

Emergency management during wars: Case study Umm Al-Nasr Village “Bedouin Village”

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ABSTRACT

The aim of this study is to establish procedures to protect the residents of the Umm al-Nasr border village from the dangers of wars and military violations by preparing emergency management procedures for emergency personnel to protect the population and properties, as well as designing a model that simulates the Emergency Operations Department in the northern Gaza Strip. In addition, a mathematical equation was designed to calculate the strength of the true steadfastness of the society to defend the community in the event of war. The researchers used the analytical descriptive approach and the interview with the officials in the municipality of the village. The most important results of this study were the preparation of the risk matrix for the village of Umm al-Nasr by identifying the risks and analyzing them, determining the consequences and probability of each disaster threatening the village, designing a model showing the emergency operations and the effective institutions, and how to link the operations and coordination between the central chamber and the emergency committee besides the working institutions. In the field of relief, rescue and shelter as well as preparing preparedness and response measures in the event of war threatening the village. This study recommended the proper planning of the emergency management through the preparation of effective preparedness measures that seek to preserve life and property, and to protect the fragile communities in the Gaza Strip, especially the community of Umm al-Nasr

to strengthen its steadfastness in the economic, environmental, and health sectors.

Key words: Gaza Strip, Umm al-Nasr Village, preparedness, disaster, emergency, vulnerability, emergency

INTRODUCTION

Umm Al-Nasr village was built in the wake of the decision of the Palestinian Ministry of Housing to build the city of Sheikh Zayed in the area of the slaughterhouse northeast of Beit Lahiya. The purpose was to establish the city of Sheikh Zayed to land inhabited by Palestinian Bedouin families, currently known as “Village of Umm Al-Nasr.” The village lies at about half a kilometer from the Green Line and rises about 40m above sea level. The village is a gathering of residents located northeast of the town of Bait Lahia in the northern Gaza Strip. It covers an area of about 800 dunums and has a population of about 5,500 in 2007.¹ The population is expected to have doubled over in the future than in 2007. There is a headquarters for the village council, but the marginalized village lacks the material resources, accurate data and lacks the existence of public facilities such as health services and education services, including schools, kindergartens, roads, and electricity networks. Arab Muslims defeated the Franks on the territory of the town of Bait Hanoun and the town of Umm Al-Nasr in 637 AH; therefore, Umm Al-Nasr was named after this battle. The residents of the inhabited Bedouin village are exposed to many dangers, including repeated wars.² The military

actions affect also the population and properties, particularly as the village is hundreds of meters away from the separation fence between the Gaza Strip and Israel. As well as sewage basins in the middle of the village which caused a lot of individual and collective risks such as drowning, infectious diseases, and poisoning. It has been found that groundwater is polluted due to the leakage of sewage water to the soil as well as the spread of diseases among residents due to harmful insects and rodents that cause health damage.³ The analysis showed that the water situation in the village is polluted and that the inspection reports proved that groundwater is the sole source of contamination.⁴

These risks are permanent crises because they have been going on for several years and have no solutions in the near future because they depend on several factors included:

- The current political situation, the proximity of the village from the border, the inability to get rid of the sewage basins, the limited material resources, and the obstacles of Israel security.
- Studies show that the fragility of the community is subject to social and economic factors and cultural factors that affect the resilience of the community. Studies have shown that in disasters, poor people are more likely to be affected than others; they are less likely to be recover and more vulnerable.⁵
- The overall economic situation in the village is tragic. The unemployment rate in the village is more than 80 percent, of which 50 percent live in extreme poverty.¹ Alms and aid are provided by United Nations Relief and Works Agency (UNRWA) and Nongovernmental organizations (NGOs).
- Some organizations in many countries have introduced a new methodology by assessing vulnerability and identifying their components by analyzing livelihood strategies

and addressing community vulnerability factors, most notably poverty, to avoid expected losses in the event of a disaster.⁶

- Studies have shown that livelihood strategies during disasters such as wars, the rural poor have a great ability to adapt to environmental degradation either by reducing their livelihoods or by rehabilitating degraded resources. Therefore, the participation of villagers in the preparation and implementation of emergency plans for the village and their utilization is required for the success of these plans.⁷

Disaster management and war planning depends on coordination and communication systems, medical assistance, maintaining basic functions, supervising emergency operations, evacuation and accommodation, working to reduce consequences and disasters and improving preparedness in all planning, response, mitigation, and recovery activities as well the special needs of those with physical disability or sensory disability.⁸

The situation imposed on the people of the village Umm Al-Nasr causes a lot of risks and crises on them and makes them always worried and are afraid of any security emergency in their area because of military actions or the possibility of war at any moment that may affect their lives and their work.

