



Uncovering Vulnerabilities and Resilience of Benghazi after the War

Abdelhamed BARANI*¹, Zerrin Ezgi KAHRAMAN²

ABSTRACT

Wars result in the destruction of cities in many ways (Ballentine & Nitzschke, 2005; Brzoska & Fröhlich, 2016) that they not only stimulate vulnerabilities of cities but also decrease their resilience. The civil war in the city of Benghazi started in 2011. This study aims to investigate both the multifaceted vulnerabilities of Benghazi resulted from war and some signs of resilience reactions against consequences of war. It attempts to compare before and after the war situations for various structures in the city including demographic, economic, social, spatial and environmental dimensions. To do this, it analyses written and visual documents such as master plans, satellite images and national/international reports. The study finds out that the inhabitants of the city have economically developed resiliency strategies by creating new jobs. Moreover, the residents of Benghazi construct permanent or temporary houses at the outskirts of the city as a spatial resiliency reaction. However, this reaction results in urban sprawl in the city which consequently stir up the pressures on natural environmental in the city.

Keywords: vulnerability; resilience; civil war; Benghazi.

1. INTRODUCTION

Vulnerability and resilience are two concepts to understand responses within the system to sudden and slow changes. In various systems having physical, economic and social aspects, they are both used in risk evaluation, and assessments of transformability and adaptability of the system (Miller et al., 2010). The concept of resilience determines the ability of the system to cope with internal and external, new and unexpected disturbances, to absorb changes and to maintain its function (Nelson et al., 2007; Miller et al., 2010). Conversely, vulnerability is a tendency or predisposition being adversely affected by disturbances, and a lack of coping and adoption capacity (Birkmann, 2006).

Cities with their growing population are both centers of violence and power. Political conflict and more severely wars bring instability and insecurity to cities. They create risks in different dimensions that not only influence the demographic, economic, social, environmental structure of the city but also create pressures on the urban macro form (Grünwald, 2016; Hills, 2004). Baddeley (2011) and Sampaio (2016) define these impacts of wars as multifaceted vulnerabilities within the structure of cities.

The Benghazi city is not only the capital city of Libya but also the economic and administrative center of the country. The mainstay of the city is the oil production which brings strong trade links to Libya with the Eastern Mediterranean and Eastern European countries (UN-Habitat, 2006). After the uprising against Qaddafi's regime in 2011, Libyan

¹ PhD. Candidate, Çankaya University & Assist. lecturer, Civil Engineering, Tobruk University, Tobruk, Libya.

² Assoc. Prof. Dr., City and Regional Planning, Çankaya University, Ankara, Turkey.

*Corresponding author: abdelhamed.barani@ehtimaam.com

cities witnessed political conflicts. The reason behind those conflicts was to control power and wealth. The civil war in the Benghazi city began in 2014 to fight terrorism in the city and continued until the end of 2017. Today, there is still no political stability in the city. The consequences of war have increased the vulnerabilities of the city in various dimensions.

In parallel to the need for filling the gap in the literature on how wars have influenced cities, this study investigates vulnerabilities and resilience strategies of the city. Within this framework, it aims to compare before and after war situations in the city in terms of vulnerabilities under demographic, economic, social, spatial and environmental dimensions. It also attempts to explore the city's resilience reactions developed to cope with outcomes of the war. The following sections present the method and findings of the study displaying the multi-dimensional framework of vulnerabilities and some resilience reactions of the city.

1.1. Method

This study attempts to uncover different aspects of the vulnerabilities of Benghazi emerged as outcomes of war by examining before and after war situations, and some signs for resilience strategies of the city as reactions against these outcomes. Its methodological framework was majorly based on document analysis employed on available secondary sources such as master plans, satellite images, and national/international reports on the city. Pre- and post-war written documents and reports were analyzed to find vulnerabilities in economic, demographic and social dimensions, and some clues on resilience strategies of the city against the consequences of war. Satellite images reflecting before and after war situations in the city were compared to evaluate spatial and environmental vulnerabilities and some resilience reactions of the city. The study also benefitted from interviews with a few local people still living in the city in order to understand what residents do to reduce the negative effects of war.

