

## PERFORMANCE OF THE GENERAL DIRECTORATE OF CIVIL DEFENSE DURING THE HAJJ SEASON IN TERMS OF EMERGENCY MANAGEMENT

<sup>1</sup>Al-ahmadi Ahmad Saad, <sup>2</sup>Zakaria Abas, <sup>3</sup>Hj. Abdullah Hj. Abd. Ghani

<sup>1,2,3</sup>College of Business,  
Univesity Utara Malaysia  
06101 Sintok  
Kedah Darul Aman  
e-mail: <sup>1</sup>so2002na@yahoo.com

### ABSTRACT

Hajj is the greatest assembly of humankind on earth. More than 2.3 million Muslims attended Hajj this year. During the Hajj period, the mass gathering and movement of pilgrims can at times lead to injury, death, and damage to property and the environment. The increasing number of pilgrims along with their diverse origin and characteristics contributes to the challenging task of minimizing emergencies and risk during the Hajj. The purpose of this research is to examine how the integration of complex environments (Hajj Environment) can improve the General Directorate for Civil Defense (GDCD) task performance in emergency operations. This study will highlight the major factors that assist and impede in performing the work and services of GDCD for encountering the crises and disasters in their various stages during the hajj season and, maintain the safety of pilgrims and their property.

Keywords: *Hajj, Management, Emergency, Performance*

### 1 BACKGROUND

Hajj is the greatest assembly of humankind on earth (Ahmed, Arabi, & Memish, 2006). More than 2.3 million Muslims attended Hajj this year. Of these, 1.6 million were overseas visitors, 91% of whom arrived by air. Most of the remainder (8%) arrived by land and 1% by sea (Ministry of Hajj, 2010). The Moslems meet from various parts of the world, their hearts aspire to the Inviolable Mosque (*Almasjid Alharam*) in Makkah AI-Mukaramah and holy places in the cradle of Islam.

The Hajj consists of a set of prescribed religious (Islamic) rituals on specified dates at specified hours in assigned locations in and around Makkah. Ritual of hajj starts when a pilgrim enters

the state of Ihram before entering the holy city of Makkah AI-Mukaramah. Figure 2 shows the Hajj Journey.

An emergency could be defined as an abnormal occurrence which may cause significant damage to property, the environment, or result in human suffering. An emergency occurrence requires prompt timely action based on planning, preparedness and response (The Institute for Crisis Disaster and Risk Management, 2009). Emergency management has been defined as the discipline of applying science, technology, planning, and management to deal with emergency events (Drabek & Hoetmer, 1991). Emergency management also involves critical decision-making capacities and responsive action in relatively short periods of time.

Emergencies can be classified under three general categories: natural, man-made and technical/ accidental.

The General Directorate for Civil Defense (GDCD) is one of the most important devices based on the service of pilgrims from their arrival until their return to their country safely and peace,

The purpose of this research is to fill that gap by examining how the integration of complex environments (Hajj Environment) can improve the inter-organizational (GDCD) task performance in emergency operations. The researcher will be in this study highlight the major factors that assist and impede in performing the work and services of GDCD for encountering the crises and disasters in their various stages during the hajj season and, maintain the safety of pilgrims and their property.

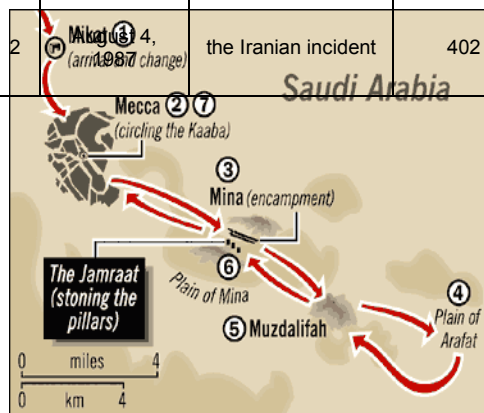
During the Hajj period, the mass gathering and movement of pilgrims can at times lead to injury, death, and damage to property and the environment. In recent years there have been several major incidents that have occurred during the Hajj which resulted in high human casualties. Table 1.1 shows Incidents that occurred in the Holy sites in the Hajj seasons from 1990 to 2008.