PROBLEM STATEMENT

Umm Al-Nasr border village is threatened by the dangers of wars on the Gaza Strip and military actions. The village has been subjected to three wars in 5 years, causing loss of life and properties. The study proposes solutions to the problems of the village by planning emergency management during wars.

METHODOLOGY

The researchers followed the descriptive and analytical approach to achieve the objectives of the study by analyzing the contents of a collection of sources such as reports and researches issued by the local and international institutions operating in the Gaza Strip,

which recorded all the events that took place during the disasters of the wars in 2008, 2012, and 2014 to take advantage of these sources for development of the preparedness and response in order to reduce the risks of being exposed to the village and building a model for the emergency management for Umm Al-Nasr village. Interviews were conducted with workers in the municipality of Umm Al-Nasr to know the possibilities of the municipality and preparedness plans for disasters.

The researchers interviewed the municipal officials to find out resources, capabilities available, and emergency plans in the municipality of Umm Al-Nasr. The researchers also interviewed the Vice President of the municipality, the municipality member in the emergency committee in the northern Gaza Strip. These interviews were exploratory with irregular questions which helped in the preparation of preparedness and response procedures. In addition, the interviews helped in the risk analysis of the village, especially as there are no written contingency plans in the municipality. The work in emergencies was random and conducted through expertise.

Objectives

- To identify risks, threats, and the possibility of disasters in the village of Umm Al-Nasr.
- To design a risk matrix for the consequences and potential risks of Umm Al-Nasr village.
- To assess the vulnerability of Umm Al-Nasr village society.
- To design the Emergency Operations Management Model in the northern Gaza Strip.
- To prepare preparedness procedures for wars and military actions of the village.
- To prepare response measures for Umm Al-Nasr village during Wars.

Study limits

Um Al-Nasr village is located within the residential communities of Bait Lahia in the northern Gaza Strip, as shown in Figure 1. The location of the village and its coordinates are given on the map in December 2018.

Study importance

In the past, the village was exposed to many dangers that posed a threat to the lives of the residents and the property, making life difficult and impossible. Because the village is located in a border area with the Israeli occupation, the population is exposed to violations affecting all the aspects of their humanity. This study deals with the identification of the risks and problems faced by the village and to propose a procedure for preparedness and emergency response in case of war or military actions.

RESULTS

Risk assessment of Umm Al-Nasr village

First: Risk identification. Table 1 illustrates the risks and disasters that are facing the Umm Al-Nasr border village, the danger of the border area and the danger of flooding the sewage basins on the population, properties, and groundwater.

Second: Analysis of threats

Table 2 shows the analysis of threats to the village, as well as the nature of the threat, how it occurs, where it is expected to occur, and the time of threat.

Disaster assessment requires the identification of the consequences and likelihood of disasters through the methodology described in Figure 2.⁹ Each of the consequences and likelihood are determined by five levels.

Third: The consequences of disasters on the village of Umm Al-Nasr. It is possible to determine the consequences of the risks on the population, property, environment, and agriculture in the village of Umm Al-Nasr and calculate the average effect on the village as shown in Table 3.¹⁰



Figure 1. The Location of Umm Al-Nasr Village in the Northern Gaza Strip.

Disaster	Threat type	Natural	Man-made
Flood of sewage basins	T1	—	√
Pollution of ground-water due to leakage of sewage water	T2	—	√
The spread of disease	T3	—	√
Military actions	T4	—	√
Repeated Wars	T5	—	√

Fourth: The possibility of disasters. According to Figure 2, the probability and frequency of risks in previous years are shown in Table 4.

Fifth: Risk assessment matrix of Umm Al-Nasr village. Table 5 describes the final village risk assessment matrix of the consequences of the risk and the

probability of occurrence for each hazard and the average risk value.

Sixth: Assessment of the vulnerability of the village. The vulnerability is divided into several areas, including the environmental, health, educational, and social. The society in the village of Umm Al-Nasr suffers from difficult economic and health conditions because of the crises it is exposed to. Figure 3 shows that the vulnerability of the village of Umm Al-Nasr is high in the economic while moderate in other aspects.

