

Community Resilience in Response to the Population Growth in Al-Thahabiah Neighborhood

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Abstract—Amman, the capital of Jordan, is the main political, economic, social and cultural center of Jordan and beyond. The city faces multitude demographic challenges related to the unstable political situation in the surrounded countries. It has regional and local migrants who left their homes to find better life in the capital. This resulted with random and unequal population distribution. Some districts have high population and pressure on the infrastructure and services more than other districts. Government works to resolve this challenge in compliance with 100 Cities Resilience Framework (CRF). Amman participated in this framework as a member in December 2014 to work in achieving the four goals: health and welfare, infrastructure and utilities, economy and education as well as administration and government. Previous research studies lack in studying Amman resilient work in neighborhood scale and the population growth as resilient challenge. For that, this study focuses on Al-Thahabiah neighborhood in Shafa Badran district in Amman. This paper studies the reasons and drivers behind this population growth during the selected period in this area then provide strategies to improve the resilient work in neighborhood scale. The methodology comprises of primary and secondary data. The primary data consist of interviews with chief officer in the executive part in Great Amman Municipality and resilient officer. The secondary data consist of papers, journals, newspaper, articles and book's reading. The other part of data consists of maps and statistical data which describe the infrastructural and social situation in the neighborhood and district level during the studying period. Based upon those data, more detailed information will be found, e.g., the centralizing position of population and the provided infrastructure for them. This will help to provide these services and infrastructure to other neighborhoods and enhance population distribution. This study develops an analytical framework to assess urban demographical time series in accordance with the criteria of CRF to make accurate detailed projections on the requirements for the future development in the neighborhood scale and organize the human requirements for affordable quality housing, employment, transportation, health and education in this neighborhood to improve the social relations between its inhabitants and the community. This study highlights on the localization of resilient work in neighborhood scale and spread the resilient knowledge related to the shortage of its research in Jordan. Studying the resilient work from population growth challenge perspective helps improve the facilities provide to the inhabitants and improve their quality of life.

Keywords—City resilience framework, CRF, demography, population growth, stakeholders, urban resilience.

I. INTRODUCTION

AMMAN has joined the CRF in order to face and adapt its problems and challenges and one of these changes is the population growth which led to have problems in population distribution and pressure on the infrastructure and services.

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This study focuses on the current situation of services and infrastructure that are provided in this neighborhood and district then provides resilient strategy in order to improve the quality of work provided in the neighborhood level. Amman resilience work focuses on the pillars, goals and actions, which are: an integrated and smart city, environmentally proactive city, innovative and prosperous city, young, equal city and united and proud city [1].

The city resilience is the capacity of the city parts, e.g., the individuals, communities and systems to face, adapt and irrespective to the challenge types which can be shocks or stresses [1]. The city is a combination of complex dynamic systems [2]. Resilience can help them to identify their SWOT (strengths, opportunities, weakness and threats) [3], for that, systems need to be resilient in all scales started from individuals spreading to the whole society [4].

Resilience focuses more on capitalizing the strength and the unique ability of the city to bounce back with any shocks or stresses. It can be improved more using the tools that would make it more spread in the society [5] and understanding the history of the city, its socioeconomic and social-ecologic can help to forecast future risk scenarios to face vulnerabilities [6].

There is a gap between theory and practice in resilience and they were disconnected. Resilience is often used to be theoretical and descriptive subject rather than practical work so transferred the objectives into investments is needed. Now, it becomes an organizing tool for funding and programming using timeframe. The idea of resilience is using the existing ones rather than introduce new ones [5].

Building resilience in the city is the solution to decrease the gap between the challenges and problems in order to develop and build the human needs [7]. Also, community has to reshape its role and function in order to improve its development into resilience to face the challenges that posed by “modernity” (integration and openness to the global markets, the society’s structural change, etc.) [8].

The resilient work can be divided into three aspects to understand and work on: the social, economic and ecological resilience while the community resilience can be divided into two parts the theoretical framework and social process [9].

Neighborhood cannot be resilient by their own; and in order to success, they need public improvement and development for new strategies especially in social and economic aspects. They can be applied in public resources to improve public safety like education such as schools, infrastructure such as parks and streets, housing and public safety [10]. Few studies consider the ability and durability of the neighborhood resilience to overcome the shocks and

stresses it faces.