Figure 2 The Hajj Journey

1.1 The Problem

Incidents that occurred in the Holy sites in the Hajj seasons from 1990 to 2008

N	Time of the incident	Type and location of the incident	The number of deaths	The number of casualties	Cause of the accident
1	December 12, 1975	fire incidents in Mina	200	312	The fire occurred after a gas cylinder exploded and quickly spread to the tents of pilgrims.
2	August 4, 1987 (arrived change)	the Iranian incident	402	649	Banned a demonstration by Iranian pilgrims



Arulazizi Ibrahim, Director, USM Hajj Research Cluster, Suite 125,  
 11800 Minden, Penang. Phone/Fax: +604 6575 444.  
[kamarul@usm.my](mailto:kamarul@usm.my)

3	July 15, 1989	fire incidents in Mina	5	34	Blaze that broke out at a camp in Mina
4	June 4, 1990	the Al Mu'aisim tunnel incident in Mina	1426	905	scramble a large inside a Almaisam tunnel in Mina led to a severe suffocation in the tunnel
5	May 24, 1994	the Jamarat incident in Mina	270	800	overcrowding during the Jamarat stoning
6	May 7, 1995	fire incidents in Mina	3	199	Fire broke out at a camp for the pilgrims in Mina
7	15 April 1997	fire incidents in Mina	343	1552	A fire in a camp for the pilgrims in Mina because gas heater
8	10 April 1998	the Jamarat incident in Mina	118	111	Got a very strong contention in the east of the bridge resulted in the fall of some of the older pilgrims
9	March 6, 2001	the Jamarat incident in Mina	35	168	overcrowding during the Jamarat stoning
10	February 24, 2002	the Jamarat incident in Mina	2	163	Overcrowding among pilgrims during the stoning ritual
11	February 12, 2003	the Jamarat incident in Mina	14	177	overcrowding during the Jamarat stoning
12	January 31, 2004	the Jamarat incident in Mina	251	244	overcrowding during the Jamarat stoning
13	December 27, 2006	Makkah Al-Mukaramah	76	17	hotel housing pilgrims collapsed
14	January 02, 2007	the Jamarat incident in Mina	289	280	overcrowding during the Jamarat stoning
15	December 6, 2008	fire incidents in Mina	No deaths	no injuries	The fire happened in one of the camps and the fire was brought under control

Source: Kingdom of Saudi Arabia, Two Holy Mosques Institute for Hajj Research (CTHMIHR) (2008).

Generally, the type of disasters that may occur during the Hajj season can be classified into two categories:

1- disasters that affect persons and property which include, floods, fires, storms, earthquakes and earth slides, and accidents (cars and aircraft); and

2- disasters that only affect persons that include epidemics, poisons (food, water, gas, chemical substances), and terrorist acts (Ministry of Health, 2004).

The Hajj is controlled by two major factors which contribute substantially to the problem. First is the number and origin of pilgrims arriving to perform Hajj. The

second is the physical, religious and time settings of Hajj (Abed Rabbo, Al-Shreef, Falata, Magrabi, & Khalifa, 2005).

Growth in the number of persons participating in the Hajj has increased substantially. In 1930 about 30,000 Moslems came from abroad to perform Hajj. By 2009 this number increased to over one million six hundred thousand. Further, much of the Hajj participants

arrive from outside the Kingdom of Saudi Arabia, joining Saudi residents in observing the Hajj. In the future the number of pilgrims is expected to increase, placing greater demands on emergency related services. The most recent statistics of Hajj participants are shown in table 1.2, where the rate of growth of visitors arriving to Makkah and its surrounding Holy Places for the period of 1978 -2009.

Number of Pilgrims between 1978 -2009

Year	Residents	Foreigners	Total	Growth rate %
1978	1069184	830236	1899420	100
1979	1217169	862520	2079689	9.49
1980	1136742	812892	1949634	-6.25
1981	1063812	879368	1943180	-0.33
1982	1158000	853555	2011555	3.52
1983	1497795	1013911	2511706	24.86
1984	744807	919671	1664478	-33.73
1985	738015	851761	1589776	-4.49
1986	743757	856718	1600475	0.67
1987	658938	960386	1619324	1.18
1988	616801	762755	1379556	-14.81
1989	692435	774560	1466995	6.34
1990	817234	827236	1644470	12.10
1991	908084	720102	1628186	-0.99
1992	856138	1014141	1870279	14.87
1993	1040540	998813	2033353	8.72

1994	839169	995611	1834780	-9.8
1995	738096	1043274	1781370	-2.9
1996	784769	1080465	1865234	4.7
1997	774260	1168591	1942851	4.2
1998	699770	1132344	1832114	-5.7
1999	775268	1056730	1831998	-0.01
2000	571599	1267555	1839154	0.39
2001	549271	1363992	1913263	4.03
2002	590576	1354184	1944760	1.65
2003	610117	1431012	2041129	4.9
2004	592368	1419706	2012074	-1.4
2005	629710	1534759	2164469	7.6
2006	700603	1557447	2258050	4.3
2006*	724229	1654407	2378636	5.3
2007	746511	1707814	2454325	3.2
2008	779008	1729841	2508849	2.22
2009	699313	1613965	2313278	-7.79
Average	811033	1122737	1933588	1.13

A future projection concerning the number of pilgrims is difficult to determine. Using conservative annual growth rates of less than 1% the number of pilgrims by the year 2020, the estimated figure would reach 3.2 million. In the more recent past, such as in 1982, 1983, 2003, 2004, 2005, 2006, 2007, 2008 and 2009, the number of pilgrims was more than two million. Other estimates place the number of pilgrims would reach three million within five years and 5.3 to 7.3 million over the next ten years. Regulation to control the number of pilgrims arriving to perform Hajj, which would subsequently reduce emergency

occurrences, is a solution that is political and legislative in nature and one which must interplay with the religious norms.

