Assessing the Quality and Quantity of Housing in the City of Asadabad after the Islamic Revolution of Iran

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ABSTRACT: House indexes are considered to be most important tools in house planning, by studying them, effective parameters can be recognized in house affair and every kind of planning and making decision become easier. In this research quantitative and qualitative indexes are studied after Islamic revolution in Asadabad city in order to make clear the general position of house in aforesaid city. The present findings show that quantitative and qualitative indexes have been improved after revolution in comparison with previous decades. But regarding standard measures they are not comparable with other developing regions of country in the years after Islamic revolution. Quantitative and qualitative trends of making house haven’t been covered special course. Applications have not been answered appropriately in some areas. Quantitative and qualitative, lack of house requires deliberation. In this research quantitative and qualitative situation of house are examined and evaluated in Asadabad city especially in the years after revolution. By god’s will I hope to present appropriate technique to improve situation in this part. I hope to help managers, programmers to use this research.

Key words: Settlement, House indexes, Asadabad city, quantitative and qualitative house.

Statement of Problem
Housing is one of the most pressing issues in developing countries. The lack of adequate resources, poor economic management, lack of a comprehensive plan for housing and other defects in the economic infrastructure of these countries on the one hand, and the rapid increase in urban population on the other hand, as well as the fall of housing in the trap of housing dealers and abusers of the national economy, modified housing supply in this countries to a complex and multi-dimensional form.

Asadabad city is including the cities of Iran that faces the problem of housing supply because of it’s grew in population and demand for housing in line with the increase of prices in this area. The problem of finding a house is gradually the problem of families in this city and specially the people with low incomes.

Like many cities in the last decades, Asadabad has hosted a large number of rural migrants who left their villages in hope of a better life and are living in this city. The migration process has been accelerated, especially after the Islamic Revolution. In the meantime, the process of the migrations and natural growth of the population, the need to provide affordable housing to meet the demand in this sector has been made tangible. The expansion of the city and its historical study indicates both quantitatively and qualitatively mismatch of residential constructions of Asadabad with the common standards in this field.

In this study, we examined the qualitative and quantitative aspects of housing after the Islamic Revolution and we offer solutions for improvement.

Research Questions
Is the amount of construction and distribution of the houses in Asadabad equal to the demand of this sector?

Who is the quality of the constructed houses after the Islamic revolution of Iran and is it improved?

Research Hypothesis
The construction of housing and its distribution after the Islamic Revolution did not respond to the needs of Asadabad.
Quality of housing construction after the Islamic Revolution in Asadabad, in comparison to previous years, has enhanced but it is still far from the desired point.

**Objectives of Research**

In addition to new and innovative aspects of this research, it has important practical purposes and the most important ones are mentioned below:

- Qualitative and quantitative assessment of the state of housing after the Islamic Revolution in Asadabad and identify strengths and shortcomings in this field.
- Assessment of housing construction in different historical periods of Asadabad, in accordance with the cyclical development of the city; also, assessment of quality of built houses with the standards in this section.
- Evaluate Asadabad city based on the most important factors of housing and urban sustainability indicators.
- To provide the most appropriate strategies to achieve the desired future of housing in Asadabad city.

**METHOD OF RESEARCH**

Method of research in this study is a combination of causal, field and descriptive methods with a practical approach and comparative study. Initially, the study introduces the concepts and theoretical principles outlined in the evaluation of the quality and quantity of housing construction in the world and Iran, to identify the intellectual framework of this study. Then, the statistics and data of the research will be collected based on field observation, questionnaires, and statistical yearbooks and thematic archives of organizations involved in the issue such as Road and Planning Organization, Construction Engineering Organization, Municipality, Governor, etc. Then the data and statistics are classified and sorted, and using specialized software, such as EXCEL, SPSS, GIS, the defined parameters of housing area are measured in the study scope and finally, a comparison of the different neighborhoods of the city of Asadabad based on the type of housing and its dispersion will be performed. The analysis of data on maps, tables and graphs of the city's housing will assess the desirability residential places. After that, the most important solution to improve housing conditions in the city of Asadabad will be suggested.

