluchestan Province in particular have moved to suburb of Zabol. Adverse consequences of drought and low rainfall were put agricultural province at risk of serious injury. Agricultural problems and bottlenecks in Zabol .Zabol agricultural problems and bottlenecks can be divided into two groups. The first group: outside the system related to the problems and constraints that are outside of the agricultural sector. The second group: issues

within the system that is specific to the local farmers.

Problems in agricultural pricing system

- 1-Mismatch between the prices of agricultural products, including products that are subjected to purchase guarantee law and a non-taxable product.
- 2-Limitation of state financial resourced in the purchase of guaranteed products and policy issues in this area, particularly in the politics of Consumer Protection.
- 3- Severe price fluctuations as a result of the untimely importation and distribution, especially at harvest time.
- 4-Lack of effective participation of farmers in priced.
- 5-Lack of appropriate tariffs on imported of agricultural product that makes domestic production especially strategic products, in comparison more economic [8].

### 3. Results

The results of this study indicate that the portion of agricultural land is under construction and non-agricultural use, almost permanently removed from agricultural use. This refers to too much reliance on the part of natural and environment factors, instability of these factors, reduction of income elasticity of demand towards food and the long rate of return on investment and etc. So as long as the structural problems of the agricultural sector does not solve, it could not be hoped that in this competition between agricultural land use and agricultural industrial and service land use, agricultural land offered their cost effectiveness as a commodity infield in the marketplace. The best agricultural lands are irrigated lands that often located near towns and villages consistently and readily available. In other words, these lands are not only closer to frequented and equipped areas, but also generally land irrigated acreage due to the gentle slope towards dry land and pasture may have lower construction costs and also have access to water supplies for residential. If you look at land use from an economic standpoint, a specific unit of land compared with one unit in the industrial and service uses, does not have reasonable economic returns defined in the economic relations of capitalism and the market economy. Whatever these lands are closer to the city, this rationality is marked most advantageous to the destroyed

economic relations in a market economy and from this perspective a strong stimulus for transformation and use change is provided. The central factor in this change and conversion of market rationality and commodification of land lies in capitalist relations. So the rotation axis for profitable agriculture should be applied to solve its structural problems. Moreover, regardless of the type of research approach towards agricultural development model, environmental resource conservation as cornerstone of durability of sustainable human settlements is considered prior to any kind of human activity. Research shows that agriculture in many indices has special privileges relative to the housing sector, industry and services but due to the personalization views and disregarding of this sector its profitability gradually declined and turning toward the other parts. Some of these points are mentioned below:

- 1- Sector of Agriculture provides food for 70 million people in Iran.
- 2-Independence of the sector on oil revenues
- 3-Late and former economic ties with the industry and services sectors
- 4-Agriculture's role in foreign currency savings
- 5-The high efficiency of the production scale; the development costs are lower than output growth, but are less in scales of the other sectors.

So according to this section points, considering those problems that have been largely excluded from agricultural systems, seems to be necessary.

Testing hypotheses

Hypothesis 1: The first hypothesis refers to the difference in interest rates obtained from residential land value as compared to agricultural land that has involved as an important factor in the use changes. To test this hypothesis in the study area, first by using farmer household questionnaire in the scope of research, particularly in the critical area and then by computing the net income per acres of agricultural land in comparison with residential land, the following results were attained: 1-The resulting value of residential land per square meter on average in Zabol suburb compared to farmland (garden-farming) is about 2.8 times. Thus it is observed that despite the restraining laws Such as prohibiting agricultural land use changes law and etc. Due to the difference in price and the value of the land in two different uses, farmers are more amenable to

change their farming lands use and separate them into small pieces to build more housing. 2- Other indices examined the net income per hectare of agricultural land within the law and shielding (layer) and are also areas under the control of the municipality of Zibo suburb. The results show that the per capita net income derived from agricultural acres in the legal limit for beneficiary households in the growing season 83\_82 is around 3,714,997 Rials and in shielding around 7,066,843 rials. These figures indicate a total destitution governing family farmers living in the area under investigation. Thus when the owner of farm does not achieved the expected income from agriculture in the suburb, despite the interests and dependency to the land, will proceed to segment and sell their land. Therefore the results of the study shows that this economic principle; the added value and profits are predominated in these areas and subsequently a significant difference between the two types of uses caused extensive agricultural land use change is the suburb of Zabol. In this regard, with a detailed survey with the conducted results the first hypothesis was confirmed.