Figure 4 shows a comparison of the fragility of communities in the northern governorate and the village of Umm Al-Nasr. It is obvious that the vulnerability in the village is 66 percent which is high compared to other communities.

On the other hand, it is possible to assess the national ability to withstand disasters, especially the wars on the Gaza Strip, which are reflected in the village of Umm Al-Nasr, either negatively or positively. The elements of the force are related to the capabilities, human resources, properties, economic

Table 2. Risk analysis of Umm Al-Nasr village

Hazard	Threat type	Location	Threat time	Description
Flood of sewage basins	T1	Area of ponds	Increase in water level	The collapse of the ponds due to an increase in loads or bombardment of the plant
Pollution of ground-water due to leakage of sewage water	T2	Scope of the village	Continuous	Sewage leakage of groundwater
The spread of disease	T3	Scope of the village	Continuous	Due to the spread of insects, rodents, and odors emitted from ponds
Military actions	T4	The northern boundary of the village	Military operations	Military operations in the border area, Israeli incursion, and shooting
Repeated wars	T5	Um Al-Nasr village—Northern Gaza Strip—Gaza Strip	Declaration of wars	An evolution in the security situation leading to the wars which includes the entire Gaza Strip

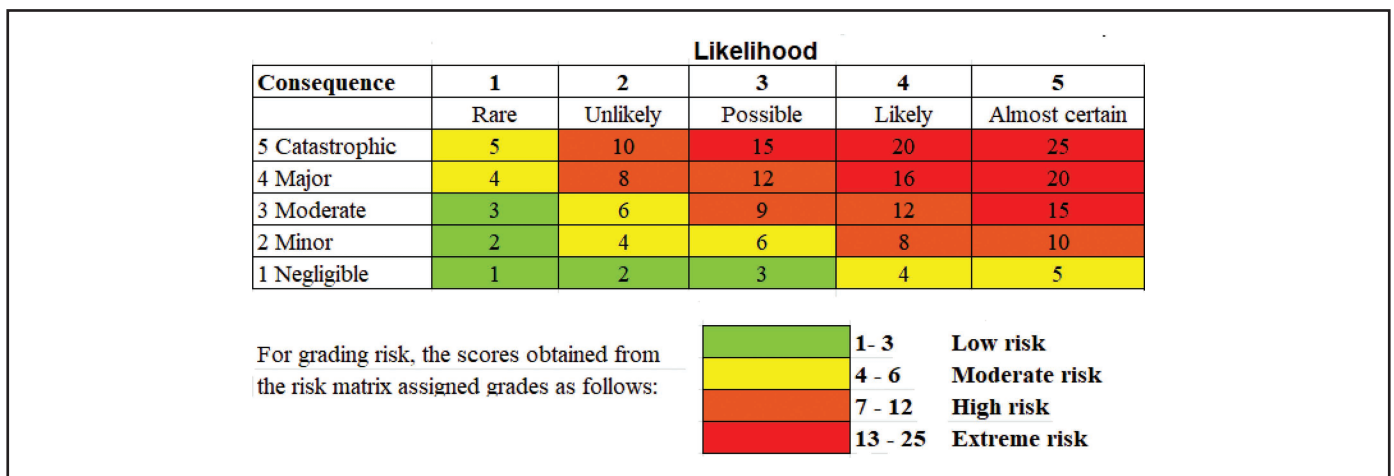


Figure 2. Risk matrix for determining consequences and probability.⁹

strength, the military strength of the society, and national strategies.¹¹ The historical experience of Umm Al-Nasr also enhances the community to deal with and withstand the Israeli military actions.

EMERGENCY MANAGEMENT DURING WARS

First: Emergency phases

Emergency management phases consist of several overlapping stages as shown in Figure 5 which includes mitigation, preparedness, disaster response, and recovery. It may be divided into pre-emergency,

events, post-events or disaster phases, so response planning should be undertaken within the stage of effective disaster preparedness.