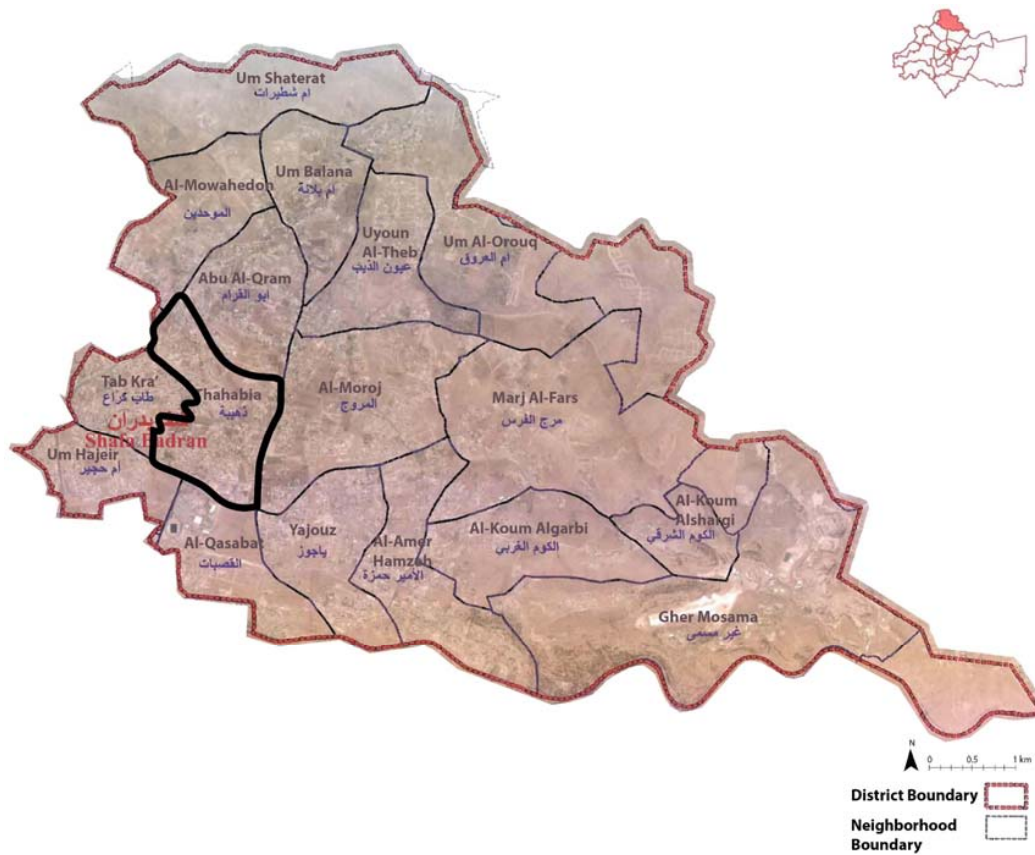


Fig. 1 The neighborhoods in Shafa Badran district [18]

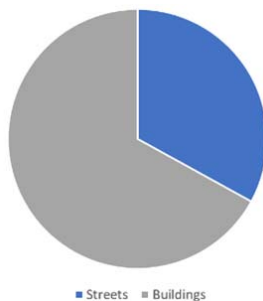


Fig. 2 The distribution of areas in Shafa Badran district

Population growth is the change in the society structure, which affects all other systems. It is affected by specific factors, e.g., number of births, deaths and migrations and it plays an important role in shaping the community and increases the demand on the resources, facilities and infrastructures [11]. Many reasons are behind the population growth, two of them are related to the high percentage of youth age, increment in the legal and illegal migrations. But the unrest civil situation, the change in the social relations and family bonds, ethnic and cultural problems and the economic situation provide more challenges for the population growth [12].

In Jordan, the social problems can be divided into: social infrastructure, social behavior and social structure. The main reasons for these problems are the high population density, lack of privacy, poverty and high unemployment [13]. The rapid population growth in Jordan increased the pressure on the services and infrastructure. In order to organize the planning process, decision making and strategies need to be made. This population growth relates to the local migrations, economic, social and political factors [14].

Neighborhood planning on a comprehensive level can help identify the residents, community and business owner's plan to enhance community social level with less crime percentages [15] and have higher levels of wellbeing in the long term [16].

Neighborhood can be designed to respond to any shocks and stresses in order to be resilient. They cannot be resilient by their own; and in order to success, they need public improvement and development for new strategies especially in social and economic aspects such as medical and economic diversity. These strategies can be applied in public domains to improve public safety and infrastructure such as parks and streets. Therefore, some planning parts need to be considered such as: urban layout, street pattern and characteristics, physical dimensions, e.g., infrastructure, buildings, energy, water and transportations to ensure the resilient ability in the

disaster's conditions [5].

II. CASE STUDY

Shafa Badran is a district in the northern part of Amman, the capital of Jordan, and has the highest population growth in the district level during the study period (2004-2015). It has an

area of 45.7 km² (2015) and population of 72,315 (2015) [17]. Al-Thahabiah neighborhood is located in the west part of Shafa Badran district. It has the highest population growth in the neighborhood level during the same study period and it is the case study of this research.



Fig. 3 The land use map of Shafa Badran district [18]

