The Role of Municipalities in Managing Disasters in International Experiences: A Comparative Study

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Abstract

Purpose – This study aims to explain the roles of municipalities in managing local disasters in some international experiences by identifying the different agencies entrusted with crises management and the extent of coordination or conflict between these agencies.

Design/methodology/approach - This study is depended mainly on comparative approach, which used in analyzing local disaster management in some international experiences located in different geographical places, namely the experiences of the United States, India, South Africa and Australia.

Findings - The study concluded some findings, the most important of which are: The necessity of having an independent authority concerned with local disaster management, providing financial and political support for this authority, and finally supporting local and central coordination mechanisms between all parties participating in managing local disasters.

Practical Implications - The study reflects one of the most important studies working to achieve sustainable development in developing countries such as Saudi Arabia. This study also provides a framework and vision to help municipalities in developing countries to rebuild stronger and more inclusive capabilities in post-disaster stage which help these countries to overcome the harmful effects of local disasters they face.

Keywords: *Municipalities, Disaster Management, Crisis Management, International Experiences.*

Introduction

Disaster management is one of the novel topics that began to receive attention in administrative sciences. Various countries pay extra attention to the disaster management to reduce its damages. Therefore, countries are seeking to adopt particular policies to coordinate efforts among all administrative unites, and then reduce the disaster's damages.

The study addresses the role of municipalities in disaster management by analyzing the definitions of disaster and local crisis. The local crisis is defined as a sudden imbalance as a result of unstable conditions. This results in unexpected developments owing to the inability of the concerned parties to contain it. The local crisis is often caused by human action. The crisis is also seen as the critical point and the decisive moment that could be developed either for the better or the worse. Others scholars depict the crisis as a serious imbalance

that materially affect the entire system, as it threatens the main assumptions on which the system is based. Accordingly, the crisis is characterized by common elements, namely: the presence of imbalance and tension in relations, the need to make a decision, the ability to accurately predict upcoming events, and a turning point for the better or the worse (Panuel et al., 2013: 8).

There are many definitions of a local disaster, as it may refer to a sudden event caused by nature. It threatens the local and national interests of the country and disturbs the natural balance of things. It is confronted by all various state authorities. Some define it as an event that is determined temporally and spatially, which results in the exposure of an entire society or part of it to severe material risks and losses, affecting the social structure. This crisis disrupts the life of individuals and deprives them of necessary requirements. The disaster is also defined as a major incident that results in a great loss of life and property. It may be natural or technical, and it is voluntary (intentionally) or involuntary (negligently). The government should intervene to confront this disaster, but the matter may need an international intervention in case of inability to face it (Rodriguez et al., 2006:7-8).

This study focuses on the art of disaster management by responding to the requirements of the event or forecasting its occurrence by monitoring any imminent danger and taking preventive measures to confront it in the future.

While all levels of government play an important role in disaster management, municipalities are supposed to play a prominent role in disaster management, especially in their geographical areas. They have the authority to organize urban areas. The central government and other local governmental departments may share roles, with determining the role of each in disaster management.

Literature Review:

Previous literature review has been divided into three sections as follows:

The first section includes studies dealt with the role of central governments in facing natural crises and disasters. The study of (Piper, 2014: 33—38) has focused on the strategy of risk management of the flood of the River Thames. Also, the study of (Wheater and Evans, 2009: 3-15) has dealt with the risks of flood and the water management in England and Wales, while the study of (Wrachien, 2011: 229-240) has examined how to face the risks of flood in Italy. The study of (Amin et al., 2013: 27—36) has shed light on torrents and floods in Saudi Arabia in six governorates: Jizan, Najran, Jeddah, Yanbu, Al Wajh, and Al Qaisumah.

The study of (Addaly and Abdul Baqi, 2012: 5-75) has dealt with the strategies of facing and managing the risks of torrents disasters in Saudi Arabia, while the study of (Abu Kahla, 2013) has examined the role of central urban planning in Egypt in reducing the risks of various natural disasters.

The second section includes studies that examined the role of municipalities in facing crises and disasters, where the study of (Metwely, 2011: 433-461) has dealt with how to activate the local dimension in managing crises and disasters with the study of the Egyptian experience. Also, the study of (Kusumasari et al., 2012, PP, 2-40) has dealt with the factor of building local capabilities as one of the requirements for municipalities to confront disasters and crises. The study of (Col, 2007: 114-124) has focused on the role of local government in managing crises, with a comparative study between the role of municipalities in the United States (the decentralized model) and China (The centralized model) in fronting crises and disasters.

The study of (Ballesteros-Canovas et al., 2013: 3051-3069) has examined the assessment of flood risks in Navluenga city in Spain. The objective of the study is to compare possible alternatives to the best intervention procedures and choose the most appropriate alternatives. The study of (Hunter, 2010: 122 - 133) has dealt with various issues related to the local governments in New Zealand, and the impact of climate change

on societies and infrastructures. The study also has focused on the opportunities for enhancing and supporting of adaptation to avoid or reduce negative effects on natural environment, society and infrastructure.

The third section contains the studies that focused on the role of civil society in dealing with crises and disasters. It also includes the role of both public and private sectors in facing the disasters of floods such as the study of (Howarth, 2003: 1–21). There were studies focused on the role of public participation in managing the disasters of floods such as the study of (Rouillard et al., 2014: 637–645), while other studies examined the role of Britain's private sector in managing the disasters of floods such as the study of (Bosher, 2013: 3-15).