Second: Emergency operations during war

Emergency operations are a set of integrated and comprehensive operations for all institutions related to search, rescue, evacuation, shelter, relief, and coordination between institutions operating in the field. Figure 6 illustrates the emergency operations and institutions in the northern Gaza Strip under the

Table 3. Consequences of the disasters of Umm al-Nasr

Hazard	Threat type	Consequence				Impact	Assessment
		Pop.	Properties	Envi.	Agri.		
Flood of sewage basins	T1	4	3	4	3	4	Major
Pollution of groundwater due to leakage of sewage water	T2	3	1	3	3	3	Moderate
The spread of disease	T3	3	1	3	3	2	Minor
Military actions	T4	3	3	3	3	3	Moderate
Repeated wars	T5	5	5	4	4	5	Catastrophic

Table 4. The possibility of risk in the village

Hazard	Threat type	Likelihood					Event description
		Rare (1)	Unlikely (2)	Possible (3)	Likely (4)	Almost certain(5)	
Flood of sewage basins	T1	—	2	—	—	—	The 2007 Catastrophe
Pollution of groundwater due to leakage of sewage water	T2	—	—	3	—	—	Continuing disaster
The spread of disease	T3	—	—	3	—	—	Spread of poisoning and worms
Military actions	T4	—	—	—	4	—	Dredging and shooting almost daily
Repeated wars	T5	—	—	—	—	5	War of 2008, 2012 and 2014

control of the Central Operating Room, So that there is a central emergency committee in the north headed by the municipality of Jabalia and a security committee headed by the Ministry of the Interior.^{12,13}

Emergency operations are a set of integrated and comprehensive operations for all agencies related to search, rescue, evacuation, shelter, relief, and coordination between the agencies operating in the field. Figure 6 illustrates the emergency operations and the agencies involved in the northern Gaza Strip under the control of the Central Operating Room so that

there is a central emergency committee in the north headed by the municipality of Jabalia and a security committee headed by the Ministry of the Interior.

Figure 7 shows the damage caused by the War in 2014 on the Gaza Strip, especially the north of Gaza Strip including the village of Umm Al-Nasr and the border areas. The number of deaths in the sector was 2,217, including 369 from the north of the Gaza Strip.¹⁴

Third: The preparedness procedures for the village of Umm Al-Nasr

Table 5. Risk matrix of Umm Al-Nasr village

Threat type	Location	Likelihood	Consequences	Average risk value	Evaluation
T1	Area of ponds	2	4	8	High
T2	Scope of the village	3	3	9	High
T3	Scope of the village	3	2	6	Medium
T4	The Northern boundary of the village	4	3	12	High
T5	Um Al-Nasr village—Northern Gaza Strip—Gaza Strip	5	5	25	Extreme

Municipality	Vulnerability					Total
	Economic	Environmental	Protection	Education	Health	
Umm Al-Nasr	H	M	M	M	H	Moderate
Beit Hanoun	M	M	M	M	M	Moderate
Brit Lahia	M	M	H	M	M	Moderate
Ratio	Weak	Moderate	High	Very High		
	36%-52%	52%-68%	68%-84%	84%>		

Figure 3. Assessment of the fragility of Umm Al-Nasr village community.¹⁰

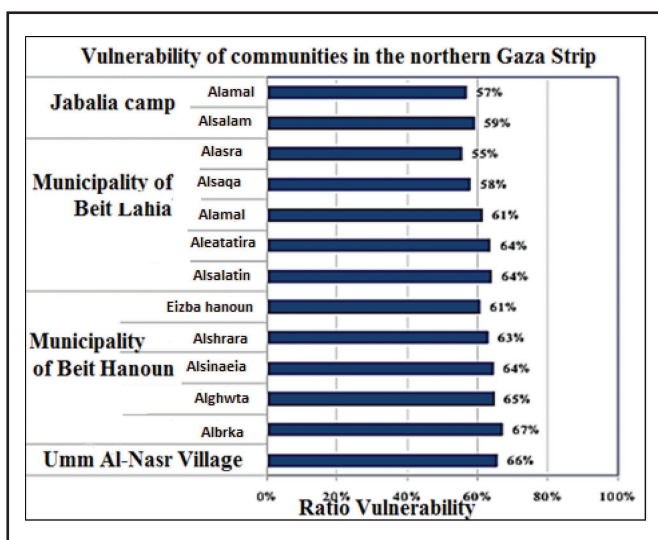


Figure 4. The fragility of Northern societies.¹⁰

Table 6 focuses on planning for the protection of the Umm Al-Nasr village population from the dangers of Israeli wars and violations.

Fourth: Response procedures in case of Wars

The effectiveness of response procedures depends on the effectiveness of disaster preparedness plans and the ability to train all the committees and institutions involved in the event, as well as the capacity of the contingency department to manage operations, make decisions and distribute tasks, responsibilities and powers accurately.