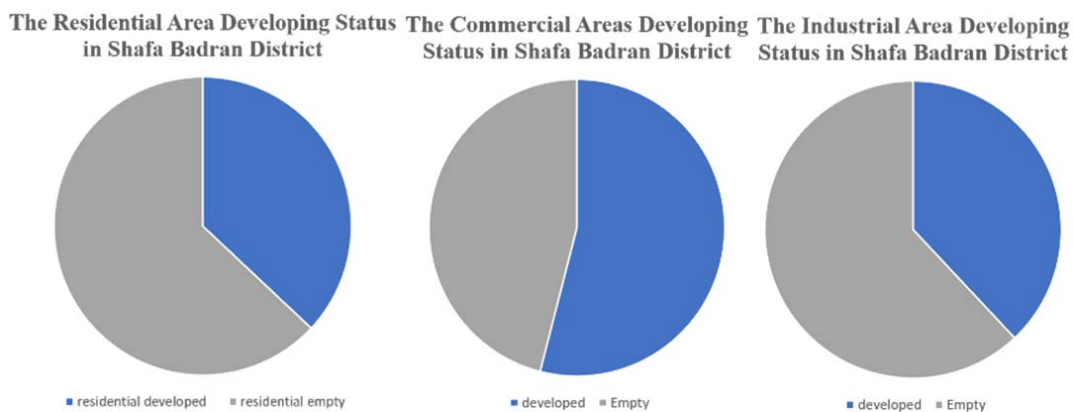


Fig. 4 The distribution of land uses areas in Shafa Badran district

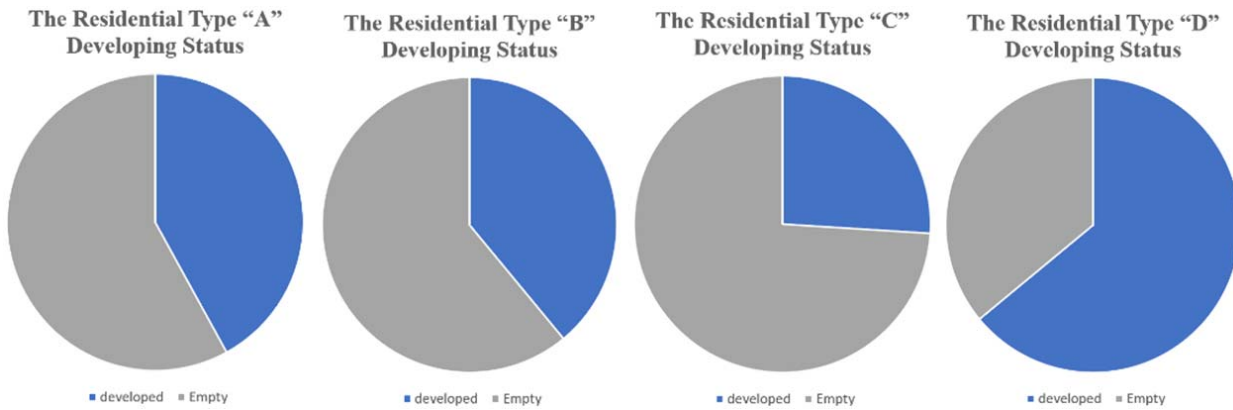


Fig. 5 The residential land use types developing status in Shafa Badran district

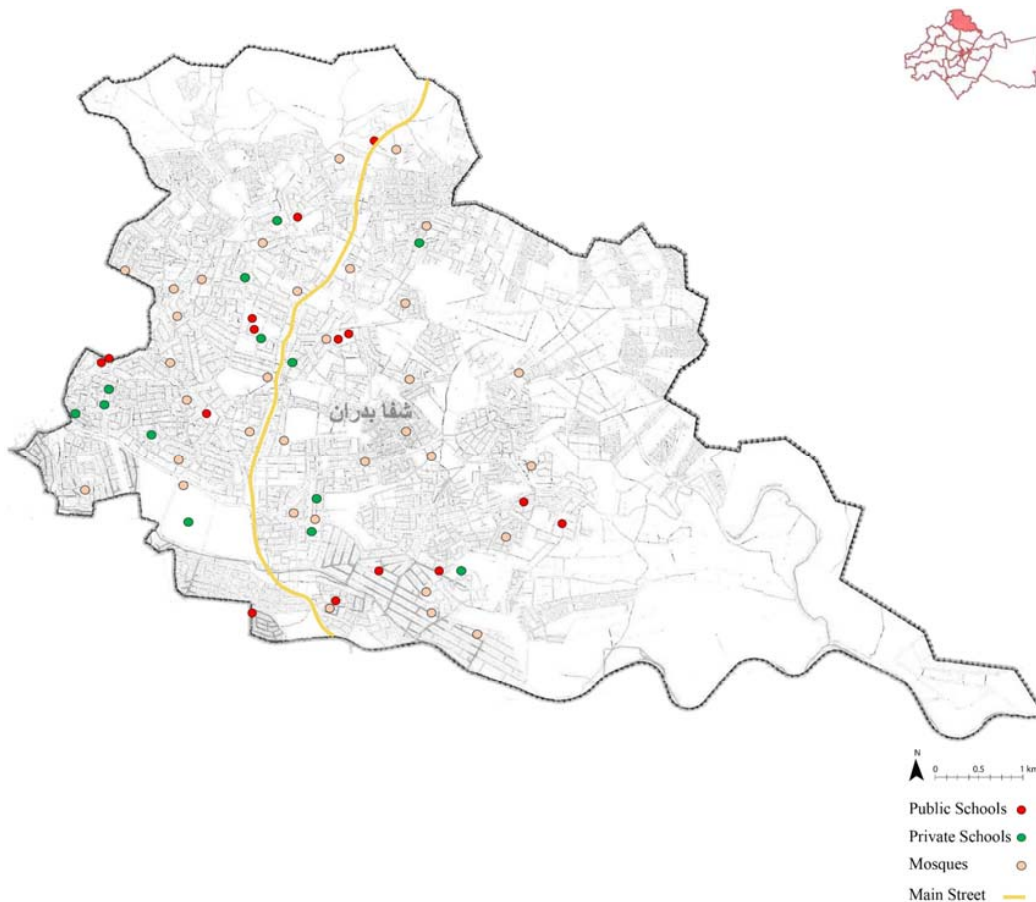


Fig. 6 The educational facilities distribution in Shafa Badran district map

III. METHODOLOGY AND DATA

The methodology of this research consists of analyzing the interview, the collected maps and statistical data to show the services and infrastructure that are provided to the residents in Al-Thahabiah neighborhood and other neighborhoods in Shafa Badran district.