Commenting on Literature Review:

Previous studies have focused on using the comparative methodology between both centralized and decentralized systems, and the ways adopted by local governments to face disasters. They also examined the disaster's administrative aspects, where the crisis management locally is very significant because disasters are characterized by lack of capabilities and information. They also focused on institutional frameworks, as these frameworks are marked by sustainability and capability to face emergent crises and disasters. Some studies also focused on using the comparative methodology between the two centralized and decentralized systems, and the ways adopted by local governments to confront disasters within the framework of these systems. This methodology has been adopted by the current study.

Research Problem

There are many bodies entrusted with managing disaster in international experiences according to the type of local system. In the centralized system, the basic roles in managing local disaster have been dominated by the central branches of the ministries at the local level, and the roles of municipalities in managing the local disaster are marginalized. However, in the decentralized system, municipalities play a pivotal role in disaster or management.

The role of municipalities in disaster management varies in international experiences according to the stages of its management locally. For example, there are the stages of early warning, preparedness and prevention in pre-disaster period, and there are the stages of containing and reducing damages in post-disaster period.

In this vein, the research problem revolves around the following questions:

- RQ1. To what extent do municipalities' roles differ in international experiences in their response to local disasters and crises?
- RQ2. What is the role of municipalities in the different stages of disaster management?
- RQ3. To what extent can we benefit from international experiences?

The Objectives of the Study

The study has sought to achieve the following objectives:

1- Determining the different agencies entrusted with disaster management, whether at the local or central level, and the extent of coordination or conflict between them
2- Knowing the role of municipalities within the different stages of disaster and crisis management, and the most significant obstacles that hinder their roles.
3- Determining the lessons learned from the international experiences under study in the field of disaster management at the local level, and the extent to which Saudi Arabia benefits from these lessons.

What distinguishes the current study from previous studies is that it has sought to achieve an integrated framework of local management of crises and disasters by examining the best practices in the stages of

crisis management in experiences under study, from which Saudi Arabia could benefit to achieve a sustainable development in the context of the 2030 vision of Saudi Arabia.

Methodology & Data Collection:

The study is based on the comparative methodology of four important international experiences, namely: the United States, India, South Africa and Australia. The comparison was based on tracking the stages of local disaster management in the selected experiences. The study depended mainly on analyzing secondary data sources which represented in the following sources: documentations, books, articles and reports that dealt with the role of municipalities in managing local disaster.

The Study Division

The study attempts to answer the previous research questions by addressing three important sections: The first section relates to the conceptual framework of the study by defining local disaster, its classifications and characteristics. The second is related to the stages of local disaster management by dealing with four basic stages of local disaster management: 1) how to announce local disaster management; 2) the response plan to local disaster; 3) the method of evacuation and shelter of the disastrous area; 4) The societal contribution to helping and mitigating the disaster's dire repercussions. The third section relates to the application of the various stages of local disaster management to four important international experiences: the United States of America, India, South Africa, and Australia.

The Conceptual Framework of Local Disaster Management

The literature review was divided into two parts. The first part deals with the concepts and definitions used in the study, and the second part deals with the literature related to the selected experiences. The study relied on the literature of the first part in formulating the conceptual framework of local disaster management which represented in the following main points:

Local Disaster and Related Definitions

The definition of disaster is disagreed among scholars, and it confuses with other definitions such as the crisis, the source of hazard and catastrophe. The disaster is a sudden event related to a specific time and place, and causes material, human, economic and environmental damages. The crisis is related to an unplanned incident, whether in its beginning or in a short period of time, and it has serious repercussions (Penuel et al, 2013: 8). Hence, a major difference appears between the disaster and the crisis in terms of temporal gradation, as the crisis appears in an ascending manner from a simple level to a complex one, while the disaster often occurs in full. The term source of hazard relates to the threats facing individuals and their property and environment. As for catastrophe, it may sometime be synonymous with the disaster, as both terms means the occurrence of a sudden sharp change as a result of continuous developments, resulting in imbalance (Banks, 2005: 5). Accordingly, all previous definitions demonstrate that the source of hazard, crisis or disaster represents a fundamental turning point in successive and accelerated events, causing shock and tension at first. The sudden escalation of previous phenomena leads to a high degree of skepticism about the proposed alternatives (Rodriguez et al., 2006: 7-8).

Local Disaster among the Different Classifications of Disasters

Local disaster is variously classified among the disaster's different classifications. Politically, the disaster can be differentiated into two parts: the first is an international perspective interpreted within the framework of a military strategic concept, where governments or states are in conflict. The second is a local perspective, in which the disaster is defined as a sudden event occurred as a result of a natural phenomenon such as

earthquakes, volcanoes, floods or torrents (Pfaff, 2019: 1-12). Regarding its cause, the disaster can be divided into two categories: The first is the fatalistic natural disaster that cannot be controlled or stopped by Individuals such as earthquakes, volcanoes, desertification (Shaluf, 2007: 704-717; Owen, 2019: 1-10). The second is man-made disaster, whether it was intentional such as wars and terrorist operations, or was unintentional such as various forms of pollution (Storrier & Da Costa, 2017: 502-513).

