STUDY OF THE RANDOM AREAS OF THE CITY OF NAJAF DURING TEN YEARS (2003-2013) BY GEOGRAPHIC INFORMATION SYSTEMS (G.I.S)

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Abstract

The phenomenon of unplanned housing (Slums) is a global phenomenon that has spread widely in all third world countries, especially countries that are in difficult conditions due to natural disasters or wars. This research aims at highlighting on this population problem in Iraq, which was emerged since year 2003 and spread in all cities of the country. The phenomenon had led to the distortion of most Iraqi cities, especially in the province of Najaf. In this study, Najaf slums were studied regarding their locations, development, and distribution, and were compared to condition in year 2003 by ArcMap10.2. The study showed that the lack of state authority on the land as well as the weakness of the laws and regulations in the country this problem.

Key Words: Geographic Information Systems (G.I.S), phenomenon, population

Introduction

The slum area is an unorganized residential area that is often built without a permit and may lack the most basic elements of a decent life [1].In the absence of the laws of urban planning, slums produced many economic, social, cultural and security problems.

The economic changes in most countries of the world have led to a radical change in the nature of workamong population. The interest in the agricultural sector has reduced because of the development of machine and industrial means. This resulted in a migration to urban areas and imbalance in economic systems and their relationship with population densities[2].

Slums started in Iraq in many cities, especially Baghdad and Najafsince the fifties of the last century.

Random housing has a negative impact, which is described as a "time bomb" that includes "all the negative and low social and moral patterns of society that are deprived of care and their rights to food, drink, housing, education and health.[3]

Research problem

The growth rate of slums in the City of Najaf was very large especially after year 2003. Because it is a holy city and visited by millions of visitors during the year, providing job opportunities for displaced families of the city was a magnet for many residents from other Iraq's cities.[7]

The first wave of migration to the city was in the early 1980sin the last century due to the Iran-Iraq war. The second wave was during the 1990s because of the sanctions and harsh economic conditions. The third wave was beginning after year 2003 due to relative security condition compared too their country's cities. The fourth wave occurred in year 2014 by refugees from north of the county during war against ISIS.[10][11]

There is also migration within the province from the countryside to the city as the city enjoys better services such as roads, water and sewage.

Location of the city of Najaf

The city of Najaf locate south-west of the capital Baghdad, 160 km, the center of the province of Najaf with a population of 1,221,248 people according to the statistics of 2011, the fifth city of Iraq's cities in terms of population. It is one of the major tourist cities in Iraq especially in religious events. The area of Najaf is 864 square kilometers, but the coordinates of the city are 32 ° 01'44 "N 44 ° 20'23" E. Figure 1 shows the location of the province in Iraq map.[7][9]
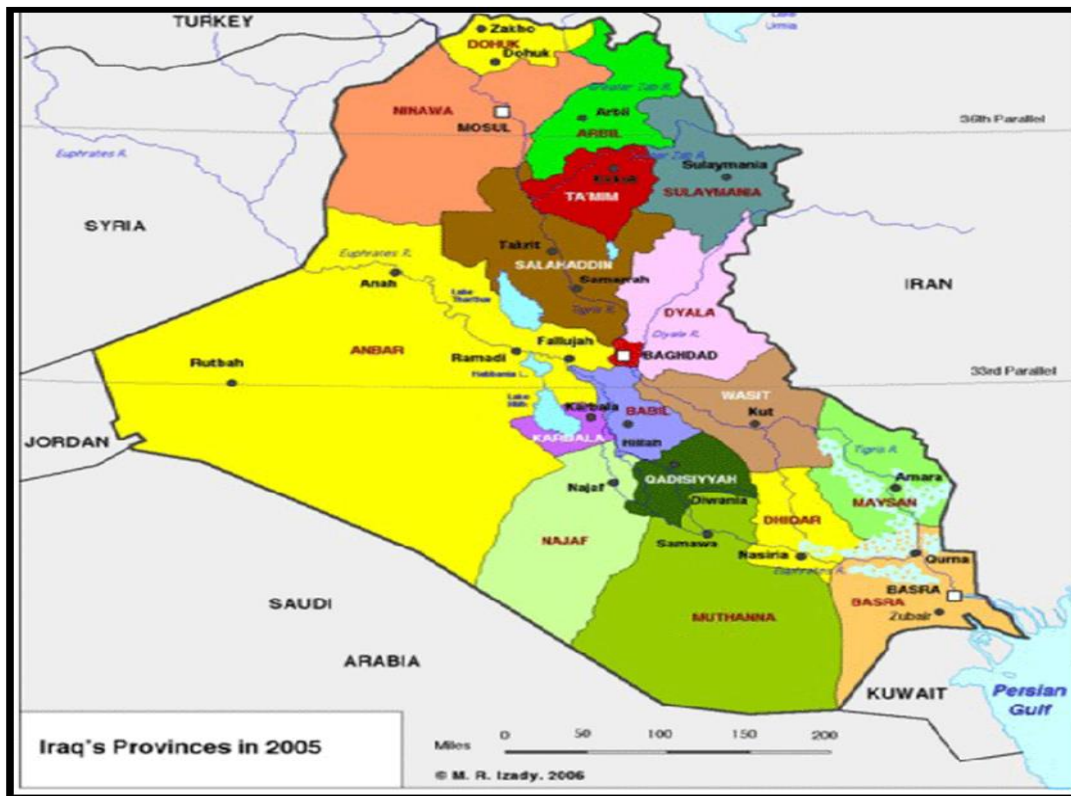