A. Shafa Badran District

Shafa Badran consists of 17 neighborhoods (Fig. 1). Most

of these neighborhoods are organized and ruled to Great Amman Municipality (GAM), while the rest is still unorganized but there are plans to organize and plan them in the near future. The topography of this district is high from the west side then starts to decrease until it reaches the east part of the district. The location of this district plays an important role by being away from the city center's vehicles traffic. The main street inside this district connects Amman with Zarqa city. The other main street, Yajouz Street, connects this district with Al-

Urdon road, which connects Amman with the northern cities. The public transportation modes that are used in this district are buses, which cover less than the half of the neighborhoods, taxis which service a part from the west side of the district and private vehicles. The streets' percentage in this district is 33% (Fig. 2). This district can be considered as a residential district where the percentage of residential area is 94.8%, the commercial area is 2.4%, the industrial areas is 1%, the green space is 0.3%, the public building is 0.1% and the cemetery is 0.1% (Fig. 3). But the potential of this district to grow and improve is high because the percentage of empty residential area which already planned is 63%, the empty industrial area is 38% and the empty commercial area is 54% (Fig. 4).

The percentage of Jordanian residents in this district is 93.3% (2015). During the studying period (2004-2015), the structure of the age groups changes. In 2015, the highest percentages of age groups were 5-9 years old and 20-24 years old [17]. While in 2004, the teen age groups were more

dominated which were 15-19 years old and 10-14 years old. This means that there is a need to provide more planning process and improvement, especially that only 64% of the lands are developed and provided with infrastructure and services from the GAM.

Shafa Badran district varies with the residential types including (A, B, C, D), which differs related to the percentage of the building area in the land, setbacks and parking facilities. The opportunity for residential development in the future is recognized since the empty residential area for type "A" is 58%, for type "B" is 61%, for type "C" is 74%, for type "D" is 36% (Fig. 5).

The highest percentage of educational level the residents in this district has baccalaureate degree then the secondary school certification and the diploma certificate but there are high percentage of people who do not know how to read and write in this district (Fig. 6).