As for hybrid disaster, it is a disaster that may be initiated by man, and then nature aggravates its size and damages. As an example, a fire may be occurred, and the strength and the speed of its transmission may be increased by winds (Kotani et al., 2019: 1-15). There is also mobile disaster, which start in one place and move to another due to natural or human factors. Neglect may aggravate and augment the disaster; for instance, the explosion of the Chernobyl reactor on April 6, 1986 (Peduzzi, 2019: 1-21), and the 2011 Japanese earthquake, which was accompanied by a tsunami, leading to the damage of Hawaii Island and large parts of America, Canada, Mexico, Russia and Indonesia; also, the transmission of infectious diseases such as the spread of SARS virus in Canada, as well as the Corona virus (Scheele et al., 2019: 1-36).

Disasters also differ in terms of time and Place of occurrence. They are divided in terms of time of occurrence into: sudden disasters (forest fires), seasonal disasters (floods and torrents), and slow disasters (pollution and desertification) (Nishino and Takagi, 2019: 1- 12; Cuthbertson and Rodriguez, 2019: 1-13). Concerning the place of occurrence, they are divided into: local disasters (a local area), national disasters (a country), regional disasters (several countries that share certain characteristics), and international disasters (cross-border disasters) (Halpern and Rodriguez, 2017: 22-25).

Despite the overlapping of the disasters' forms, the concept of disaster has significantly developed. Hardly any country is free from a disaster. The forms of disaster overlap in meaning, connotations and different types of disasters. For example, disasters, politically, overlap with international disasters in terms of the place of their occurrence, and also overlap with the cause of the disaster, whether man or nature, and with the magnitude of the disaster, as it will often harm a large segment of society (Wang and Wang, 2015: 1-9).

The current study will focus on the local disaster. According to the researcher, the local disaster falls within the scope of a local unit, and it suddenly occurs as a result of a fatal phenomenon. The source of disaster is nature, human behavior, or both. This disaster is located in a specific geographical area that has been divided politically within a particular country.

Characteristics of Local Disaster

The local disaster is characterized by: First, the element of surprise that leads to confusion, turmoil, chaos, panic, fear, loss of control, leading to exacerbating losses (Moghadam et al., 2017: 382; Bazerman and Watkins, 2004: 3-4). Second, the events of the disaster are speed and consecutive, where difficulties increase by the succession of events rapidly and regularly (Deebaj et al., 2011: 71). Third, highly tension and stress, as the disaster is accompanied by sever confusion as a result of sudden and raiding circumstances. At the beginning of its occurrence, the disaster also causes shock and tension, weakening the capabilities of reaction speedily and effectively. Additionally, the sudden acceleration of the disaster casts doubts on the available and proposed alternatives to confront the accelerated events. Fourth, huge psychological and nervous pressure, where the disaster is accompanied by a state of panic that generates enormous psychological and nervous pressure requiring the intervention of specialized medical teams and psychological practitioners to mitigate the impact of the disaster (American Red Cross, 2012, A1-A11). Fifth, lack of data and information, as the occurrence of some disasters may be accompanied by a severe lack of data and information, particularly in remote areas and unexpected disasters such as avalanches and volcanoes. Sixth, the enormous challenge for the officials, as the creative thinking for officials and managers is very important

in these situations. They can turn adversity into gift and disaster into a glimmer of hope and an opportunity to rebuild (Halldin and Bynander, 2015: 1-8).

Stages of Local Disaster Management

The stages of local disaster management are summarized in the various literature into four basic stages. The first relates to *the local disaster declaration process*. The second is the response plan to disaster. The third relates to evacuation and shelter process. The fourth is societal contribution and relief process. These four stages will be discussed in the following section:

The Local Disaster Declaration Process

Declaration is an official statement issued by officials who are authorized by official law such as the President of the state in the central systems, and the governor of the state in local governments. The statement states that a disaster has been occurred and it is beyond the capabilities of the state (McEntire, 2015: 248-249).

The Response Plan to Local Disaster

Local governments are often the main actor in responding to the disaster by rescuing the injured, giving first assistance and providing shelter. Also, volunteers, whether individuals or organizations, may contribute to the response plan. In contrast, the central response is usually slower and may not be needed in the event that the disaster is locally controlled (The Johns Hopkins and International Federation of Red Cross, 2008: 28).

Economic losses resulting from disasters are estimated at $250-300 billion, and more 530,000 people have lost their lives as a direct result of extreme weather conditions, and millions have been seriously injured. Most deaths have been in developing countries, and infectious diseases continued to emerge. However, these disasters can be curbed and prevented from turning into catastrophic events if there are better responses to them. The lack of a prompt response is due to the absence of remunerative funding. These matters could be avoided through precautionary measures that virtually were selected or applied to previous real disasters (Clarke & Dercon 2016: 10-12). Therefore, the response plan should depend on several elements, the most important of which are: identification of gathering sites (Hughes & Ferrett, 2016: 124); Providing the necessary elements from health practitioners through the formation of a health alert network (USDHHS, 2010: 155-158); providing logistics; transporting relief materials; providing ambulances to transport the dead and wounded (Kirac and Milburn, 2018: 486); Communicating with the media through various means (Haddow, 2014: 103-104); and providing effective communication systems to follow safety instructions (Kapur et al., 2017: 137-138).

Evacuation and Shelter Process

Evacuation aims to alleviate the dire consequences of a disaster. Attention is paid to special cases such as children, the elderly, the patients and pregnant women. The means of evacuation are delivered to all residents through the means of contact that previously registered. The decision to evacuate may be immediate in post or pre — disaster period. Evacuation may be voluntary or directed (Pinheiro & Hokugo, 2019: 260-265).