Figure 1. Iraq's administrative map

Aim of Research:

The research aims to investigate expanded slums during the period between 2003 and 2013,to calculate slum's growth rate during this period, and to recommend solutions.

Research Methodology:

The research was based on the changes that took place on the urban plan and the expansion of the slums during the ten years from 2003 to 2013 through raster and comparison of the raster over a different period of time and their analysis using the GIS program. Satellite images for the two years were adopted and compared.[2][3][4]

In addition, slums sites were selected and visited. During sites visiting, interviews with residents and questionnaires were conducted. Data from the State departments, Najaf Municipality, Urban planning, housing Department, and council of governorate were obtained. Examples of these data are number of houses, population living in these slums, services provided by the State to the settlements such as schools and medical centers.

The satellite image of the study area was accurately 0.5 meters and clearly 1 meter. We used ArcMap10.2 where we analyzed these images, extracted the areas of those slums in 2003, and compared them with other visuals with the same accuracy and clarity but for 2013 and calculating the expansion that took place in the slums, Note that most of them were not present in 2003.[6][7][12]

Note that many of these slums did not exist in 2003, but grew after this date and grew and greatly inflated and has become very difficult to be removed and raise the excess on the territory of the state because of the magnitude of the human mass that inhabit these slums.[4][5][13][16]