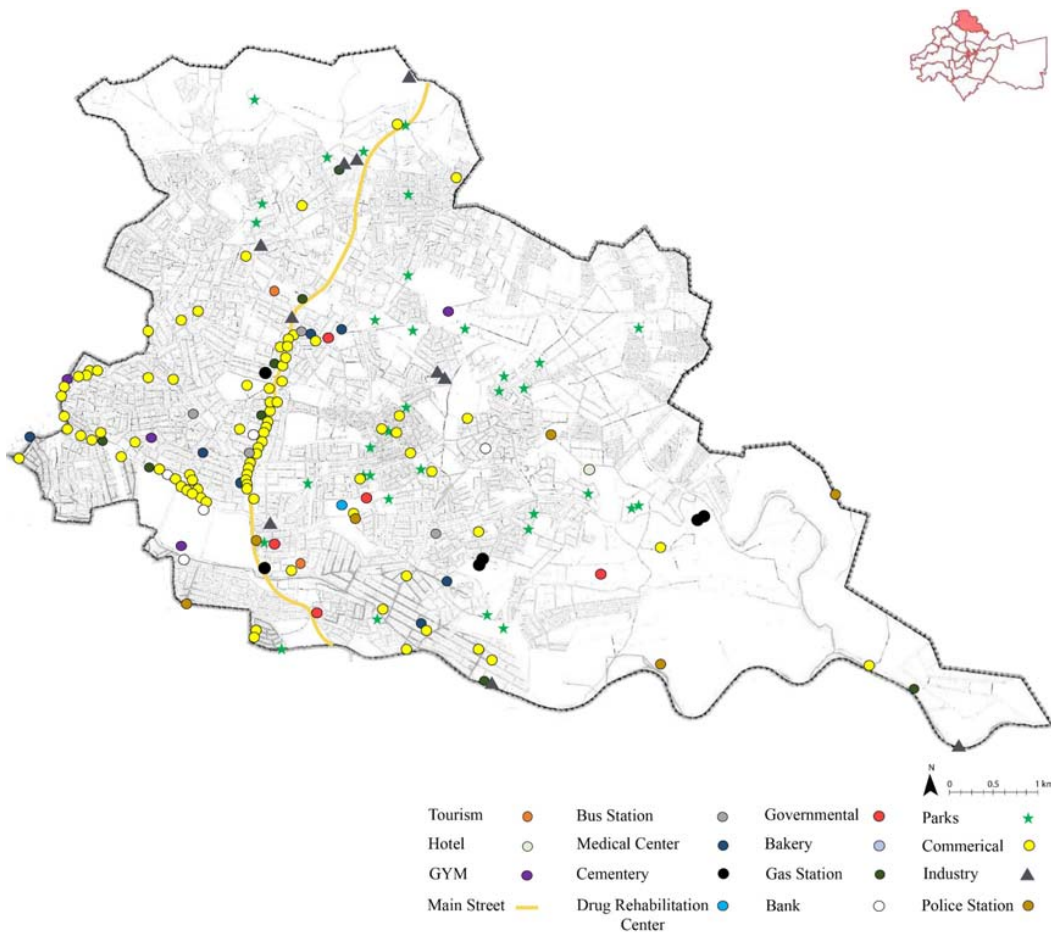


Fig. 7 The services provided in Shafa Badran district map

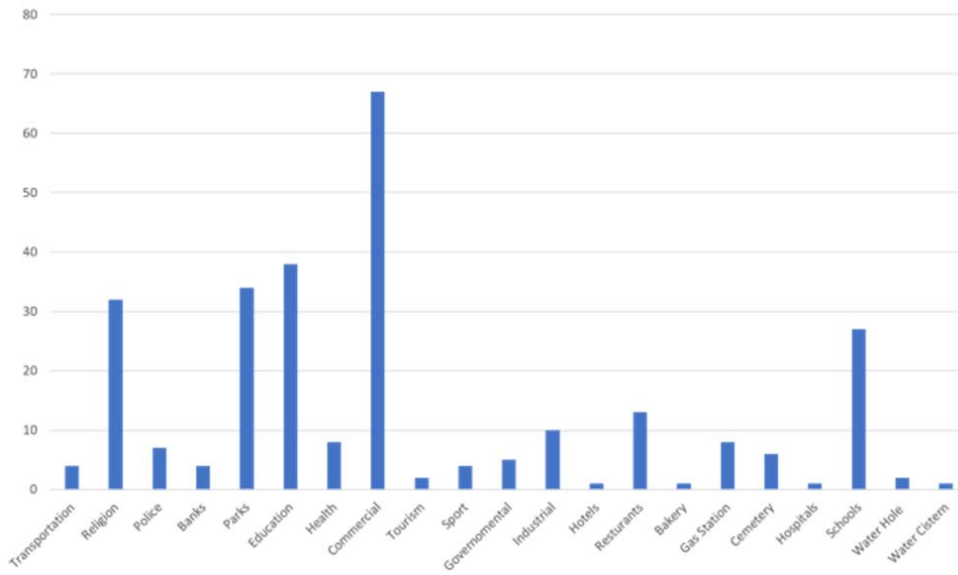


Fig. 8 The services provided in Shafa Badran district

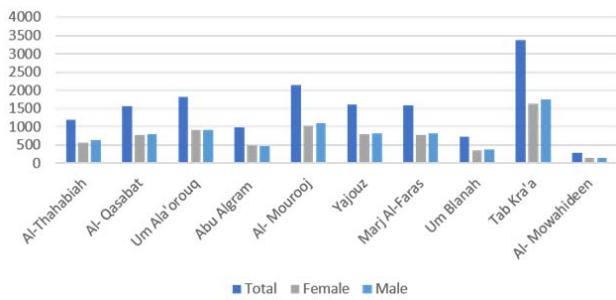


Fig. 9 The population distribution for Al-Thahabiah neighborhood comparing with other neighborhoods in Shafa Badran district, 2004

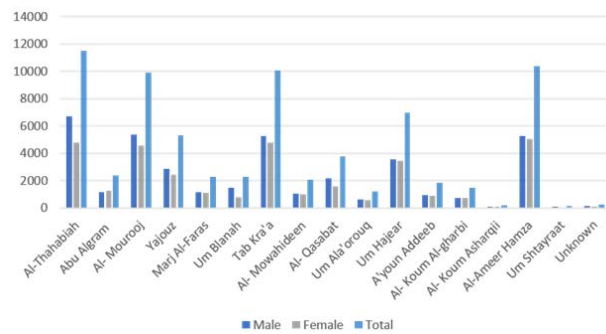


Fig. 10 The population distribution for Al-Thahabiah neighborhood comparing with other neighborhoods in Shafa Badran district, 2015