One of the main challenges in developing an evacuation plan is to determine the distribution of the evacuees and the places of their accommodation. Given evacuees' psychological crisis as a result of catastrophic events, ethnicities, races and even religion in some cases should be taken into account (saadatseresht et al., 2009: 305-314). The use of public and private transport puts pressure on the safe transportation ways, and it may be replaced by walking to avoid overcrowding (Aalami & Kattan, 2019: 373).

Shelter areas should be safe and more livable residential areas, in which food, water, and medicine are available. Residents usually start leaving immediately after the occurrence of the disaster, and they may leave before the disaster in the case of early warning. Consequently, the disaster response plan plays a significant role in calming citizens, directing them to assembly points and predetermining roads leading to shelters, and motivating those who can walk to shelters to avoid overcrowding (Liang et al., 2019: 1-3). Consequently, shelter is very important for restoring the functions of society quickly and smoothly. Also, giving their families is found in shelter, volunteers can reassure them and carry out their tasks at the same time (Bayram & Yaman, 2018: 416-417).

Societal Contribution and Relief Process

The literature addressed the importance of societal contribution in the face of local disaster. Some literature examined the roles of public and private sectors in confronting flood disasters such as the study of (Howarth, 2003: 1-21). The role of public participation in the management of flood disasters was focused like the study of (Rouillard et al., 2014: 637–645). Other literature dealt with the role of the private sector in Britain in managing flood disasters such as the study of (Bosher, 2013: 3-15). The study of (parker and Handmer, 1998: 45-50) examined the role of unofficial systems in general in dealing with local crises and disasters.

The societal contribution to responding to the disaster is the volunteering of some community members to help in relief and rescue work and meeting the needs of the affected physically and psychologically (Quevillon et al., 20ll: 1348 - 1349).

Volunteers need training not only in debris removal and alleviating the results of the disaster, but also in protecting themselves and dealing with disaster's grave repercussions. Indeed, they need training in distinguishing highly toxic substances and attention to wearing masks to protect themselves from emitted gases and avoiding exposure to radiation, which may infect volunteers with serious diseases like cancer and respiratory diseases in the long run (Reissman and Howard, 2008: 135-137).

Furthermore, social and informational capital plays a key role in managing local disaster. Through informational capital, it is easy to transform societal ties and relationships into organized information that effectively facilitates the collective action to confront any local disaster. This leads to the reduction of human and economic losses based on the culture, beliefs and society's common values, and the characteristics of its members in terms of defining risks and awareness of the requirements of dealing with the disaster (Tasic and Amir, 2016: 395-396).

Applying Various Stages of Local Disaster Management to International Experiences

This paper is based on a comparison between four models of countries with reference to the targeted level, whether they were federal states such as the United States, India and Australia or they had consensual democracy such as South Africa. The comparison is made between previous experiences in the light of determining the local levels that are responsible for managing local disasters, as well as trying to apply the various stages of local disaster management to the reality of the international experiences under study. The previous elements will be dealt with in detail in the following section:

Local Levels Responsible for Disaster Management

Four models for local disasters management have been selected, which are the American, Indian, South African, and Australian models. The researcher was keen on the diversity of these experiences. The American crisis management model was selected because the science of disasters management has been

created by the United States. The United States is also constantly exposed to local disasters, especially hurricanes. Additionally, it has a unique experience in managing domestic disasters and crises. The Indian model in local crises management was chosen because India is the most densely populated country in the world after China, and is besieged by various types of natural disasters every year such as floods, drought, earthquakes and hurricanes (Banerji and Singh, 2013: 72-73).

As for the experience of South Africa, it is characterized by the strength of its legal framework governing the management of local crises, and its system of government differs from the federal systems. In addition, its municipalities have a high degree of local autonomy and decentralization (Niekerk, 2006: 95-100). The Australian experience is characterized by the existence of an innovative risk management system called LDMG Brisbane. Australia also does not have local governments established by the constitution, but each state establishes its own local governments. Furthermore, Australia has experienced the largest natural disaster in modern history (Pitman, 2006: 3-10)

The local government in the United States was established in the late eighteenth and early nineteenth centuries, where counties and municipalities were established. The local system of most United States is composed of three main levels: counties, cities and villages. The county is the local level following state's authority, then large cities or small towns that called municipalities, then township, and areas created for special purposes. The target local level in this study is the county (Arnold, 2004: 25-27).

India witnessed the existence of forms of organization for its local affairs in pre-British colonialism era, and then modern British administrative systems were transferred to the Indian local government in post-British colonialism era, weakening the strength of these local communities. The system of government in India is composed of three levels: the central federal government; the State's governments; and the local government which is located at the bottom of the pyramid of government institutions. The paper focuses on the local government in urban and rural areas (Sachdeva, 2011: 16).

South Africa witnessed the first stage of democratization in 1994 with the transition of power from the white minority to the black majority, and then the end of the policy of apartheid (Nyalunga, 2016: 15-20). The 1996 South African Constitution defined three different forms of central government: national, provincial, and local. The Constitution dealt with local government as an autonomous governmental level with its own resources and systems. The Constitution also determined the levels of local government according to the system of municipalities. According to the population census and the extent of the participation of the executive and legislative authorities for each category with other categories, each municipality is divided into three categories: metropolitan, local and district municipalities (LGMSA, 2000).

The Australian federation was formed on 1 January 1901 from six separate British colonies, and it was called the Commonwealth of Australia (Savage and O'Connor, 2018: 1-2). Although the Constitution of the Australian Commonwealth does not explicitly stipulate the existence of local governments, they were created from the Statute of the State. Therefore, literature indicated the weak relationship between state and local government, which is the focus of this study (Grant and Drew, 2017: 84-85). Australian local governments are level following the State's government. They were called local councils and were created by states to meet community needs such as waste collection, construction of public recreation facilities, and town planning. Local governments in Australia are called cities, counties, towns or municipalities (Australian Government, Local Government website).