Results

Slums in the city of Najaf

Slum of Al-Rahma quarter

Al-Rahma quarter is considered one of the largest slums in the city. Area of Al-Rahma random quarter is 3,039,646 m2. The number of residential units is 3,700 by 2010, witha Population of 65,000. It is located in a strategic location that mediates the basic design of the city, and the land on which it is built is one of the most expensive lands in the province due to its proximity to the city center as shown in Figure 2.[9][10][11]
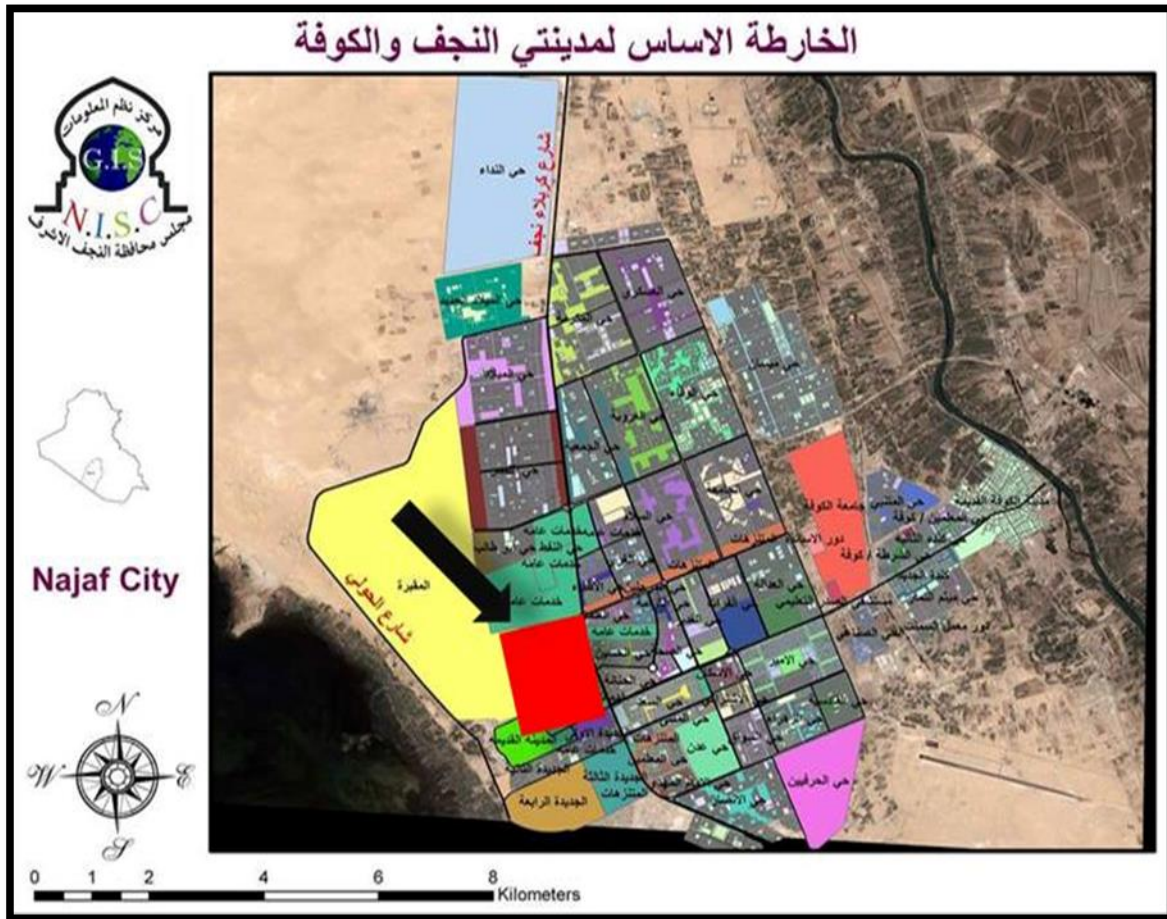
Figure 2. Al-Rahma quarter in center of the city

Al-Rahma area is a new neighborhood, where displaced residents from other governorates in search of safety. Area of Al-Rahma previously dedicated for Commercial investment where this area is located near the city center.

Al-Rahma neighborhood was constructed in 2004, as shown in the satellite image back to year 2003, where no traces of housing, slums or any accommodation of any kind, as shown in Figure 3.[8]