The rapid increase in the number of pilgrims has placed much demand on services and accommodations during the Hajj season. In response, the Saudi government has given a high priority to development and utility projects in the Holy Lands used during the Hajj. Makkah AI-Mukaramah and Almadinah and other Holy Sites are undergoing a rapid pace of development and modernization. As the first priority efforts were made to secure

Hajj routes and the safety of pilgrims. Secondary was expansion and development projects that grow exponentially with the increased number of pilgrims (Al-Shihree, 2003) Figure 3 shows the Numbers of pilgrims arriving for the Hajj from abroad: 2009.

The increasing number of pilgrims along with their diverse origin and characteristics contributes to the challenging task of minimizing emergencies and risk during the Hajj.



**Figure 3** Shows the Numbers of pilgrims arriving for the Hajj from abroad: 2009

Pilgrims represent various ethnic groups and come from all corners of the world bringing different cultures, background, and languages. These diverse characteristics often contribute to emergency situations and perhaps suppress efforts to improve the precautionary and response services provided during the Hajj. Several difficulties include:

- limited health awareness;
- lack of familiarization with weather conditions;
- limited knowledge of the correct performance of Hajj; and
- a lack of safety and prevention awareness. ( Mimesh, Al-Khenaizan, & Memish, 2008, and Ministry of Hajj, 2002).

Base on Islamic law, the Holy Sites are surrounded by religious boundaries. Hajj activities must take place within these boundaries. For example, standing within the boundaries of Arafat area is one of the compulsory Hajj pillars<sup>1</sup>. The time, space and sequence of Hajj activities are predetermined by the Moslem faith and must be followed by all participants to fulfill all the Hajj rites.

Due to these circumstances, disasters are expected during the Hajj season. Many government agencies are mandated to prepare for respond to these types of events in an efficient and timely manner. Among the more important agencies is General Directorate for Civil Defense (GDCD), who have the responsibility for the speed of the movement and the start of rescue operations and act appropriately to maintain the safety of pilgrims, protect property and the implementation of laws and regulations to be observed to avoid further deterioration, as well as carry out re-balance the situation to normal. The GDCD must deploy resources based on the magnitude of the disaster and the capacity of their emergency stations to handle the situation.

The General Directorate for Civil Defense (GDCD) uses conventional methods for incident planning, allocating resources, responses, and dispatch of its personnel and vehicles. Such methods tend to be slow and can be inefficient. In addition, the General Directorate of Civil Defense continuously evaluates and analyzes previous incident(s) and related information. From such analysis it is hoped that previous mistakes can be

avoided and lessons learned from experience.

Emergency management tasks have become increasingly complex and inter-organizational (Comfort, Dunn, Johnson, Skertich, & Zagorecki, 2004; Becerra-Fernandez, Prietula, Madey, & Rodriguez, 2007). Such tasks are more prone to failure and, hence this complexity has made it difficult to manage the emergency tasks. Emergency (or disaster) management functions need to be studied to better understand how the changing environment and development of technology is affecting the organization design and structure, and in turn how it affects inter-organizational task management. With regard to the possibility of risks of failures, we need to understand the nature of the tasks and how the task characteristics themselves might be making them more prone to failure. Researchers have attempted to explain failures or accidents at a system level based on system characteristics of complexity and coupling (Perrow, 2004). Theories have been proposed to overcome some of the limitations to better cope with those issues and help improve the organizational reliability. This study explores how the integration of complex environments (Hajj Environment) can improve the GDCD task performance in emergency operations during the Hajj season.

## 1.2 Research Questions

The aims of this study are:

1. How are emergency management operations in the General Directorate for Civil Defense (GDCD) impacted by tasks that are complex and inter-

organizational and could make them prone to failure during the Hajj season?

2. How can environment of Hajj be used for the successful management of the General Directorate for Civil Defense (GDCD) tasks in emergency operations during the Hajj season?

a) How does the number of pilgrims influence the performance of the tasks?

b) How does the time of Hajj influence the performance of the tasks?

c) How does the Area of Holy Site influence the performance of the tasks?

## 1.3 Expect Contributions

This study considers critical factors of the performance of the General Directorate for Civil Defense (GDCD) during the Hajj Season, and it aims at exploring influential factors on the performance of the GDCD during the Hajj Season. In addition, this study could provide a comprehensive perspective on critical factors on the performance of the GDCD. The outcomes of this study could be useful to evaluate existing GDCD and help in designing new systems in the future.