The response evolves as the scale of the disaster evolves and the indicators are divided into three stages: the normal routine event; in which the staffs of Um Al-Nasr Municipality intervene, the

emergency event that requires the intervention of the emergency committee in the north and the catastrophic event that requires the intervention of the Central Committee.¹⁵

Table 7 shows the Central Committee’s response procedures and stages of response in case of wars, knowing that the armed violations are one of the indicators of the state of the military actions or evolves for a war on the Gaza Strip.

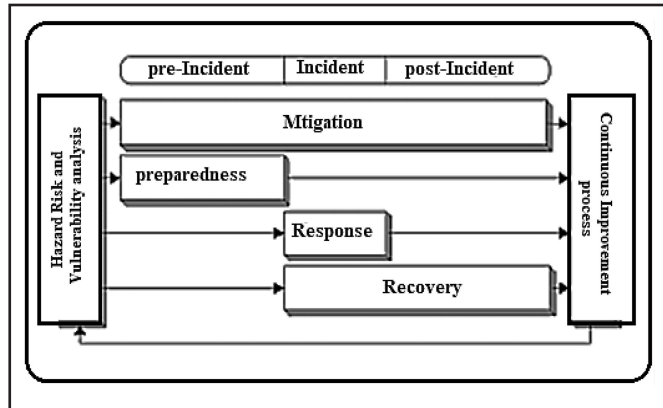


Figure 5. Emergency management stages.¹²

Assessment of the national disaster management force in the Gaza Strip

The assessment of the community’s resilience to disasters in the northern Gaza Strip is very important, especially in case of military war on the village of Umm Al-Nasr. The elements of resilience are linked to the potentials and human resources, properties, economic power, military capacity available to society and national strategies.¹¹ As well as adding the historical experience of the community to deal with the war crises and its ability to withstand Israeli military actions.

These factors should not be analyzed separately, but all of these factors must be linked to each other in order to achieve the effective resilience of society to the defense of society

$$R_s = (H + E + M + T) * (Ex + S + R_p) \quad (1)$$

where R_s is the resilience of society, H is the human capacity, E is the economic capacity, M is the military capacity, T is the terrain of area, Ex is the historical experiences, S is the national strategy, and R_p is the risk management plans.

