

4th International Conference on Building Resilience, Building Resilience 2014, 8-10 September
2014, Salford Quays, United kingdom

Evaluation of the System of Disaster Management Resulting from War Operations and Terrorism in Iraq

Hajer Al-Dahash^{a*}, Udayangani Kulatunga^a, Dilanthi Amaratunga^b

^a*Centre for Disaster Resilience, School of the Built Environment, University of Salford, Salford M5 4WT, UK*

^b*Global Disaster Resilience Centre, University of Huddersfield, UK*

Abstract

Nowadays the science of disaster and crisis management is considered as one of the important sciences all over the world. Therefore, disaster management is considered an important and common subject that requires great efforts. So continuous research is one of the important ways to establish the best methods to evaluate and develop the management of disasters and crises. Such methods are appropriate to deal with the suffering that many countries experience from natural and environmental disasters from time to time.

This research aims to show the significance of disaster and crisis management in general. It also explores the current situation related to disaster response management in Iraq. This exploration focuses on the achievement of the basic functions of the management operation (planning, organizing, directing, controlling). In addition, it identifies the weaknesses and the strengths of the current administrative system in all its elements and analyses all the problems and the defects in every element, in order to treat and solve these problems and defects by making recommendations to improve the immediate response system to serve Iraqi disaster management in the future.

In order to satisfy this aim, data collection included information obtained from literatures relating to disaster and crisis management. In addition, other information was obtained from a field survey of the directories of the civil defence in Iraq. Furthermore, collective and personal interviews with specialists related to disasters and crisis resulting from the war operations and terrorism were conducted.

Analysis of the data results revealed many weak points in the current system and this was confirmed by the field survey. It showed us more clearly the areas where the weak points appear in the management function, especially in the planning and organization functions. One of the most important weak points is the absence of heavy equipment, as well as the shortage of specialist engineering staff and a dependence on assistance from other service departments. This is because of the local roles and the departmental management in the government.

Finally, the study reached a set of conclusions and recommendations, including providing the directories of the civil defence with the heavy rescue equipment and providing specialist trained engineering staff to deal with the disasters and crises. Moreover, it sets in place an incentive scheme for the related members of the directories of the civil defence. Such schemes encourage them to continue working to face the unnatural circumstances that Iraq is experiencing and to create an environment similar to that of developed countries in the world. This contributes to overcoming the disasters of all shapes and reduces the damage to lives and property.

© 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Selection and/or peer-reviewed under responsibility of the Centre for Disaster Resilience, School of the Built Environment, University of Salford.

*Corresponding author. *Email address:* H.F.Al-Dahash@edu.salford.ac.uk

Keywords: disasters management; planning; organizing; directing; controlling.

1. Introduction

Due to the evolution of life, there is great complexity in its fields, increased conflicts and overlapping problems, conflicts of interest between groups and nations, the presence of large industrial projects and so on. Disasters have increased in a variety of forms and this poses numerous risks. So, many people have voiced the opinion that something must be done to deal with sudden events in order to avoid the devastating effects. The researchers have been alerted to the importance of dealing with disasters through a new research field. Such an academic field had not been given attention except in the early 1960s, specifically regarding the impact of the Cuban missile crisis in October 1962. This field is a science of crisis and disaster management (Al-Shaalan, 1999: p. 92).

The science of disaster management is considered one of the modern humanities and its importance has increased in the present era. Furthermore, it is considered a vital field that needs to be prioritized in order to reduce the impact on human lives, property damage and national economies. One of the definitions of this science states, “It is a science of the power balance management which is monitoring their movements and trends” (Al-Khudhairi, p. 52).

There is a wide range of definitions for disasters in general. According to Gospodinov and Burnham (2008: pp. 26-28) the word disaster implies a sudden overwhelming and unforeseen event. At the household level, a disaster could result in a major illness, death, a substantial economic or social misfortune. At the community level, it could be a flood, a fire, a collapse of buildings in an earthquake, the destruction of livelihoods, an epidemic or displacement through conflict. When occurring at district or provincial level, a large number of people can be affected. Most disasters result in the inability of those affected to cope with outside assistance” (Gospodinov and Burnham, 2008).