The Disaster Declaration Process

A local disaster in the United States is declared by the following means: firstly, the local and State declaration when a disaster falls within the State (International Federation of Red Cross and Red Crescent

Societies, 2012: 12-19). Secondly, it is the presidential declaration (Rubin, 2012: 123-124). This declaration was made when the disaster is beyond capabilities of State and local government (Stafford Law). Thirdly, it is the emergency declaration. It addresses the state of emergency or imminent emergency. It is issued when the state of emergency needs federal support to supplement the efforts of the State or local government (International Federation of Red Cross and Red Crescent, 2012: 30-35). Finally, it is the principal declaration. It is made when the magnitude of damages is too enormous to justify assistance in cases of catastrophic disasters to accomplish the efforts and resources available to the State, local governments, private non-profit organizations, and human resources (Louisiana Emergency Preparedness Association, 2016).

India's the Disaster Management Act of the Gujarat State issued 2003 stipulated that the government of Gujarat declares that Gujarat is a disaster area due to earthquakes. The aim of the disaster declaration is to organize an effective response and mitigate dire repercussions of the earthquake. This declaration gives broad powers to the State's relief commissioner and the district's official. (GSMA, 2017: 23).

The National Disaster Management Center in South Africa declares the disaster. During disaster or the appearance of its indicators, the Center determines whether the event is a disaster or not according to the law. If the event was disaster, the Center should immediately declares it, make an initial assessment of its potential risks, and urge human resources to provide any possible assistance in such circumstances (NDMC, 2016: 65).

In the Australian experience, the disaster is declared by province's disaster coordinator, who declares the disaster at the province level as a whole or part of it. The coordinator consults with disaster groups, and local governments that the disaster falls within its scope. Additionally, each local government follows the procedures stipulated by the Disaster Management Act (Lee et al., 2018: 195).

Response Plan to Local Disaster

Each American State has its own method in dealing with emergencies or disasters. To a large extent, some States, such as Louisiana and Mississippi, have developed comprehensive plans for responding to disasters, while others have poorly emergency plans (Iqbal et al., 2007: 8-11). Federal Emergency Management Agency (FEMA) is responsible for responding to big natural disasters, where they need federal support and intervention. In the event of emergencies, some laws and administrative procedures may be condoned. Under an executive order of the Governor, the State should take an immediate and appropriate action to identify, direct, mobilize and coordinate the resources needed. The State's government excludes or cancels normal processes and redirects resources in order to save souls, alleviate human suffering, preserve survivors, protect property and repair essential facilities. There is also financial and technical coordination between emergency operations centers within the framework of the various local levels (Fagel, 2007: 281-288).

Once the crisis is about to occur, the response mechanism in India is put into effect under the 2003 Gujarat Management Act (Konoorayar and Jaya, 2005: 87-90). This mechanism will continue until the declaration of the end of the disaster. The response is activated as soon as an early warning is received. Hence, the officials of disaster management in the province immediately communicate with the location of the disaster through multiple means of communication. According to the State's Disaster Management Act, a notice is published in the official Gazette declaring that the province is a disaster area (The World Bank, 2009: 51). The Department of Revenue in the state is responsible for relief during disaster and in post- disaster stage through the State's relief commissioner, the county's officials, and the relevant ministries (Surfi, 2019: 1-10).

Regarding experience of South Africa, the Disaster Management Act clarifies the three governmental circles (national, provincial, municipal) which are responsible for dealing with disaster management plans,

as they create these plans in their jurisdiction without duplicating their roles. The response plan includes the cooperation of all municipalities in the target area to integrate the response of civil society, the private sector and hazard mitigation programs into disaster management plans. Furthermore, the municipalities of the area clarify the strategies of integration and coordination of response and mitigation (Adonis & Walt, 2017: 47-49).

Australia has a unique experience in local disaster response, as cities' municipalities have particular systems of disaster management. The most important of these cities is Brisbane (Pitman, 2006: 3-10). These systems are based on the best practice principles and capabilities of disaster management because they include resilient and efficient response to disaster (Charles, 2004: 63-71).

The Brisbane Local Disaster Management Group (LDMG) is composed of representatives from local government authorities involved in disaster management. This Group is headed by the Mayor, and be directly subject to the disaster coordinator. It has joint responsibility for response and recovery within the framework of Brisbane's local government. Brisbane LDMG is responsible for managing disaster in the area of local government of Brisbane (see figure 1).

(LDMG Brisbane Local Disaster Management Model Australian Experience)According to the law, local disaster management groups are required to create an effective plan for disaster management, and to regularly review and evaluate disaster management capabilities (Brisbane City Council, 2009: 1-9). The Brisbane LDMG meets twice a year. Its functions are: coordinating the processes of disasters of the local group; preparing regular reports for the local group on disaster operations; and ensuring the implementation of any strategic decisions of the local group on disaster processes (Queensland Government, 2017: 4-7). Brisbane LDMG manages the response plan to disaster and recovery operations to reduce the dire implications of a disaster for society, environment, and economy. The Group also monitors response processes and allocates resources to them, and adheres to approved response plans (Sheehan and Quinn-Allan, 2015: 133-145).