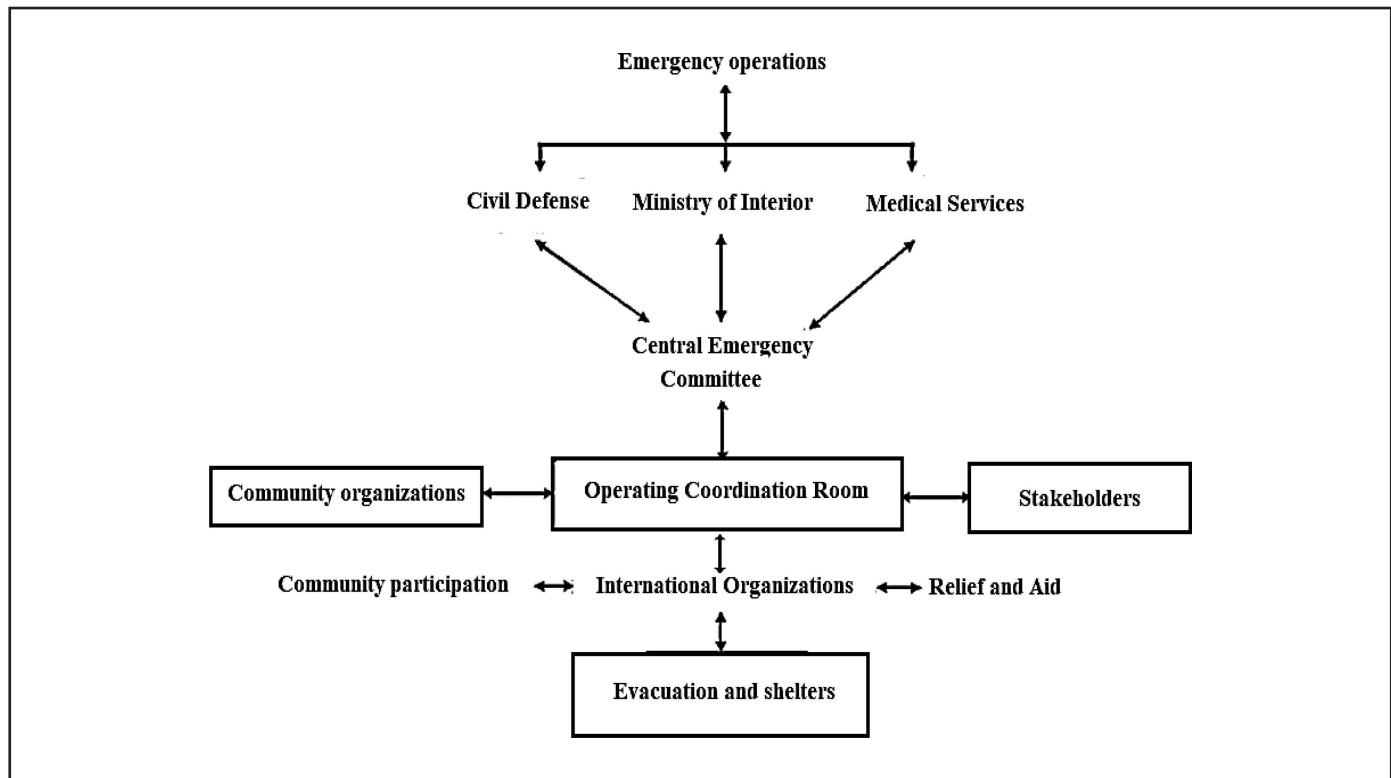


Figure 6. Emergency operations management model in the North Gaza Strip (prepared by researchers).

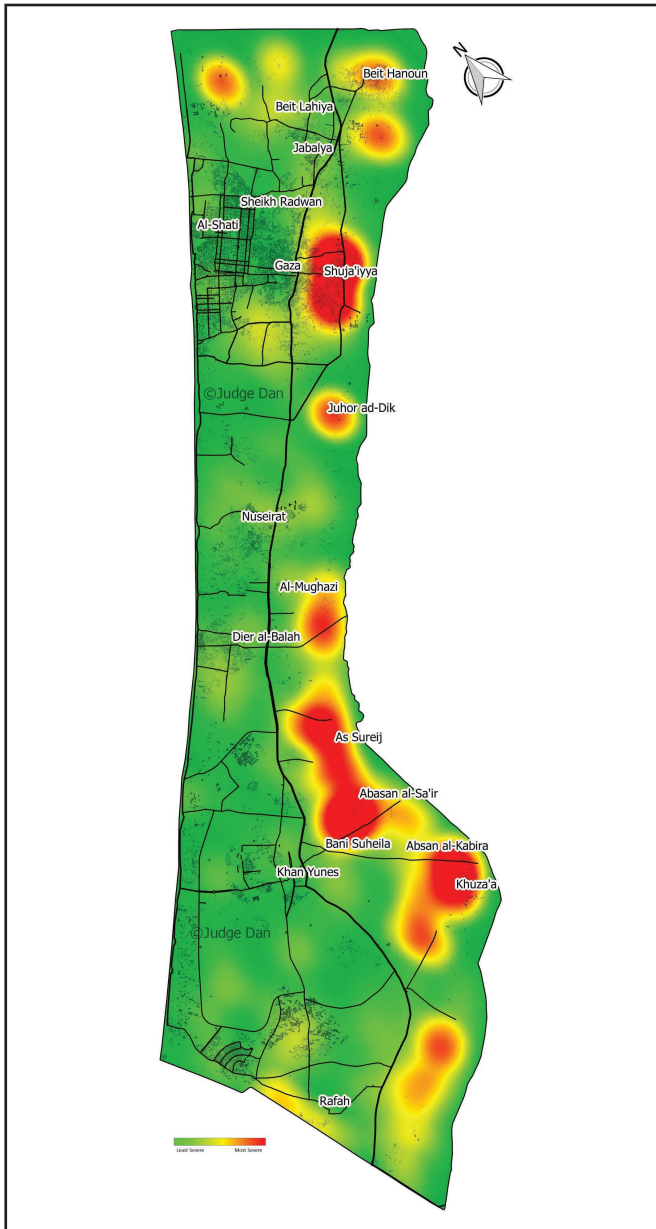


Figure 7. The damage caused by war in 2014 on the Gaza Strip.¹³

All factors can be calculated by setting criteria for each of them to reach an estimate of the strength and resilience of Palestinian society.