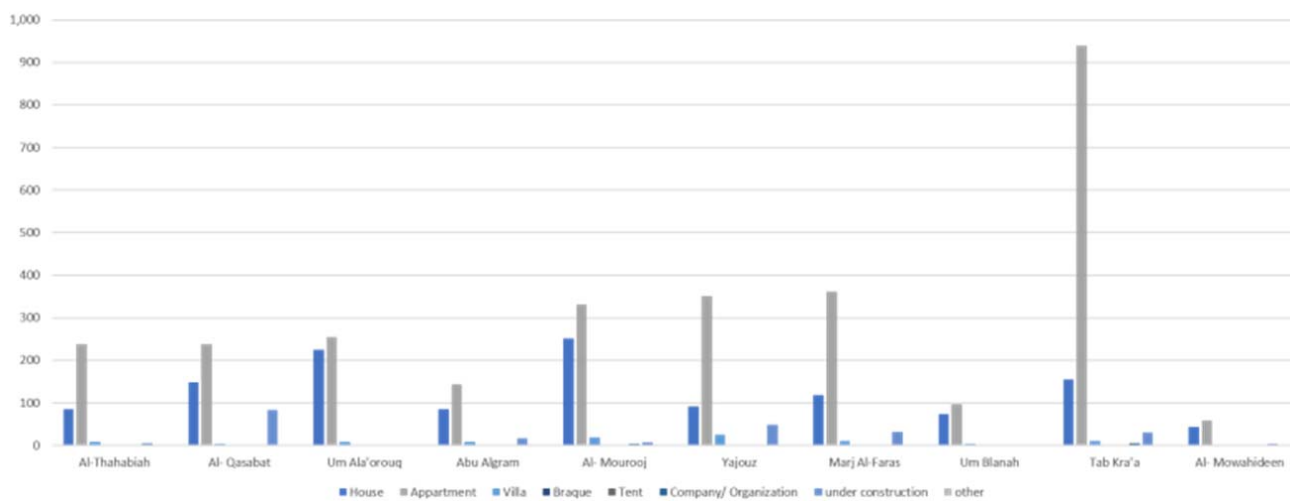


Fig. 11 The dwelling distribution types in Shafa Badran district

Since this district is a developing district, the infrastructure needs to be improved, especially the sewage system, where the

neighborhoods need to be connected with public web like Al-Ameer Hamzeh neighborhood but now most neighborhoods

use absorption holes as the sewage system. Also, the drainage system for rain water in the street still needs to be improved in order to control the water movement in the rainy seasons.

The commercial facilities have the highest distribution in Shafa Badran district then educational facilities such as schools and religious places while the sport and tourist facilities are the least provided facilities (Figs. 7, 8).

B. Al-Thahabiah Neighborhood

The area of Thahabiah neighborhood is 2.1 km² and it had a mid-area size comparing with other neighborhood's areas in the same district. The topography of this neighborhood is also more balanced and comfortable comparing with the other neighborhoods, especially that this district can be considered as high elevation area.

Most of residents in Al-Thahabiah neighborhood is Jordanian with percentage of 88% (2015) [17]. Al-Thahabiah neighborhood has been grown very high with population distribution during 2004-2015, (Figs. 9, 10). The highest age groups in 2004 were (15-19) years old, (10-14) years old and (5-9) years old but related to the 2015 statistics, the highest age groups became (5-9) years old, (20-24) years old then (0-4) years old. This means there is a need to provide facilities for youth and kids which are suitable for their ages.

This neighborhood is a residential neighborhood type (B), which means that the residents of this neighborhood are middle income people and most of these residents are singles

or married and formed families. The highest percentages of dwelling types are apartments (Fig. 11).

The location of this neighborhood in the main road "Shafa Badran Street" provided more job and commercial facilities for people who live in it. This street leads to Azraqa city from the north and connects with Al-Urdon road, which is the main road that connects Amman with northern cities, by Yajouz Street which is located in the boundary of Shafa Badran district. In this neighborhood, there are two bus stations: one in the main road and the other in the center of the neighborhood. Most people use their private cars or taxis (Fig. 12).

The education level of the most residents of Al-Thahabiah neighborhood is undergraduate degree but it still has high percentage of people who do not know how to read and write. It has two schools: a public and private which can be considered as high schools.

There are six mosques for religious and cultural purposes but there is not any other cultural center for the residents in this neighborhood. Only a fitness center is provided in the southern west part of the neighborhood.

This neighborhood does not have any green or open spaces for people. Also, the infrastructure such as, the sewage is not provided for residents, most people use absorption holes. Related to the climate of Amman, which has good rainy seasons, the infrastructure for the rainy water stream is not provided in all parts of this neighborhood or even the district.

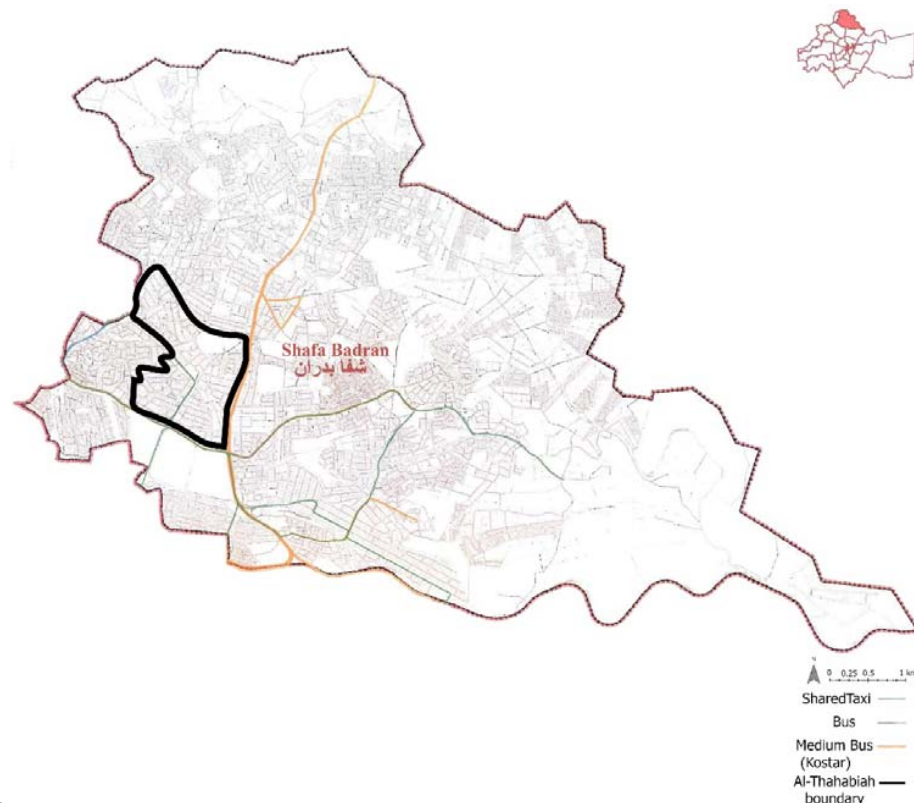


Fig. 12 The modes of transportation in Shafa Badran district [18]