From the perspective of academic and Practitioners values, we expect that this study would make the following contributions.

*First*, this study will allow us to contribute and offer insights towards improved and more effective performance for the General Directorate for Civil Defense (GDCD) in various crisis and disasters especially during the period of Hajj by measure the major critical factors of the performance of the GDCD.

*Second*, this study develops an instrument to measure the major critical factors of the performance of the GDCD. Through the development and validation processes, the obtained instrument becomes the starting point for future research that would investigate for different agencies, circumstances, and regions.

*Third*, the outcome of the base model is intended to answer the important question of which systematic factors are important for efficient decision support. The results of the analyses would provide valuable knowledge about how the GDCD should be managed to obtain better efficiency.

*Finally*, the findings of this study may become a foundation for future studies about emergency management systems. The tasks of emergency response are different by department, situation, and region. This study explains the structure of the relationship between influential factors and performance, an adaptation of this model to various circumstances needs to meet its own objectives. This study could provide a reliable starting point for future studies that consider more realistic and sophisticated.

#### 1.4 Scope of the Study

The scope of this study is to refine our understanding of how emergency response operations, undertaken by the General Directorate for Civil Defense (GDCD), are impacted by task characteristics such as complexity and process rigidity that are unique to emergency management and thereby present additional challenges for personnel working in these dynamic environments during the Hajj season. The mandate of the Civil Defense is to respond to disaster occurring during the Hajj season

and to provide a wide range of emergency services to pilgrims during the Hajj period. During the data collection phase some information on emergency management was not available which imposed some limitations to the study. However, the data collected from the Ministry of Interior (MI), Ministry of Hajj (MH), the Ministry of Health (ML), Ministry of Communications and Information Technology (MCIT), the Ministry of Municipal and Rural (MOMRA), the General Directorate for Civil Defense (GDCD), the Two Holy Mosques Institute for Hajj Research (CTHMIHR), and others was used in the present research.

Beside the above mentioned elements, the following procedural and methodological limitations are also worth noting.

The proposed framework and guidelines are to evaluate existing GDCD and help in designing new systems in the future, by explores how the integration of complex environments (Hajj Environment) can improve the GDCD task performance in emergency operations during the Hajj season.

The three majors Holy Sites ( Mina, Arafat, Muzdalifah) were chosen to conduct this study, All pilgrims must be in this three major Holy Sites during the 8th-13th days of Du-Alhijjah month of the lunar calendar.

Limiting the scope of this study to the above applications gives the opportunity to focus on the modeling and analysis aspects to further enhance and improve emergency management of the General Directorate for Civil Defense (GDCD).

#### REFERENCES

1. Abed Rabbo, A., Al-Shreef, M. A.,



- Falata, O., Magrabi, A., & Khalifa, K. S. M. (2005). *The Need for Guidance and Education of Pilgrims to the Holy Mosque in the Throwing of Carbuncles (Al-Jamarat)*. Makkah Al-Mukaramah: The Custodian of the Two Holy Mosques Institute of Hajj Research (CTHMIHR).
2. Ahmed, Q. A., Arabi, Y. M., & Memish, Z. A. (2006). Health risks at the Hajj. *Lancet*, 367, 1008-10015.
  3. Al-Shihree, S. (2003). *Services and Means of Developing the Pilgrimage*. Makkah Al-Mukaramah: The Custodian of the Two Holy Mosques Institute of Hajj Research (CTHMIHR).
  4. Becerra-Fernandez, I., Prietula, M., Madey, G., & Rodriguez, D. (2007). *Project Ensayo: a Virtual Emergency Operations Center for Disaster Management Research, Training, and Discovery*. Paper presented at the Proceedings of the First International Conference on Global Defense and Business Continuity .
  5. Comfort, L. K., Dunn, M., Johnson, D., Skertich, R., & Zagorecki, A. (2004). Coordination in complex systems: increasing efficiency in disaster mitigation and response. *International Journal of Emergency Management* 2(1-2), 62-80.
  6. Drabek, T., & Hoetmer. (1991). *Emergency Management: Principles and Practice for Local Government*: ICMA.
  7. Ministry of Hajj, K. S. A. (2010). *Annual report of the Hajj actions* Makkah Al-Mukaramah: Ministry of Hajj.
  8. Ministry of Health, K. S. A. (2004). *Yearly Health Report*. Riyadh: Ministry of Health.
  9. Perrow, C. (2004). A personal note on Normal Accidents. *Organization & Environment*, 17(1), 9-14
  10. The Institute for Crisis Disaster and Risk Management. (2009). *Emergency Management Glossary of Terms*. Washington, D.C.: The Institute for Crisis Disaster and Risk Management (ICDRM).