DISCUSSION

- The study was able to assess the risks by identifying and analyzing the risks and determining the consequences and

potential of any disaster that threatens the village of Umm Al-Nasr.

- The location of the border village in the northern Gaza Strip poses a threat to all aspects of life. The area is considered a theater of military operations and subject to military actions.
- The region has been subjected to three wars during the five years from 2008 to 2014 included the wars 2008, 2012, 2014.
- At the beginning of the war 2014, Israel tried to threaten the population to leave the village by dropping paper leaflets and sound warnings urging them to leave their homes.
- The Israeli army fired two warning missiles at the village on the night of July 17, 2014 forcing the population to take shelter in cement houses located inside the village but then they were forced to flee the intensity of the bombing.¹⁶
- After identifying the risks, the authors worked on preparing a risk matrix for the village of Umm Al-Nasr that determines the level of danger and the extent of its impact on the population and properties, focusing on wars and military actions that cause loss of life.
- The reports of the relief institutions about the vulnerability of the community were analyzed by assessing the economic, environmental, health, educational, and social fragility.
- The majority of the rural population of Umm Al-Nasr village is nomadic and depend on grazing and agriculture despite the risks they face due to the fact that the Israeli forces prevented them from approaching the border, which is close to 300m. The

Table 6. Preparedness procedures for Um El Nasr Village

Preparedness procedures		
Predicted risk assumptions	Hard components	Soft components
Military actions	<ul style="list-style-type: none"> • Providing equipment's and machines to open roads and address the effects of the invasion. • Providing communication equipment's to communicate with local and international populations and institutions. • Providing a warning system for the population in the event of an invasion through a system using mobile messages or through loudspeakers in mosques. 	<ul style="list-style-type: none"> • Training the public to evacuate in case of Israeli incursions. • Coordination with Civil Defense in case of fire or building collapses. • Coordination with international bodies and human rights centers to protect civilians. • Training volunteer teams from the local population to rescue and guide the public in case of disaster. • Providing a database for all local and international institutions and the media including contact numbers and e-mail addresses. • Preparation of a list of elderly persons and those with disabilities and special needs. • Providing a list of names of volunteers, committees, and contact numbers. • Preparing maps for the area and dividing them into regions and giving a code for each region. • Preparing numbered forms for each category of Israeli attacks such as shelling, land dredging, or shooting. • Preparation of distress request forms and forms for publishing press reports. • Providing psychosocial support programs to affected people in accommodation through coordination with international institutions.
Repeated wars	<ul style="list-style-type: none"> • Preparing a place to accommodate the people such as Hamza Ibn Abi Talib School or Ahmad Al Shukairy Boys School. • Providing equipment's and machines to open roads and address the effects of military wars and demolition. • Providing effective communication equipment's to communicate with rescue and relief institutions, locally and internationally. • Maintaining backup copies of the municipality files electronically. • Providing a warning system for the public in the event of a disaster. • Provide a system for programming communication through mobile messages with the local population. • Provision of an operations room for the management of emergency operations. • Providing emergency relief and medical supplies. • Providing spare parts for maintenance and operation in the Bait Lahia Municipality and Umm Al-Nasr village. • Providing spare parts for the maintenance and operation of the electricity company. 	<ul style="list-style-type: none"> • Preparing plans to communicate and coordinate with international bodies and human rights centers to protect civilians. • Preparing plans for evacuation training in the event of a disaster. • Preparing plans to coordinate with Civil Defense in the event of a fire, building collapses and road closures. • Training a team of volunteers for evacuation and first aid. • Providing a database for all local and international institutions and the media including contact numbers and e-mail addresses. • Preparation of a list of names of volunteers, popular committees and telephone numbers. • Preparing maps for the area and dividing them into regions and giving a code for each region. • Preparation of numbered models for each category of Israeli attacks such as shelling, land dredging, shooting and others. • Providing distress request forms or a press release form. • Providing psychosocial support programs to affected people in accommodation through coordination with international institutions. • Preparing a database of citizens' contact numbers to follow up with them in wars.