Also, Gunn (1999: p. 17) defines disaster “as the result of a vast ecological breakdown in the relationship between humans and their environment”. Gunn emphasizes the sudden and serious nature of a disaster, and argues that disasters have the characteristic effect of requiring extraordinary measures to cope, often from the outside community, or even other parts of the world (Gunn, 1999).

Disasters can be classified as natural or those caused by humans. Biswas and Choudhuri (2012) defined the disasters caused by human action as “negligence, error, or involving the failure of a system. Man-made disasters are in turn categorized as technological or sociological. Technological disasters are the results of failure of technology, such as engineering failures, transport disasters, or environmental disasters. Sociological disasters have a strong human motive, such as criminal acts, stampedes, riots and war” (Biswas and Choudhuri, 2012: p. 13)

The focus of this paper is on disasters caused by humans; particularly by war operations and terrorism, because of their vital importance especially due to the consequences, developments and sudden changes that are witnessed at global and regional levels. As a consequence this requires effective preparation, scientific planning and continuous training to achieve a high readiness as well as an immediate response to address these crises and disasters. Accordingly, this paper evaluates the current disaster response management in Iraq and identifies the weaknesses and the strengths of the current administrative system in all its elements. It also highlights the problems and defects in each component of the system. The organization of disaster management for Iraq will be discussed, particularly the immediate response of the system, which is considered one of the important sectors of the disaster cycle as described in Figure 1 below. This immediate response system contributes to disaster recovery of all kinds and reduces the damage to lives and properties.

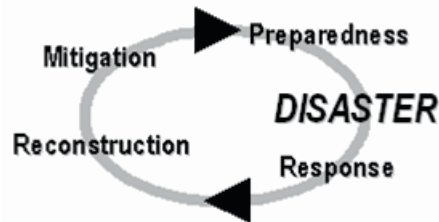


Figure 1 Disaster cycle (Noji, E., 2000)

The structure of the paper is as follows. First it describes the concept of a disaster in general, its classifications and disasters caused by humans with particular reference to disasters resulting from war operations and terrorism in Iraq. Secondly, a literature review has been undertaken to present the existing studies on disaster response. Thirdly, the research methodology has been explained. Fourthly the findings and analysis are discussed followed by the conclusions.

2. Literature Review

Several studies aimed to develop and increase the ability and facilities to cope with disasters and to mitigate some of the effects in order to overcome the consequences of the disaster. One of these researches was conducted by Harding in 2007 who argued that the war in Iraq, following years of economic sanctions, US military intervention in 1990–1, the Iran–Iraq war and decades of government repression had crippled Iraq’s economic and social development. Harding (2007) evaluates the concept of disaster and the US-led policy towards Iraq as a case study of a man-made disaster. This paper examined the ongoing violence and social disintegration in Iraq. Furthermore, it has been suggested that social work has a key global role to play in responding to policies that create such disasters. Finally, it concludes that social development strategies and human rights principles should be promoted by professionals through political practice and within social work education to face man-made disasters. This would give social work a central role in preventing man-made disasters and in reconstruction and development following a disaster (Harding, 2007).

The study by Humayun, and Al-Abyadh (n.d.) aimed to improve the Disaster Risk Reduction (DRR) legal and institutional arrangements in Iraq by examining the key strengths and gaps in the existing legal and institutional framework for disaster risk reduction. Furthermore, a review of the existing legal framework was provided besides the following (REF):

- 1) Provides insights and forward-looking recommendations on law and disaster risk reduction in Iraq
- 2) Contributes to UNDP-IFRC Global Synthesis Report on DRR and Legislation
- 3) Informs the policy and law making process on disaster risk reduction in Iraq.