Evacuation and Shelter

Evacuation is the movement of people away from the source of danger. The most obvious problem is the considerable scale of the event. Emergency evacuation can involve millions of people on a scale of over hundreds of thousands of square miles (Wolshon et al., 2006: 1-6). Evacuation in the experience of American Municipalities are often carried out by personal cars, as happened in the Hurricane Katrina evacuation, where the percentage of 70% to 80% of evacuation occurred after Louisiana's Mayor ordered a forced evacuation. This evacuation was successful owing to the State's experiences acquired from previous hurricanes. These experiences resulted in reducing the death toll. Low, coastal and hazardous areas have priority in the evacuation process. Also, the arrival management plan is activated by smooth traffic flow and moving as many cars as possible onto the road and then onto the highway and other roads (Wolshon et al., 2006: 1-10).

There are two types of evacuation in India: the first is immediate evacuation. It is limited to a little warning, and sometimes there is no warning as in the case of earthquakes and air accidents. The second is early evacuation according to a warning previously issued by authorities. The authorities warn residents of an imminent disaster, and then they issue the evacuation decision. Thus, the authorities are obligated to ensure the safe transportation of disaster's victims to pre-established shelters with all necessary facilities such as security, safe housing, nutrition, drinking water, sanitation, and medicine (National Center for Disaster Management, 2002: 37-38).
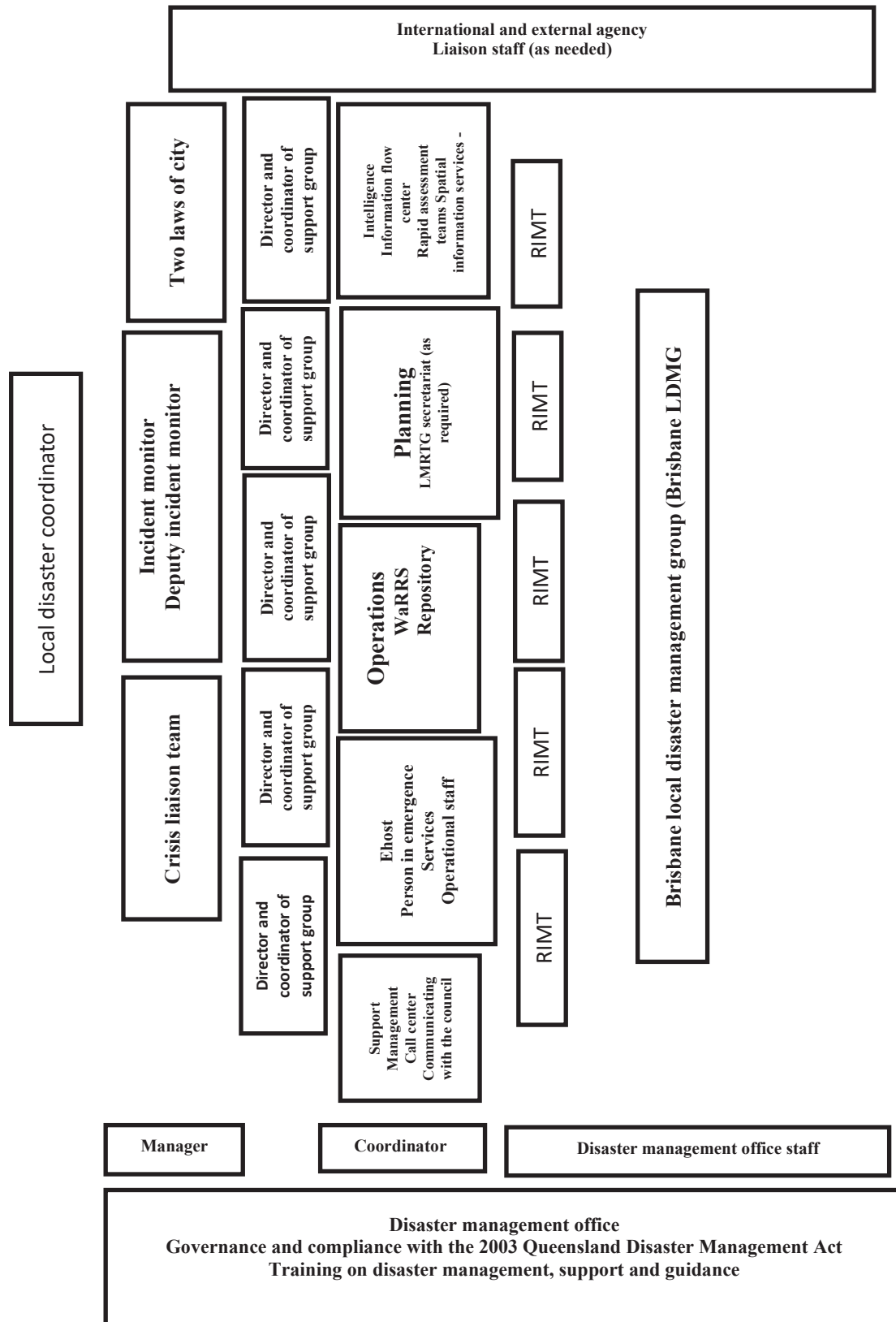
International and external agency
Liaison staff (as needed)

Two laws of city

Director and coordinator of support group

Intelligence Information flow center Rapid assessment teams Spatial information services -

RIMT

Local disaster coordinator

Incident monitor
Deputy incident monitor

Director and coordinator of support group

Planning
LMRTG secretariat (as required)

RIMT

Crisis liaison team

Director and coordinator of support group

Operations
WaRRS
Repository

RIMT

Brisbane local disaster management group (Brisbane LDMG)

Director and coordinator of support group

Ehost
Person in emergence Services
Operational staff

RIMT

Director and coordinator of support group

Support
Management
Call center
Communicating with the council

RIMT

| Manager | Coordinator | Disaster management office staff |

Disaster management office
Governance and compliance with the 2003 Queensland Disaster Management Act
Training on disaster management, support and guidance

Figure 1. A Proposed Model for Local Disaster Management

In the event of imminent danger, South Africa's local government determines the locations and procedures for evacuation, including the evacuation of schools exposed to sudden floods, as well as the allocations of shelters that are often away from danger and may be outside the boundaries of the province (zschau and Kuppers: 311-316).