Table 7. Response procedures for Umm Al-Nasr village

Institutional Response Procedures and the Emergency Committee			
Component	Procedure	Responsibility	Response classification: routine/emergency/disastrous
Hard components	Provision of a place for displaced accommodation	Relief Agency for Refugees	Emergency/catastrophic
	Opening roads and address the effects of war and demolition.	Municipalities and Ministry of Works	Emergency/catastrophic
	Communication with rescue and relief institutions, local and international.	Central Emergency Committee	Emergency/catastrophic
	Maintaining backup copies of municipal files electronically.	Municipalities	Routine/emergency/catastrophic
	Population warning.	Municipality of Umm Al-Nasr Village	Routine/emergency/catastrophic
	Communication with local residents through mobile messages to warn them.	Municipality of Umm Al-Nasr village and emergency committee	Routine/emergency/catastrophic
	Activation of the central emergency room	Palestinian Authority	Emergency/catastrophic
	Assistance, aid and relief to the displaced	International Institutions, Red Cross, Red Crescent and Ministry of Health	Emergency/catastrophic
	Maintenance of electrical networks	Electricity and Power Authority	Routine/emergency/catastrophic
	Implementation of maintenance and operation in the municipality or victory	Local government, municipalities and the Red Cross	Routine/emergency/catastrophic
Soft components	Communication and coordination with international bodies and human rights centers to protect civilians.	Central Emergency Committee and the Municipality of Um Al-Nasr Village	Routine/emergency/catastrophic
	Working to evacuate the public	Central Emergency Committee	Emergency/catastrophic
	Coordination to deal with cases such as fire, building collapses and road closures.	Municipality, Umm Al-Nasr , Civil Defense and Emergency Committee	Routine/emergency/catastrophic
	The deployment of a team of volunteers to assist in the evacuation and first aid.	Civil Defense and the Red Crescent	Emergency/catastrophic
	Communication with all local and international institutions and the media to expose the occupation.	Central Emergency Committee	Routine/Emergency/Catastrophic
	Continuous communication with volunteers and popular committees.	Municipality of Umm Al-Nasr and Central Emergency Committee	Routine/emergency/catastrophic

Table 7. Response procedures for Umm Al-Nasr village (continued)

Institutional Response Procedures and the Emergency Committee			
Component	Procedure	Responsibility	Response classification: routine/emergency/disastrous
	Providing maps of the area and its divisions.	Municipality of Umm Al-Nasr and Central Emergency Committee	Routine/emergency/catastrophic
	Filling out numbered forms for each category of Israeli attacks such as shelling, land dredging, shooting and others.	Municipality of Umm Al-Nasr and Central Emergency Committee	Emergency/catastrophic
	Fill out forms for each distress request or a press release form.	Municipality of Umm Al-Nasr and Central Emergency Committee	Routine/emergency/catastrophic
	Implementation of psychological support programs for affected people in accommodation	International institutions	Routine/emergency/catastrophic
	Communication with citizens to follow up on developments in the areas	Municipality of Umm Al-Nasr and Central Emergency Committee	Emergency/catastrophic

percentage of arable land restricted from the Israeli occupation is 35 percent.¹⁷

- Effective emergency management processes need to identify who is responsible for emergency response and stakeholders and how to link actors at the time of the event to the emergency room. When the local government becomes unable to manage and bear the burden of responding to the disaster, international assistance can be sought through OCHA.
- Therefore, an emergency management model has been developed in the northern Gaza Strip, explaining who is participating in emergency management in the event of a threat either in the area of Umm Al-Nasr village or in the northern Gaza Strip.
- Risk and vulnerability assessments help the local authorities to prepare preparedness and response procedures in the

events of an emergency in the village, especially in the case of military wars, which cause a lot of losses and threaten the lives and works of displacement and displacement of the population.

- The hard and soft components were also identified as requirements for the disaster preparedness phase in addition to the identification of responsibilities and classification of each disaster response procedure.
- Finally, a mathematical equation was prepared to calculate the resilience of the society during the wars and factors required to apply in the equation were determined.

RECOMMENDATIONS

- Effective planning of emergency management is required through effective preparedness measures that lead to the preservation of lives and properties.

- Protection of vulnerable communities in the Gaza Strip, especially the community of Umm Al-Nasr.
- There is a need to strengthen the steadfastness of Umm Al-Nasr village community in the fields of economic, environmental, and health.
- Training is important for response procedures and maneuvers that simulate the reality in the event of wars.
- Providing emergency resources, contingencies, and budgets to all emergency actors.
- Providing the Central Emergency Room with all the equipment and capabilities required to manage emergency operations, especially communication and coordination systems.
- Activating community participation in disaster management through the participation of local community institutions and grassroots committees in the regions.

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