**Testing Hypotheses**

**The First Hypothesis**

As it is mentioned in the first section of this paper, the main hypothesis of research is: “The construction of housing and its distribution after the Islamic Revolution did not respond to the needs of Asadabad”.

To prove this hypothesis we should answer the questions mentioned below:

- The current total population of the city of Asadabad
- The total number of households in the city of Asadabad
- The size of families who currently are living in Asadabad
- The total number of tenants in Asadabad
- Total number of existing houses built before the Islamic Revolution (houses with more than 35 years old)
- The amount of housing construction since the Islamic Revolution in Asadabad
- Total number of residential units in the city of Asadabad
- Household density of residential units in the city of Asadabad

**The Answer to the Questions**

In this section, we discuss and answer the above questions to check first hypothesis, according to research findings:

**The Current Total Population of the City of Asadabad**

According to the latest census conducted in 2011, Asadabad city's population increased more than 3,000 people in compare to 2006 and it reached to 55,024 people. It is the fourth most populous city in the Hamedan province. Also based on the rate of growth of population and the author studies, the present population of the city of Asadabad (2012) is increased to 56,481 people. (Table 1)

**The Total Number of Households in the City of Asadabad**

Based on the findings of the census of 2011 the total number of households in the city of Asadabad is 15,164 households (Table 2). Also in the year if this study (2013) the number of households in the city reached to 15,602 households. (Table 2)
The size of families who currently are living in Asadabad

Family size in the city of Asadabad in the years after the Islamic Revelation always has the decrease trend and based on the results of the census of 2013 it is 3.6 people in each family. (Figure 1)

The Total Number of Tenants in Asadabad

Based on the researches of the author, almost 22% of the households in Asadabad are living in rental houses.

Total Number of Existing Houses Built before the Islamic Revolution (houses with more than 35 years old)

Based on current research findings, 18% of housing units in Asadabad are dating back to more than 35 years old and goes back to before the Islamic Revolution (Table 4-11). In other words, 2449 residential settlements of this city have been built before the Islamic Revolution of Iran.

The Amount of Housing Construction since the Islamic Revolution in Asadabad

According to the results obtained from Table 4-11, 82 percent of the total housing units in the city of Asadabad, are built after the Islamic Revolution (since 1978). In other words, among the residential units of the city of Asadabad, 11,155 are constructed after the Islamic Revolution.

Total Number of Residential Units in the City of Asadabad

According to studies, a total of 13,604 housing units have been existed in the city in 2013.

Household Density of Residential Units in the city of Asadabad

Based on the findings of this study, the household density of residential units in the city of Asadabad is 1.14. This means that for every 100 housing units, there is 114 the family out there.

Confirming the First Hypothesis

Based on the findings of this research, for 15,602 households in Asadabad, there are only 13,604 housing units and density of households in the housing unit is 1.14. Since the optimal value is one housing unit per household, therefore it can be concluded that the construction of residential units in Asadabad city cannot respond to the current needs. On the other hand (in accordance with paragraph 10 above) distribution of these constructions is not equal to the number of households in the city. First hypothesis is well established on this basis. Another reason to prove the first hypothesis is the fact that 22% of the residences of this city are tenants.

Table 1. Assessment of the Number of Houses in city of Asadabad in Compare with the Households of the City

<table>
<thead>
<tr>
<th>Units Of housing units to households</th>
<th>Residential Units</th>
<th>Density single family residential</th>
<th>Family</th>
<th>Population</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>-522</td>
<td>3069</td>
<td>117</td>
<td>3591</td>
<td>13000</td>
<td>Strand 1</td>
</tr>
<tr>
<td>-319</td>
<td>1772</td>
<td>118</td>
<td>2091</td>
<td>7569</td>
<td>Strand 2</td>
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<tr>
<td>-243</td>
<td>2430</td>
<td>110</td>
<td>2673</td>
<td>9678</td>
<td>Strand 2</td>
</tr>
<tr>
<td>-468</td>
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<td>13000</td>
<td>Strand 2</td>
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<tr>
<td>-250</td>
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<td>117</td>
<td>1722</td>
<td>6234</td>
<td>Strand 2</td>
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<td>1000</td>
<td>Strand 2</td>
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<tr>
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<td>13604</td>
<td>114</td>
<td>15601</td>
<td>56481</td>
<td>Strand 2</td>
</tr>
</tbody>
</table>