2. FINDINGS AND DISCUSSION

This comparative study discusses five major dimensions of vulnerabilities in the city including disturbances on demographic, economic, social, spatial and environmental structure of the city. First, to evaluate vulnerabilities in the demographic structure of cities, previous studies (Coale, 1989; Webb, 1963) investigated the increase in mortality rates and the changes in fertility and natural growth rates of the city by comparing pre- and post-war statistics. Some other studies (Albuja & Ceballos, 2010; Marion & Maurice, 2010) assessed the increase in the rate of movement and migration of people from areas of conflict to the safer zones within the city, in other cities or even in other countries. For the case of Benghazi, the mortality rate has increased for ages between 17 to 46 since 2011. According to 2005 numbers, it was 6.4 per 1000 before the war and raised to 9 per 1000 in 2016 (Daw, El-Bouzedi, & Dau, 2016; Hewitt, 2017; Koenig, 2017). The increase in the mortality rate displays the casualty caused by armed war. Despite of the general tendency in cities experiencing war, after the war, the fertility rate in Benghazi increased from 21.3 to 22 per 1000 (BSC, 2017). It can be derived that the civil war and conflicts in Benghazi could not impede to natural population growth in the city. A group of studies (Albuja & Ceballos, 2010; Marion & Maurice, 2010; Webb, 1963) discuss the movement of population due to the war from unstable and insecure areas to safer zones. The findings of the study are parallel to the findings of these studies. Expectedly, the migration rate in the city rose during war. Before war in the years from 1973 to 1984, it was 0.045%. It increased to 0.23% in the years from 1984 to 1995 (BSRR, 2009). Because of the political unrest and shooting war, about 40% of the citizens living in the center of conflicts moved to other parts of Benghazi. However, unexpectedly, UNCHR (2017) report displays that the number of displaced migrants moving outside Benghazi is nearly equivalent to the number of arrivals to the city. This fact can be

explained by the equivalent amounts of internally displaced people who moved to the outskirts of the city and returnees who fled to other cities after the fighting ended in 2017. This can also be interrelated with the continuation of rural migration from the countryside and villages of Benghazi such as Al-Abyar, Salouq, Al-Marj and Ajdabiya to the periphery of the city (Dericioglu, 2018).

The second dimension of vulnerability that reflects the influence of war on cities is based on economic problems. Precipitation levels, food price fluctuations, the level of economic degradation in individual and household income, and decrease in GDP constitute some measures of economic vulnerabilities (Collier & Hoeffler, 2005; Collier & Sambanis, 2005). The city of Benghazi is accepted as the economic and administrative center of Libya. Except for its economic structure, Benghazi is known with its qualified administrative services, public and social facilities such as education, health, and culture; and the capacity of its international airport and seaport. The economic structure of the city mainly concentrates on commerce and business. In the international level, the business and economic relationships of the city depend on its oil production. It has strong trade links with the Eastern Mediterranean and Eastern European countries (UN-Habitat, 2006). However, during the war, many commercial areas in the city center were destroyed. Banks' liquidity was severely curtailed. The city has experienced a recession due to the increase in prices, a decline in purchasing power, and devaluation of the local currency against foreign currencies. After the uprising in 2011, oil production as the mainstay of the Libyan economy witnessed a sharp decline (M. Khan & Mezran, 2013). As it is shown in Figure 1, the share of surplus rate equals to 7.5% of the country's GDP in 2010 and reaching a record low of -131% of GDP in 2015. This share increased in 2018 but remains as a deficit at -43% of the country's GDP (Central Bank of Libya, 2019).