The safety of residents is the primary driver of evacuation in the Australian experience. Queensland Police Service (QPS) is authorized to evacuate residents when necessary under the 1986 Public Safety Act. Brisbane Council (Brisbane's local government) supports QPS and other agencies in delivering messages of warning and support to the affected areas. The Council also identifies shelter centers, which are announced in newspaper, media (television and radio), and social media. The Council has a record containing information about those who have been sheltered with the aim of family reunification (Croft, 2013: 341-350).

Societal Contribution and Relief Operations

It is clear from US experience that there are different communication systems between local, state and federal organizations in order to coordinate and direct disaster relief efforts. These systems consist of internal and/or external systems located in the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), Local Emergency Operations Center (EOC), or other first response agencies.

Louisiana Voluntary Organizations Active in Disaster (LAVOAD) are voluntary organizations involved in emergencies in New Orleans. They are established in 1970. Previously, many organizations were involved in serving disaster's victims independently, including governmental, private and non-profit sectors (Governor's Officer of Homeland Security and Emergency Preparedness). As a result, assistances have been randomly distributed on the disaster's victims. People who wanted to volunteer to help the affected individuals by disasters were frustrated due to the large number of organizations in some service areas and ambiguity in their dealings with each other, resulting in failure to meet other needs. In addition, information about the disaster's victims was inaccurate. By the same token, communication between voluntary disaster agencies has been limited, and coordination of services has not been optimal (LRRRND, 2012: 29). The LAVOAD alliance seek to provide training and information to support members in Louisiana, increase the capabilities and values of communities, and provide services effectively (Louisiana Voluntary organizations Active in Disaster Website).

The volunteer Reception Center (VRC) can perform many tasks without actually having volunteer by using volunteer websites, computer programs, phones and other creative means. American volunteers in New Orleans encouraged organizations having a plan to take advantage of volunteers to create an account on "volunteerlouisiana.gov" and insert potential volunteer opportunities. US volunteers have also called on agencies that do not have a plan to record (UWASC, 2009: 15-21).

As for the Indian experience, local groups, voluntary organizations and NGOs in Gujarat are actively providing assistance to carry out disaster prevention and mitigation activities under the supervision of the State's disaster management authority. The Department of Revenue of the State is responsible for disaster relief during the disaster and post-disaster through the State's relief commissioner, the county's officials, and relevant ministers (Sufri, 2019. PP. 1—10).

In the context of the South African experience, the municipality's Regional Center and Disaster Management Center provide, through emergency relief funding, temporary shelters, roads and temporary bridges in the event that the concerned authority in the country is unable to provide these requirements. Also, they create mobile classrooms in the event that the Department of Basic Education (DBE) is unable to do so, and provide support to the agricultural sector (Cooperative Governance and Traditional Affairs)

The general provisions of the law also stipulate that volunteers can be recruited, trained, and participated in disaster risk management in all three governmental circles. Chapter 7 of the Law states that governorates and districts can establish a volunteer unit to participate in disaster risk management within the municipality. It also stipulates that individuals or groups wishing to actively engage in the organizational structure of volunteers of disaster risk management may be registered and involved (Phillips, 2020: 174 to 175). It also includes individuals, groups or organizations that already have specialized skills, as well as those who wish to be trained to specific skills (Hallmann and Fairley, 2018: 218–219).

In the event of a disaster, the following policies are followed: 1) a family submits a request for assistance to the municipality with proof that the family is adversely affected by the disaster. 2) The director of the municipality is responsible for approving the applications in consultation with the head of the local circle. 3) Money is not provided to the applicant, and in the event of death, the family is compensated with a sum of money from the municipality's disaster relief budget. 4) The municipality should ensure that all disaster events have been addressed within a period of five hours or less, and accelerate the process of relief to assist the affected families (Hallmann and Fairley, 2018: 218-219).

Regarding Australian experience, financial assistance is provided in the event that essential personal and household belongings are lost or became inaccessible as a result of the disaster such as clothing, bedding, bathroom fixtures, basic furniture, cooking equipment (Scott, 2009: 154-155). The Australian experience is also marked by the launch of community assistance and awareness campaign called "Forces Unification Program" in February 2011 to improve, facilitate and motivate partnerships between societal organizations, clubs, local governments, businesses and individuals. More than 54 societal organizations participated in the program with five successful initiatives. In addition, the Queensland reconstruction authority established two-direction communication systems with communities (Queensland Reconstruction Authority, 2019: 24). The following table shows the differences between international experiences in local disaster management:

Table (1) Demonstrates Differences between International Experiences in Local Disaster Management