Second hypothesis: the second hypothesis refers to housing rural immigrants and urban low-income in the suburb of Zabol for economic reasons and effects of land use changes. Inquiry results from the 1181 households sample in the border town of Zabol suggest that 64% of the residents of the suburban villages of Zabol, 14% of Afghan refugees have migrated to the suburbs and 9 percent were low income people in Zabol that Gradually have been driven out from the inner city to the suburb of the city. In the study of the causes of migration 5/50% of the heads of households sample have mentioned unemployment and 14 percent of low-income farm the reason to migrate. The results also indicate that 9.7% of these groups have resorted to the suburbs due to the cheapness of land on urban suburbs and lack of supervision controlling organization on construction and obtaining building permits and observations on technical principles housing and ultimately reduce the cost of building. Other investigations taken on the income status of immigrants living on the suburbs show that about 60% of the total sample households are placed in the second and third income deciles and in contrast to the typical household income deciles of sample of province

rural households, neighboring provinces and cities of the province are located at the very low level. So according to statistical analysis in the software programs PSs, this hypothesis is also demonstrated.

#### 4. Conclusion

Important factors use changes in the suburb of Zabol has been increased growth migrations a result of the growth of unemployment and low farm income over the past few decades that leads to widespread marginalization and formation of nuclei and spontaneous and informal settlements around the city of Zabol. Consequently, this group of immigrants to settle, and access to living space, have targeted agricultural and non-agricultural land in the suburbs of the town that monitoring are less. In addition to the differences in value added rates between agriculture and other sectors, particularly housing and land showed that how the economy in suburb area of Zabol have driven towards a one-dimensional land economy, that the change of ownership is an important factor to be considered. Another factor seemed important at the start of the study in use change is the function and role of government and non-government organizations that showed how far the organization has been effective with their performance on the use changes. Some organizations such as the Housing and urbanism (Urban Land) as a result of cross-advised policies; in addition to being conducive to the growth of immigration, it has also fueled to the changes of land use processes in margins of Zabol and inappropriate expansion of the city. Therefore, this study tries to evaluate all factors ranging from large and small that has been somehow effective on use changes. Finally, the proposed strategies have been discussed in the suburban lands of Zabol. The main conclusion of this study was the fact that to what extent uncertainty of national macro policies can affect the growth of immigration and marginalization, and secondly to what extent inconsistencies in the management of urban and custodians and different ownership with inconsistent incentives and legal weakness and



inconsistent rules can affect these changes. So considering the above, I directed the attention of all the authorities involved to solve the problem of land and building to this issue. Then with integration of urban management, reform of laws, establish land banks and coordination between government agencies and non-governmental organizations to solve this problem that afflicts not only the city of Zabol but also all large cities.

#### Guidelines

The ultimate goal is the land use changes and their impacts on the village's outskirts in Zabol that can be offered solutions for these incremental and UN programmed changes. For this purpose the research was conducted in three phases as follows:

1-Understanding the type and amount of use change, farm lands and etc. in the border town of Zabol at desired time scales

2-Identify factors affecting the change of applications ranging from marginalization, governmental and non-governmental organizations and etc.

3-Proposed desired uses in order to control use change and efficient use of water resources, soil, human and etc.

These goals have been developed to meet the objectives of sustainable development. Having considered the above factors, regardless of the views of the author towards the pattern of development, the protection of environmental resources as the foundation of durability of sustainable human settlements, which is precedence over any human activity. Therefore at first step it is considered the process of developing research based on sustainable development. Since the expansion of urban land uses competitors including agriculture and environment, it means the lands which dedicates to urban, industrial and service uses has economic efficiency and a higher return rate capital. Certainly, it deemed to be the only principle of the protection of sensitive and valuable natural resources which can reasonably take measures to protect them in the unfair and unreasonable competitive market economy. In particular, it should be emphasized due to the nature of the job market, it is not rational that precious natural

resources that have emerged during the long process of the Earth's surface and replacement and creating it is almost impossible and there are no options to take place, entrusted to the competitive functionality market and invisible hands. Due to the nature of different factors on agricultural land use change on the suburb of Zabol that will be followed with different consequences, it was investigated from three different dimensions and based on them different strategies have been proposed about the nature of Zabol features.

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