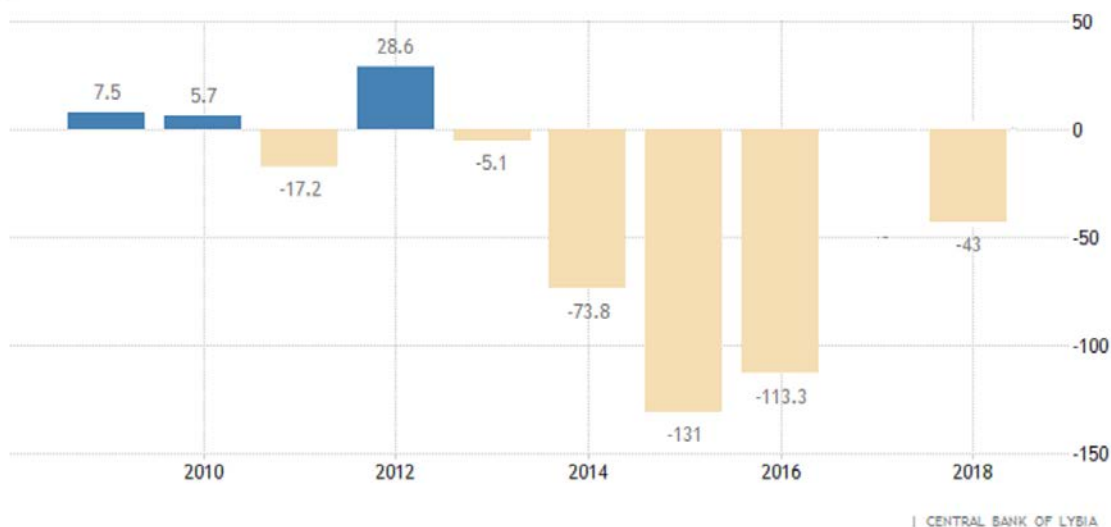


Figure 1. The share of surplus rate in GDP (Source: Central bank of Libya, 2018)

Some resilience strategies have been developed by the citizens of the Benghazi city to overcome those economic difficulties in micro-level. Technology-based business activities that were rare before the war in the city have stimulated during the war. As a resiliency response to the economic problems, some small family projects mediated by smartphone applications and social media ads were developed. Businesses that are often run by women from homes, small shops and galleries started to use them as a tool of revitalizing their economic activities (Dericioglu, 2018; Tang Abomo, 2019). These findings are consistent with the findings of Fahed-Sreih, Pistruì, Huang, & Welsch (2010) that examine newly developed economic activities in some cities such as Lebanon and Palestine during

wartime. The high prevalence of these activities reflects the adaptation and resilience capacity of the city for tough economic conditions of war.

The third dimension of vulnerabilities existed in cities due to war includes social and cultural destruction. In many cities under war, those destructions include the demolition of historic buildings, the decrease in quality and provision of basic urban services, social discontent, and poverty (Khan, 2013). In the case of the city of Benghazi, the city center containing both many historical and symbolic buildings and the major service centers/buildings was destructed as shown in Figure 2. Many buildings were destroyed in densely populated neighborhoods. The infrastructure of the city was severely damaged. Additionally, with the non-oil economy falling sharply, many private sector employees have lost their jobs. The unemployment crisis had the greatest impact on young people in particular that youth participation in economic activity dropped from 75% (in 2012) to 48% in 2016. In addition, the unemployment rate for young men increased from 13.5% in 2010 to 48% in 2016, and for young women increased from 25% in 2010 to 62% in 2016 (Belhaj, Pimenta, & Honda, 2019). Consequently, increase in poverty rates, the bankruptcy of many commercial and industrial companies constitutes other socio-economic vulnerabilities of the city created by war. The war also resulted in further disintegration of the society, enmity, social segregation, a loss in the sense of belonging and social cohesion in Benghazi (BSC, 2017; Koenig, 2017).



Figure 2. Jamal Street in the Benghazi city center before war and after the war in 2014 (Source: <https://alkhaleeonline.net-Destroyedbywar.Benghazicity>)

The last dimension of vulnerabilities evaluated in this study focuses on spatial and environmental destruction caused by war. Wars create pressure on urban structures (Sampaio, 2016) and development (Glaeser & Shapiro, 2002). In some cases, they result in urban sprawl towards the periphery of cities (Grünwald, 2016). In parallel to the claims in the literature, in Benghazi, the political conflicts that turned into civil war afterwards have aggravated some urban problems such as inadequate housing provision, overpopulation,

random housing development and damages in the natural environment (BSRR., 2009; Dericoglu, 2018).