The Second Hypothesis

The 2nd research hypothesis is: “Quality of housing construction after the Islamic Revolution in Asadabad, in comparison to previous years, has enhanced but it is still far from the desired point”. To prove this hypothesis we should answer the following questions:

What are the indicators for assessment of quality of housing units in Asadabad?
What is the percentage of buildings with durable materials?
What is the percentage of buildings with semi-durable materials?
What is the percentage of housing units with flimsy materials?
What is the proportion of new buildings and relatively new ones to the old buildings of the city?
What is the frequency of Asadabad city residential area?
What is the density of the number of people in the room and the average number of rooms per residential unit?
Who much is the rate of housing facilities in the residential units of Asadabad city?
In this section, we discuss and answer the above questions to check first hypothesis, according to research findings:

**Figure 1. The shortage of housing units to households**

**What are the indicators for assessment of quality of housing units in Asadabad?**
In this study, to assess the quantity and quality of housing units, we used the following parameters:
- Index of building floors (building with 1 floor, 2 floors and so on)
- Index of materials used in construction (durable materials, endurable materials, etc.)
- Life of buildings (new buildings and relatively new ones and so on)
- Area of residential units (less than 80 m, 81 to 150 and so on)
- Facilities of residential units (7 indicators of water, electricity, gas and so on)
- Method of possession (purchased, rental and so on)
- Number of rooms available for family (1 bedroom, 2 bedroom, etc)
- Method of waste disposal of residential units (public sewage network, absorption wells and so on)
- Density of households in housing units (1 family, 2 family and so on)

**What is the percentage of buildings with durable materials?**
- Durable materials are including steel and reinforced concrete. Based on studies it is used in 32 percent of all residential buildings in the city of Asadabad. Of this amount, 20% is steel and about 12 % is reinforced concrete.

**What is the percentage of buildings with semi-durable materials?**
- Semi-durable materials are including brick buildings (brick structure with a beam roof, no steel in the body). The resistance and static of these buildings are weaker than steel and reinforced concrete structures but they are much stronger than joists block and mud brick buildings. Most of the houses in Asadabad are constructed with this type of material 43 percent of the city's housing units are in this type.

**What is the percentage of housing units with flimsy materials?**
- In this study, the materials for housing units with mud brick and beam building block are considered as a symbol of the endurable materials. According to statistics, 25 percent of settlements are from these types of materials.

**What is the proportion of new buildings and relatively new ones to the old buildings of the city?**
- According to studies, 54 percent buildings are of new or relatively new constructions with less than 20 years old. On the other hand, the share of old and relatively old buildings in the city is 46 percent. The buildings are the construction with over 20 years old. Of this amount, 17.5 percent of residential units of the city are dating back to before the Islamic Revolution of Iran.
What is the frequency of Asadabad city residential area?

Based on the results of this study, the most frequent buildings of the city based on their area are the group of residential units with the area equal to 81 to 150 Sq.m with 44%. The 2nd place goes to less than 80 Sq.m with 30% of the houses of the city. In addition, 16% of the residential units are of the units between 151 to 200 Sq.m and only 10 percent have more than 200 Sq.m area.

What is the density of the number of people in the room and the average number of rooms per residential unit?

The density of people in room had a decrease trend after the Islamic Revelation and it reached to 1.7 in 1996 from 1.76 in 1986 and in 2006 it decreased to 1.47. This indicates the improvement of housing conditions in the city based on the mentioned index. In addition, 48 percent of the houses of city have 2 bedrooms and 29 percent have one bedroom while 23 percent have 3 bedrooms and more.

Who much is the rate of housing facilities in the residential units of Asadabad city?

Based on the findings of this research, the houses of city had access to the facilities as follows: 99% have piped water, 99% have access to power, 97% have urban gas, 88% have telecommunication line in their house, 80% have kitchen in their homes, 91% have bathrooms, 99% have hygienic toilet. In addition, the present of the mean of having access to all of these facilities is 93%.