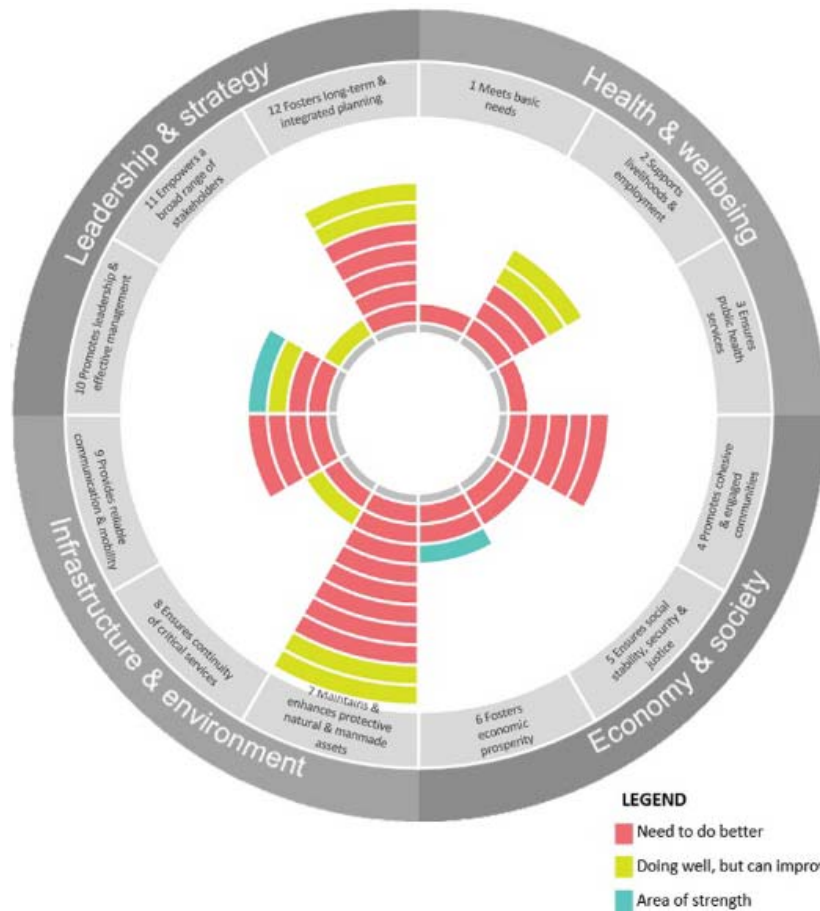


Fig. 13 The current situation of Amman resilience strategy drivers [19]

C. The Current Situation of Resilience

Amman's municipality and its partners try to enhance the quality of services and improve the infrastructure. In addition, they try to provide the social and cultural needs since the city has joined the City Resilience Framework (CRF). It is also important to mention that there is no specific work in the neighborhood level.

The resilience framework in Amman city was divided into three phases: understanding the issues and challenges in the city, ending by having preliminary assessment. Then, formulation the strategy of resilience and the last phase is about building and applying this strategy, which is the current phase. Applying the resilience can depend on the project's duration and the owners. Achieving actions can vary from 3-10 years.

Related to the current situation, the economy and society driver needs to be improved in some dimensions such as engaging communities. For the health and wellbeing driver, there is still a need to meet basic needs and ensure the public health services. However, supporting livelihoods and employment works are good but can be improved. Leadership and strategy can be considered as the most well working driver but it has the ability to be improved. The protection for natural and man-made assets and communication and mobility

receive the most attentions in the environment and infrastructure driver (Fig. 13). Many stakeholders have worked in this strategy but the major challenge is the implementation because some plans were not linked to implementation from early planning process and insufficient resources for proper implementation. Amman is undertaking many actions in order to enhance the quality of the provided work (Fig. 14).

IV. RESULTS

Related to the analysis part, Al-Thahabiah neighborhood has the highest population distribution related to many factors, such as: the topography factor which it has a suitable height of its area comparing with other neighborhoods. In addition, Al-Thahabiah neighborhood is located next to the main street of the district; this street is an active street and connects the district with northern cities such as Azraqa city. Also, this neighborhood has the highest middle-income residents and most of the dwellings are apartments which explain the high percentage of the families, who live in it.

The resilience framework is applied in the city scale but focusing on deeper scale will improve the quality of the work. For that, after studying the neighborhood planning, the resilience strategies can be added in order to improve the

quality of the resilience planning work in Al-Thahabiah neighborhood. The economic and social situation can be enhanced by encouraging the local businesses and community organizations, increasing the public-private partnership and decentralizing the provided services. Also, more cultural and social centers can be added such as: music and dancing centers, libraries and crafting centers.