As a reaction to those spatial and environmental problems which might be assessed as a resilience strategy, the city has spread to the outskirts of planned areas as shown in the remote sensing images in Figure 3. However, this reaction which contributes negatively to the macroform of the city has constituted another vulnerability called urban sprawl. Remote sensing measurements show that the built-up areas increased approximately from 9% in 2010 to 13% in 2018. In parallel to this increase, the greenery area at the outskirts of the city decreased approximately from 18% in 2010 to 11% in 2018.

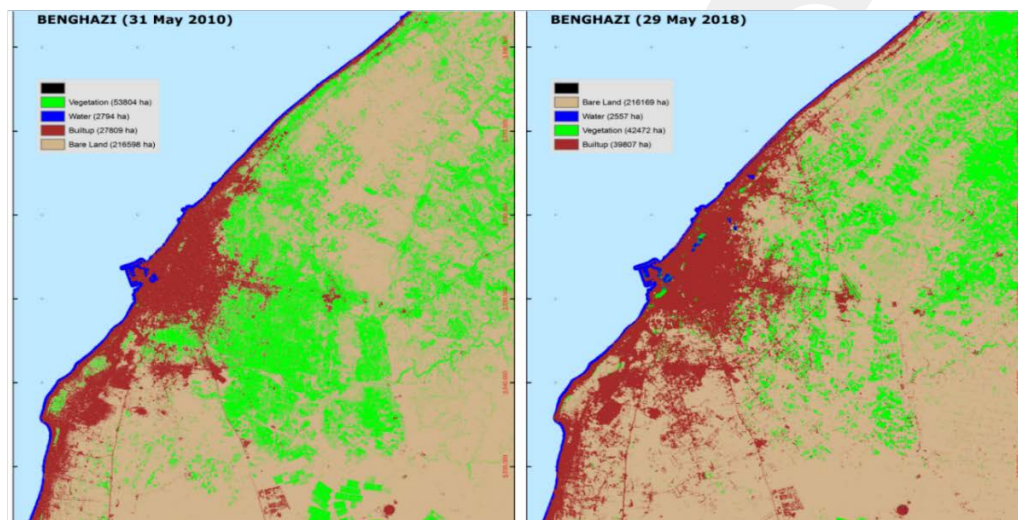


Figure 3. Urban development in Benghazi before and after war (Source: Authors)

The destruction of residential neighborhoods inside the city has led to the movement of many inhabitants towards suburbs (green belt) of the city. Lower land prices outside the city have also triggered urban sprawl towards the greenery areas (Dericoglu, 2018). Therefore, moving towards the green belt as a resilience strategy to escape from the war in the city center have created serious environmental damages and new vulnerabilities in the Benghazi city. Figure 4 displays the encroachment on agricultural land in Al Guarsha district. As a result of urban sprawl, the district divided into residential parcels that caused damages in the natural environment around the city.



Figure 4. The changes in the land use of Al Guarsha district due to urban sprawl from 2011 to 2019 (Source: Landsat satellite images via Google earth)

3. CONCLUSION

The city of Benghazi has been under the pressure of political conflicts and instabilities for more than seven years due to war. The findings of the study show that reasons and consequences of war make the city highly vulnerable. The city has faced with many problems including demographic fluctuations; the devaluation in its larger assets and GDP; increase in unemployment rates, the destruction of urban areas, urban infrastructure and architectural structures; environmental degradation, and serious pressures on the limited agricultural areas around the city. They create demographic, economic, socio-cultural, spatial and environmental vulnerabilities in the city. It might be concluded that creative and comprehensive planning interventions are needed to deal with vulnerabilities of Benghazi. Within the principle of preserving the limited resources of the city, the city urgently needs both recovery in many dimensions and planned urban development movement. Therefore, a framework considering the present and future vulnerabilities of the city should be developed as a part of its planning process. This approach in the Benghazi city with its various planning tools, procedures, policies and strategies not only have potential to deal with chronic pressures and existing problems in the city but also create opportunities to prepare the city for further risks and shocks.

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