Figure 4 shows the dense construction in year 2013in the same area that was previously empty in 2003, a semi-complete picture of this randomized in current size.[8]
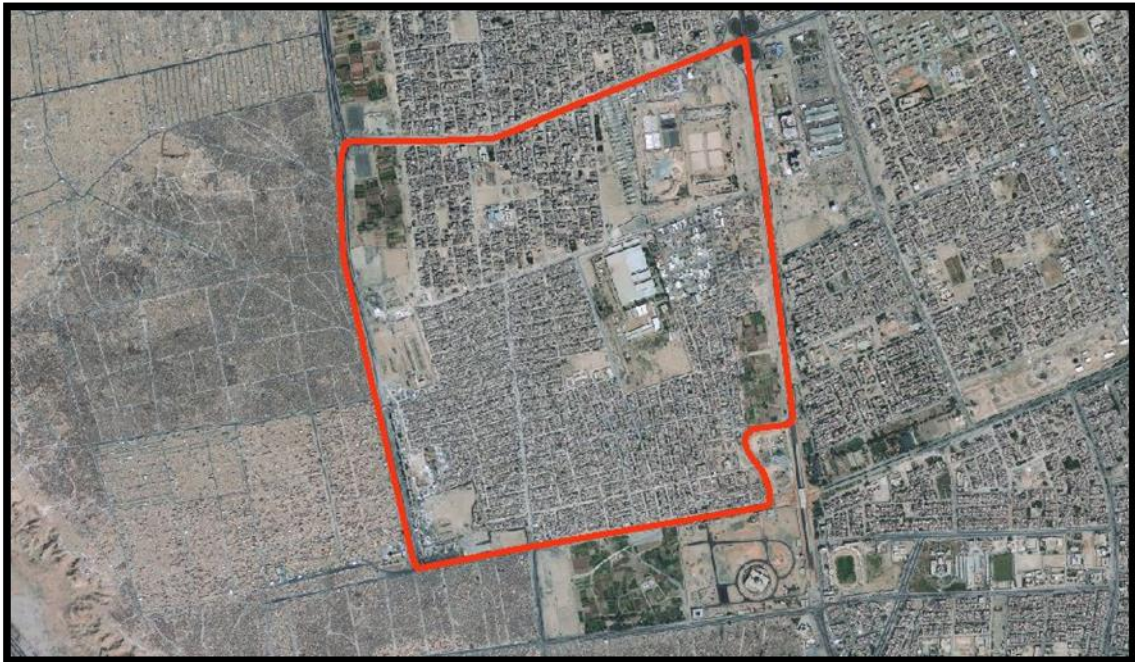
Figure 3. Al-Rahma area in year 2003

Figure 4. Al-Rahma area in year 2013

Figure 5. Adjacent quarter to Al-Rahma

The population gathered in Al-Rahma area as a result of:

1-   Migration from the countryside to the city or migration from other provinces to the province of Najaf.

2-   Not being able to pay the high wages of housing and resort to overtaking.

3-   Closeness to the center of the city and considered a strategic location and good housing for these families.

4-   There is a turnout by the residents of this neighborhood for the sale, purchase and rent of the residential role in it.[9][10][11]

The most important features of this slum:

1-   The establishment of Al-Rahma in 2004, after one year of the occupation of Iraq.[11]

2-   Al Rahma district consists of seven sectors each sector consists of two areas only sector 6 consists of three areas as shown in Figure 6.[8]

3-   Contains two primary schools, one for boys and the other for girls and a health center,as shown in Figure7. The school open three shafts a day.[8]

4-   Contains seven sectors and each sector contains 830 residential units.[9][10][11]

5-   Each residential unit contains between 1 to 3 families.[9][10][11]

6-   The residential unit area ranges between 50 to 200 m2, and mostly 120 m2.[9][10][11]

7-   Building materials consist of block, cement, plaster, and sheet metal.[9]