It concluded four overarching features. Firstly, manmade calamities such as conflicts, terrorism and industrial hazards have been focused on as a result of the longstanding conflict and wars in Iraq. Secondly, no rigorous effort has been made to institute a comprehensive disaster risk management framework due to a lower frequency of natural disasters in recent years. Thirdly, the establishment of any comprehensive DRM/R framework which can be operative at all the tiers has been inhibited due to a direct bearing for a transition from war and internal strife to functional governance on DRM/R architecture in Iraq. Fourthly, there are a number of laws which were enacted prior to 2003 and are directly related to DRM/R such as the Emergency Use Law 1969, Civil Defence Law 1978 and Public Health Law 1981. But these laws have yet to be synchronized with the emerging legal and institutional arrangements in post 2005 Iraq (Humayun, & Al-Abyadh, n.d.).

Comfort, in 2002, examined the performance of the intergovernmental system in the context of the events of 11 September 2001 from the theoretical perspective of complex adaptive systems. He proposed a model of auto-adaptation to improve intergovernmental performance in extreme events. The auto-adaptation model, based on the concept of individual, organizational and collective learning in environments exposed to recurring risk, was guided by a shared goal. Public investment in the development of an information infrastructure is required to support the intense demand for communication, information search, exchange and feedback that characterizes an auto-adaptive

system. The paper concludes that the mode of improving intergovernmental coordination in response to extreme events is offered by the auto-adaptation model (Comfort, 2002: pp. 29-50).

Furthermore, the case of the Katrina hurricane was considered by Baker and Refsgaard (2007) to identify successful strategies that enable institutions to respond effectively at the appropriate scale. The importance of cross-scale linkages matched to the size and needs of the disaster was discussed as a central component of socio-ecological resilience. The linkages that promote legitimacy, trust and the development of social capital that facilitates integrated and coordinated emergency response should be developed by institutions. The paper noted that increasing coordination, higher levels of institutional flexibility and greater attention to issues of connectivity in disaster response management will be required for new threats (Baker and Refsgaard, 2007: p. 331).

Moreover, an approach to decision-making in disaster response operations was presented by Smirnov et al. in 2007, which is based on ontology-driven knowledge sharing and the application of well-developed tasks from the area of production network management that, in turn, enables using the existing problem-solving methods and tools. The decision-making tasks are applied in production network management to solve the above-mentioned problem. The paper finds that there exist many common features and requirements for decision-making in industrial environments and in disaster relief operations. They both require applying such technologies as ontology and context management, constraint satisfaction and profiling. The paper presents sample tasks used in the considered problem domains (Smirnov et al., 2007: p. 829).

Finally, the paper by Carreño et al. in 2007 proposed the Risk Management Index (RMI). A group of indicators are brought together to measure risk management performance and effectiveness. Organizational, development, capacity and institutional actions are taken to reduce vulnerability and losses in a given area. Such factors are reflected by these indicators to prepare for crisis and to recover efficiently from disasters. This index is designed to assess risk management performance. A quantitative measure of management is provided based on predefined qualitative targets or benchmarks that risk management efforts should aim to achieve. Four public policies, each of which is described by six indicators, are constructed by the proposed RMI. The identification of risk, risk reduction, disaster management, and governance and financial protection are included in the mentioned policies. Finally, the results at the urban, national and sub-national levels, which illustrate the application of the RMI on those scales, have been obtained (Carreño et al., 2007: pp. 1-20).

3. Research Methodology

For the purpose of achieving the objectives of the research, it will be directed within the following methodology:

- A) Carried out interviews with the staff of the directorates of civil defence in Iraq mainly with the Engineering Effort Unit staff, who are experts in the field of crisis and disaster immediate response.
- B) Based on the responses and points of view, a questionnaire survey was prepared. The questionnaire survey is divided into four sections – planning, organizing, directing and controlling based on the crisis and disaster immediate response functions.

3.1. Research limitations

The research data was collected from various directorates of civil defence distributed in the central part of Iraq. It would not have been possible to extend the scope and objectives of the research further than that because of the deteriorating security conditions in the country.

3.2. Research sample

The respondents of the questionnaire were staff experienced in facing disasters and crises, especially during the immediate response phase.