	South Africa	India	United States	Australia
Local levels responsible for management disaster	Municipalities are divided into three categories: Metropolitan Municipalities Local Municipalities District Municipalities	Municipalities are divided into urban units and rural units	Counties, Cities, Towns, Municipalities, Township	They are called cities, counties, towns, or municipalities
Responsible for declaring the disaster	The responsibility rests with the National Disaster Center	The entire responsibility rests with the state government for declaring the local disaster in India	The combination of national declaration and local declaration through four methods, namely State & local declaration, Presidential declaration, Emergency declaration, and main declaration	District disaster coordinator
The response plan to disaster	The three governmental departments (national, provincial and municipal)	disaster officials in county	Every US state has its own way of dealing with emergencies or disasters	Some local areas in Australia have special accident management systems, the most important of which is Brisbane

	South Africa	India	United States	Australia
Evacuation and shelter Operations	Evacuation is carried out by the municipal government as soon as there is an imminent danger	Immediate evacuation (advance evacuation)	Personnel evacuation (forced evacuation)	The police are authorized to evacuation under the Public Safety Act 1986
Societal contribution	Regional Center (Municipal disaster management center	Local groups, voluntary agencies, and NGOs under the supervision of the state disaster management authority	National volunteer organizations that are active in disasters (Volunteer Reception Center) (VRC), in cooperation with the state government	There are more than 54 active societal organizations in the field of societal contribution to disaster victims

Source: the researcher

Points of Agreement between International Experiences in Disaster Recovery

Disaster recovery is a considerable challenge for local governments and affected communities because the disaster may be too complex for local governments and international and local aid organizations to handle. The disaster recovery involves social, economic, political, cultural and martial processes in within highly diverse cultural frameworks. In addition, it should include rebuilding communities and social networks, restoring livelihoods, improving governance, upholding local culture and values, as well as rebuilding homes, businesses and infrastructure (Christina et al, 2003: 7-8).

International experiences included a set of common points within the framework of the efforts of local units to recover from the disastrous consequences of local disaster. The most important common points in the recovery plan are the following (Agarwal and Fulzele, 2016: 1-18; Wentink, 2018: 1-36; Smith, 2006: 1-3):

- The assessment process of initial damage is a necessary component of the response and recovery process in all international experiences.
- Establishing an internal unit within the local unit that is responsible for developing local capabilities to face these hazards.
- Determining short and long time plans for recovery according to societal needs. For example, establishing temporary hospitals and schools instead of the ones that were destroyed, and urgently repairing some roads to facilitate daily life for citizens, while defining the role of the local unit.
- Accurately identifying the training needs for disaster recovery, and developing plans to cover aspects of the phase of disaster recovery.
- Training on rapid intervention and deployment, especially volunteers.
- Implementing training programs by specialized experts to deal with disasters.
- Supporting the mechanisms of local and central coordination to achieve disaster rapid recovery.
- Benefiting from the method of dealing with the disaster, and trying to avoid the previous mistakes.
- Improving the financial capabilities and increasing allocations of local governments to deal with local disasters.

Conclusion

The study concluded that there are differences between the international experiences in managing local crises that represented in the following aspects: local levels responsible for disaster management, the disaster declaration process, response plan to local disaster, evacuation and societal contribution.

The American, Australian and Indian experiences have been characterized by the fact that each local municipality has the right to announce its own local disasters, while the South African experience gives the responsibility to the National Disaster Center.

Although the international experiences differ in the degree of local participation in facing local crises, they agree on the importance of the central — local coordination and the societal contribution in facing these crises.

The international experiences agree on some aspects in managing local crises which can be classified in to the following three levels:

Results at the Institutional Level:

- The necessity of having an independent authority concerned with disaster management and linked to the highest administrative authority in the country.
- Issuing decrees and legislation to organize the work of this proposed authority and determining the responsibilities of disaster managers and officials at all administrative levels.
- Providing adequate financial and political support for crisis and disaster management units at the local level.
- Strengthening the capacities of local governments and increasing their financial resources to face the local disasters and crises.
- Supporting the shift towards decentralization and improving local capabilities for dealing with emergency crises.

Results at the Level of Declaration and Response to the Local Disaster:

- Determining the response plan to the disaster and the accompanying transport operations the means of rescue for those exposed to its grave repercussions, as well as preparing scenarios for possible confrontation of the common types of disasters in the Kingdom of Saudi Arabia.
- Allocating the appropriate methods of evacuation according to the optimal criteria, as well as establishing shelter places, whether away from the negative effects of floods or be resistant to fires.
- Raising local community awareness and training its members on how to act when a potential disaster occurs, as well as urging people to register their names for training on volunteer work and contributing to the elimination of the disaster's effects.

Results at the Level of Recovery from Disaster:

- Providing the evaluative criteria for managing and dealing with the disaster during its occurrence to iron out kinks.
- Ensuring the sustainability of financing operations and the cooperation of all different parties to confront local disasters.

Recommendation:

The researcher recommends the need to add more future studies on disaster risk management (DRM) in order to address disasters, through the application of disaster risk reduction policies and strategies, and working to prevent any new risks, reduce existing risks, and manage residual risks, thereby strengthening resilience and reducing disaster losses.

The limits of the study

This comparative study aims to find out the best practices in the local role as an independent variable and its impact on disaster management as a dependent variable. As for the study's obstacles, it is difficult to generalize the study's results to several countries because the experiences under study have been selected on the basis of a scientific method linked to Saudi Arabia in terms of similarities between the selected countries and Saudi Arabia such as economic capabilities, terrain and the type of disasters.

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