For infrastructure and environmental driver, more open

spaces, plazas and squares can be built in Al-Thahabiah neighborhood to enhance the ecological and social systems. Also, providing safe sidewalks and green corridors will encourage people to walk more. This planning process will help people to walk more and use other transportation alternatives which can be provided such as: bikes and electrical bikes and more bus lines.

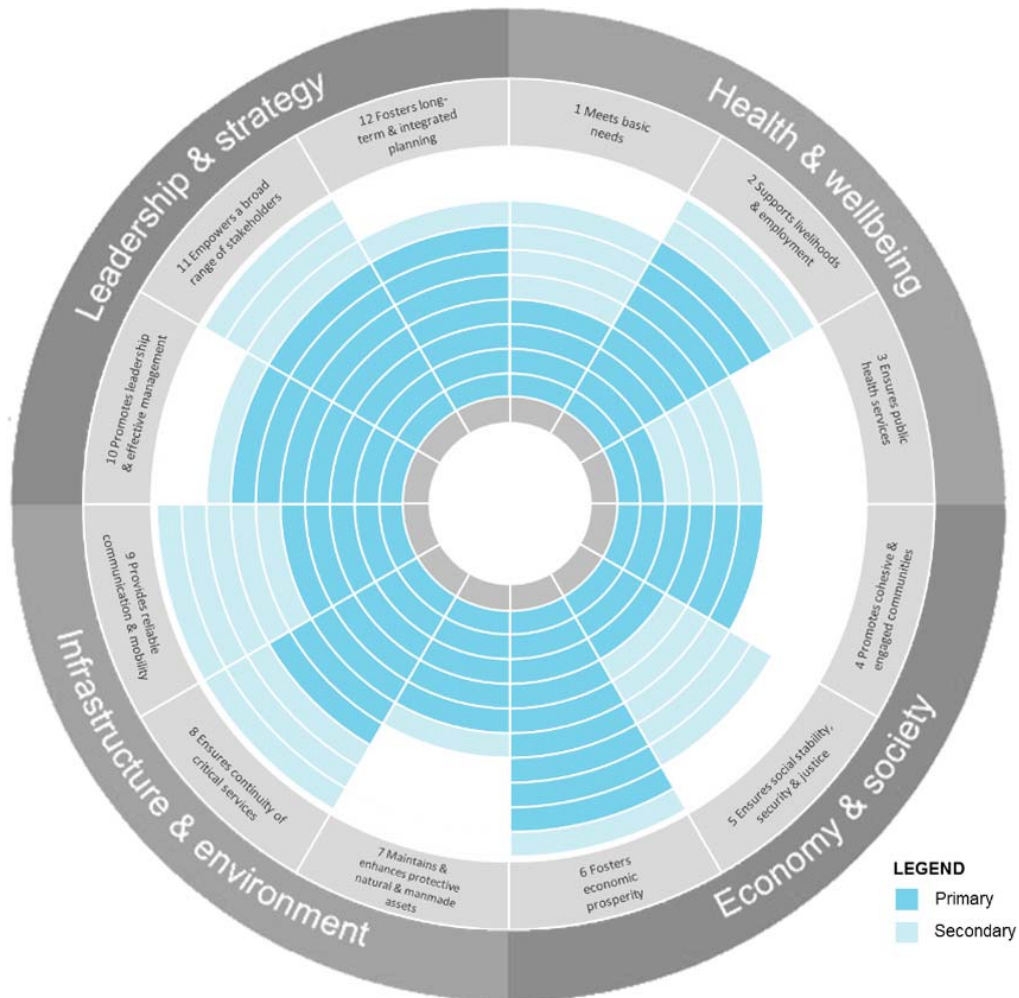


Fig. 14 The priorities actions of Amman resilience strategy drivers [19]

For health and wellbeing of driver, the health awareness can be improved through the cultural and educational centers and a new hospital can be provided in this district in the future. Also, treated rain water can be used as main drinking water source instead of the public web in Al-Thahabiah neighborhood. The drainage system should be enhanced in the streets and a sewage web should be provided for the neighborhood. Enhancing infrastructure quality and engaging residents and stakeholders in the decision-making process can increase the citizen's affiliation within their neighborhood.

V. DISCUSSION

As a result of the data analysis for the interviews, the maps and statistical data, a strong relation has been detected between the population growth, urban planning process and the resilience framework; it can be figured as a circle, all parts affect each other. When resilience framework and planning process improve to face and adapt the population growth, then the quality of services and facilities which are provided in this neighborhood will improve but it takes time and fund to achieve that. This study can be important because it can provide the strong base for the future resilient planning

process in the neighborhood scale which can be applied in another new neighborhoods planning.

VI. CONCLUSION

Population growth as neighborhood resilience stress has provided many obstacles and problems for Al-Thahabiah neighborhood. Providing the needed infrastructure, enhancing the quality of services, increasing the communication and corporation between residents and encouraging public-private partnerships can help the neighborhood to become resilience and adapt any future challenges which can be resulted from the population growth stress.

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