8-   Distribution of services as a strip in a street of 20 m width, which separating the areas of one sector.[9][10][11]
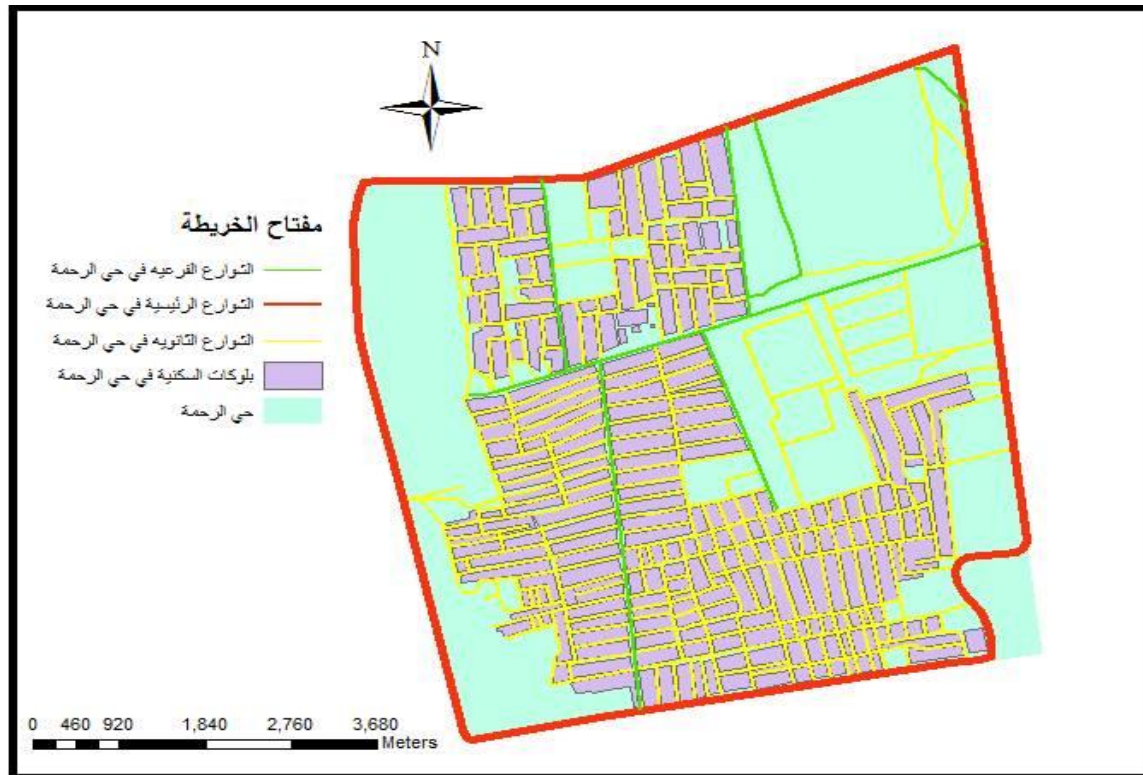
9-   Lack of infrastructure.[9]

Figure 6. Al-Rahma area maps

Photos showing girls schools in Al-Rahma neighborhood

Figure 7. Primary schools in Al-Rahma quarter

Other features of this slum are the lack of good housing or habitable, schools sufficient for the population as well as does not contain intermediate or secondary schools, large market fills the need of the inhabitants, health centers and medicine supplies, green areas or playgrounds for children, and sufficient municipal services such as solid waste collection, water, sewage, and electricity.[10][14]

Also there is no security service in the area. Residents of the area have contributed to the formation of night guards to protect people in return for a certain wage but have not limited the cases of theft. Figures 8, 9, and 10 shows more images of the area.[9][15]

Figure 8. Multiple images of Al-Rahma residential area

Figure 9. Multiple images of Al-Rahma market area

Figure 10. Multiple images of Al-Rahma health center

Second: Al-Askari Random houses.

Figures 11 and 12 show Al-Askari area before (year 2003) and after (year 2013) slum's emergence, respectively. Field study and collection of information on this area shows the following:

1- Emergence of these slums was after 2003.[9][10][11]

2- Population of this area equal to 26400.[9][10][11]

3- Total number of units equal to 4400.[9][10][11]

- Number of units inhabited by one family = 2200 housing units.[9][10][11]

- Number of units inhabited by two families = 1540 housing units.[9][10][11]

- Number of units inhabited by three families = 440 housing units.[9][10][11]

- Number of units inhabited by four families = 220 housing units.[9][10][11]

The most important features of this random:

1- The average area of the plot is 100 m2 and the average building of 85 m2.[9][11]

2- Average number of rooms in each unit was two.[9][11]

3- Most units have one floor.[9]

4-   Most units are 10 years old or less.[9][11]

5-   Most of the building materials are the block and the structural condition is poor.[9]