3.3. Sample size

33 questionnaire applications were distributed to members experienced in, and familiar with, the immediate

response system for disasters and crises.

3.4. Specifications of the sample

The respondents are categorized as follows:

Table 1. A description of the academic achievement of respondents

Academic achievement	Secondary school	High school	Diploma	Bachelor (BSc.)
No.	2	2	6	23

Table 2. A description of the service years for respondents

Service years	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40
No.	8	7	3	7	5	1	1	1

4. Findings and Analysis

The main focus of the questionnaire was on the stages of the immediate response system of the disaster – planning, organizing, directing and controlling. The results from the field questionnaire answers are presented by using bar chart graphs linking between factors or consideration of alternatives and the percentage of answers.

4.1. Planning

It can be clearly seen from the Figure 2 that the majority of the respondents noted that only “light rescue effort” is available in the civil defence directorate and there is a lack of a “heavy rescue effort”. Light rescue includes axes, mallets, sledgehammers, picks and halogen lamps, whereas heavy rescue includes shovels, excavators and concrete crushers. Further, it was revealed that most of the heavy rescue equipment is borrowed from other departments during a disaster, further delaying the immediate response activities. It should be highlighted that heavy equipment such as shovels are very important in disaster and crisis situations; hence a lack of them can be considered as a weak point of the Iraqi disaster management system.

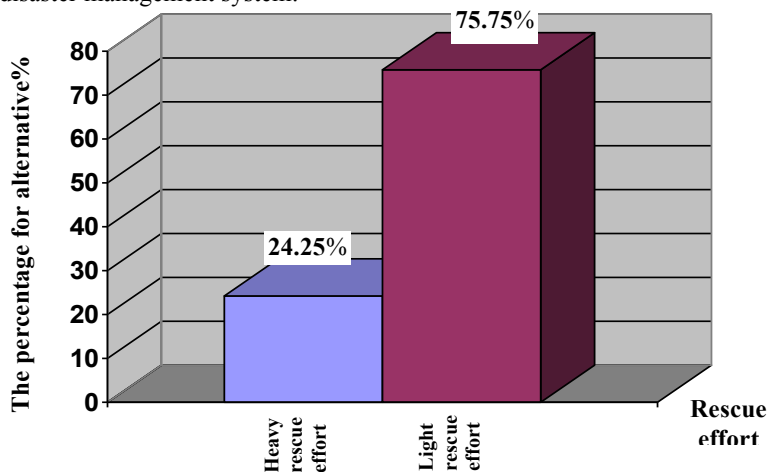


Fig. 2 rescue effort alternatives

It can be seen from Figure 3 that the existence of standards has 78.78% divided into two branches. Obligated standard with simple legal consequences has 23% while non-obligated standard without legal consequences has 77%. This result is due to deactivation to civil defence revised rule no. 64 for the year 1978.

The study revealed that more than 60% of respondents have the same point of view about the implementation priority (informing precedence) as the first priority over other priorities (system depends on hazardous situation, informing precedence and resources availability) in the implementation during the rescue work.