Prove the Second Hypothesis: None of the remaining houses from before the Islamic Revolution of Iran in Asadabad are used durable materials such as steel or reinforced concrete, and they are often in the form of mud brick or brick. Based on the results of this study, the buildings that are constructed currently shall receive the construction license form municipality, in addition, the buildings that are planned to use state’s funds such as Mehr Housing Plan or Old Constructions Plans, are obliged to observe the Construction Safety regulations and they shall use standard materials, but this legal obligation was not existed before. This leads to an improvement in the constructions of Asadabad in compare with the past. As it can be concluded from the results of this study, the total status of Asadabad, based on qualitative indexes, is improved after Islamic Revolution and we can prove this claim with below reports:

- Increasing in the number of durable and semi-durable building materials in compare with the less durable materials to 75 percent, while none of the remaining houses of pre-revolutionary era had used the durable materials;
- Declining trend of density of people in rooms after the Islamic Revolution;
- The increase of development of residential units based on their facilities such as piped water, power, urban gas, telecommunication line and so on
- 82 percent of the buildings are constructed after the Islamic Revolution while only 18 of the buildings are constructed before then.

But still 25% of the residences of Asadabad are living in the houses with less durable materials and 168 Acers of confirmed old constructions of this city shows that we are still far from the desired place and the development and improvement plans in the old textures of the city and the marginal and less developed area shall be followed seriously. Therefore, the 2nd research hypothesis is conformed confidently.

Table 2. the portion and rate of different parts of city of Asadabad in the positive indexes of residential units

<table>
<thead>
<tr>
<th>Rank</th>
<th>Average</th>
<th>The sewage network in the city</th>
<th>Share buildings with area of 200 m</th>
<th>Total facilities and housing</th>
<th>The share of new buildings</th>
<th>Contribution to sustainable buildings</th>
<th>Domain name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>33</td>
<td>8</td>
<td>3</td>
<td>91</td>
<td>33</td>
<td>30</td>
<td>Strand 1</td>
</tr>
<tr>
<td>6</td>
<td>28</td>
<td>13</td>
<td>4</td>
<td>90</td>
<td>19</td>
<td>13</td>
<td>Strand 2</td>
</tr>
<tr>
<td>1</td>
<td>54</td>
<td>68</td>
<td>11</td>
<td>97</td>
<td>38</td>
<td>56</td>
<td>Strand 3</td>
</tr>
<tr>
<td>4</td>
<td>46</td>
<td>64</td>
<td>13</td>
<td>95</td>
<td>19</td>
<td>39</td>
<td>Strand 4</td>
</tr>
<tr>
<td>2</td>
<td>28</td>
<td>16</td>
<td>3</td>
<td>88</td>
<td>15</td>
<td>16</td>
<td>Strand 5</td>
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<tr>
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<td>64</td>
<td>20</td>
<td>97</td>
<td>26</td>
<td>37</td>
<td>Strand 6</td>
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<tr>
<td>3</td>
<td>47</td>
<td>37</td>
<td>19</td>
<td>95</td>
<td>47</td>
<td>35</td>
<td>Strand 7</td>
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<tr>
<td>-</td>
<td>41</td>
<td>39</td>
<td>10</td>
<td>93</td>
<td>28</td>
<td>32</td>
<td>Strand</td>
</tr>
</tbody>
</table>
CONCLUSION

We discussed the separation method of the districts based on the multi parameters and indexes. In addition, the positive indexes are already mentioned. Here, in prevention of redundant subjects, we do not discuss it. The positive indicators can show neighborhoods condition better, due to compression of the standard and positive components.

From the entire 5 positive indicators including the housing units with durable materials, the percentage of buildings under 10 years of construction (new), the percentage of separated units with more than 200 square meters of area, the percentage of housing units that use the public network of sewage and the average of having access to 7 facilities in the residential units, it was determined that contribution of each one of the 7-areas of research in Asadabad in terms of housing quality indicators are not the same. Some of the areas are much richer and some others are not developed. In this regard the 3\textsuperscript{rd} area is located in the top place and 1, 2 and 5 areas are less developed than other areas.

If we are going to talk based on the neighborhood, Syed Ahmed Town is more developed than the other neighborhoods of the city based on housing values and the neighborhoods such as Mahmoud Beigi, Behind the Hospital and Khakriz that are marginal neighborhoods are in really poor condition.

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