6-   Electricity supplied by national grid or generators. Waters are supplied to homes but there is no sewer system.[9]

7-   Most are low-income families (250 thousand dinars =$200 monthly).[10][11]

8-   No schools or any educational or health services.[9][10][11]

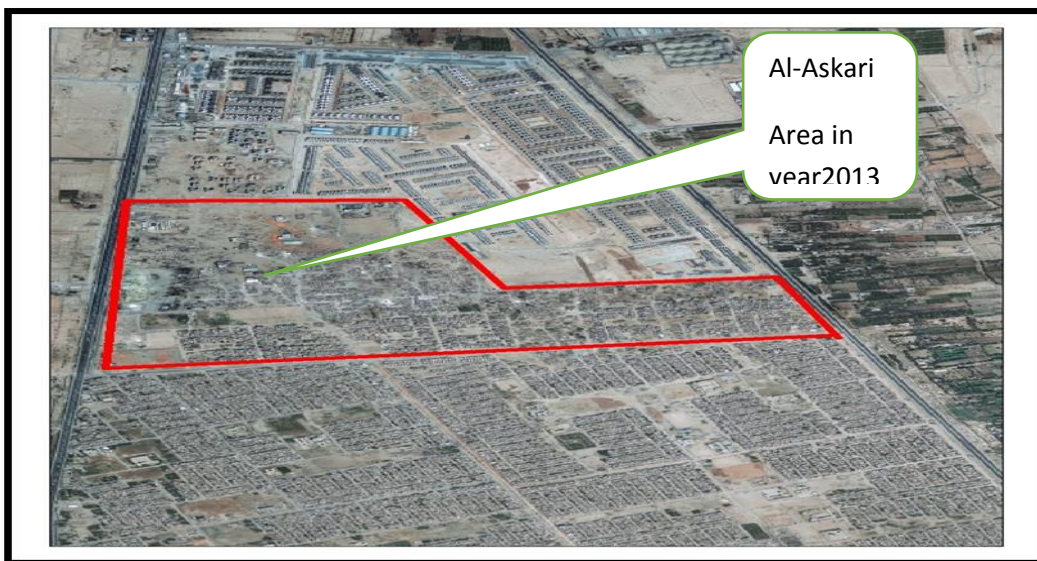**Figure 11.** Al-Askari area before slum's emergence (year 2003)

Figure 12. Al-Askari area in year 2013

Photographs of this residential area are showing in Figures13 and 14.

Figure 13. Image for a street in Al-Askari area in year 2013

Figure 14. Image for homes in Al-Askari area in year 2013

Conclusions:

1- The weakness of the administrative and supervisory system in the municipalities and ignoring many of the irregularities led to the widening of this problem.

2- Non-specialists planned these areas by dividing them by straight vertical and horizontal lines and the area is not taking into account the standards of residential zoning.

3- The housing problem is due to the lack of adequate numbers of suitable housing to meet the needs of citizens.

4- The high price and rent of residential land has led families to the indiscriminate construction in these slums.

5-   There are many housing units in need of repairs and maintenance and some of them are not suitable for living due to lack the simplest standards of safety.

6-   Poverty of the population and lack of employment opportunities and the absence of basic services characterize most of the slums.

7-   Some of the residents of the slums are not destitute poor, but motivated by greed.

8-   Most slum dwellers are migrants from the countryside to the city.

Recommendations:

1-   Distribution of residential land frees of charge or symbolic fee and expands the base of self-construction in the implementation of housing.

2-   Offer Housing Fund for citizens to have a helping hand in obtaining an appropriate housing unit.

3-   Reducing internal migrations from rural areas and remote areas to cities by creating jobs and an acceptable level of services in their locations, especially supporting the agricultural sector and farmers to stay in their lands.

4-   To create sufficient awareness among officials and decision-makers to address the dimensions of this problem in the future and its implications for the urban environment in the social, health, educational, economic and civilization aspects, and the need to tighten control and follow up properly.

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