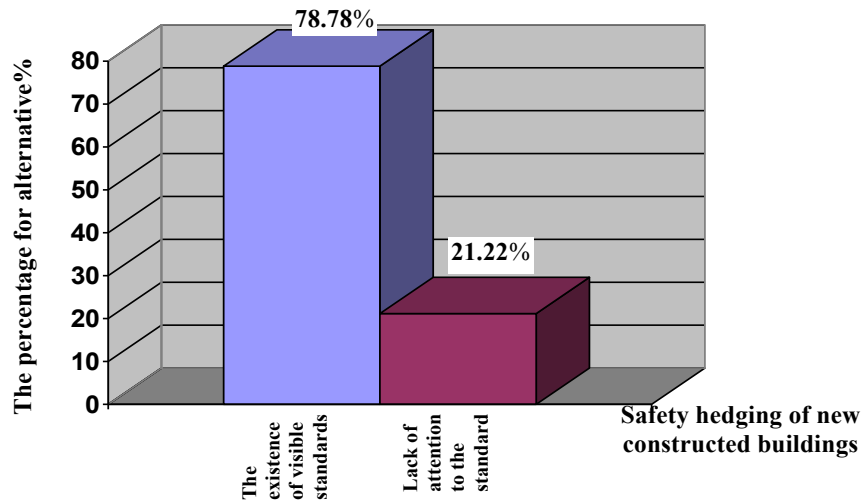


Fig.3 safety hedging of new constructed buildings

4.2. Organization

In the organization stage the study also revealed that 87.87% of respondents agreed that they directly engage with the director of the civil defence department. This is considered one of the strengths of the current administrative system. Furthermore, the organizational structure of the engineering effort unit is organized and documented, where 93.94% of the respondents agreed with that.

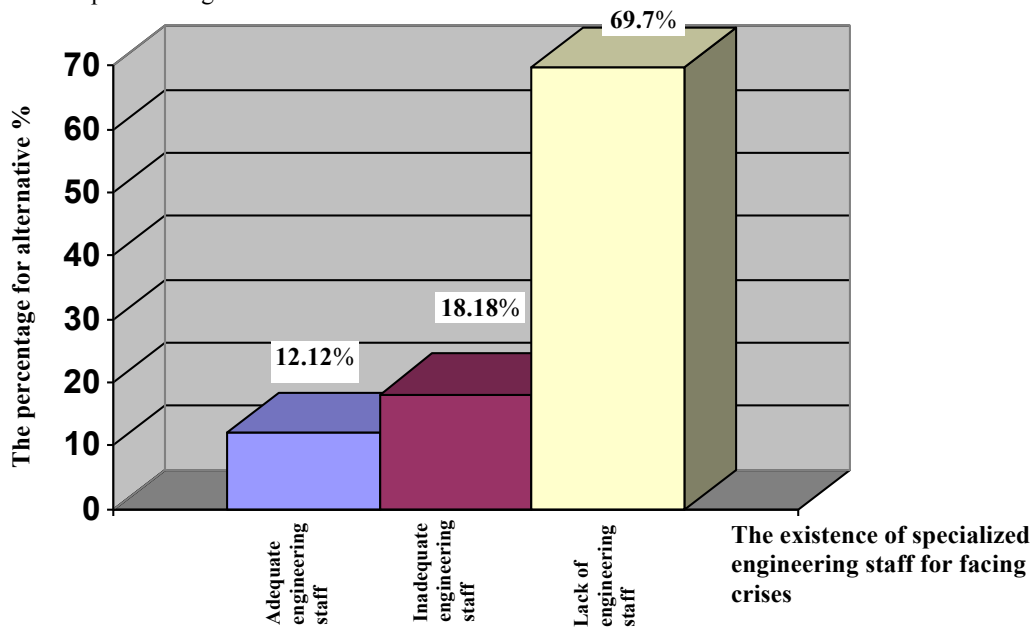


Fig.4 The existence of specialized engineering staff for facing crises

As shown in Figure 4 the existence of specialized engineering staff to be involved in the immediate response stage of a crisis situation is lacking. This is mainly because of the over-reliance of resources that can be taken from other departments.

Regarding the degree of experience of the engineering effort unit staff, the majority of respondents selected 6-10 years. Which illustrates the perfect rating for degree of experience and gives the staff a skill in facing disaster and crisis. Regarding developing courses the engineering effort unit staff is dependent on internal courses. The study revealed that the percentage of the internal courses is much higher than the other alternatives.

4.3. Directing

The study revealed also that there was decentralization in the rescue work in addition to mixed policy in the rescue work. Mixed policy includes central and decentralized rescue work. These unclear policies lead to delays in the response to the disaster. In Figure 5 it can be seen that less than half of the respondents have been given moral incentives such as thank you letters, upgrades and promotion whereas, 42.42% have not been given any kind of incentives which negatively affects rescue staff performance.

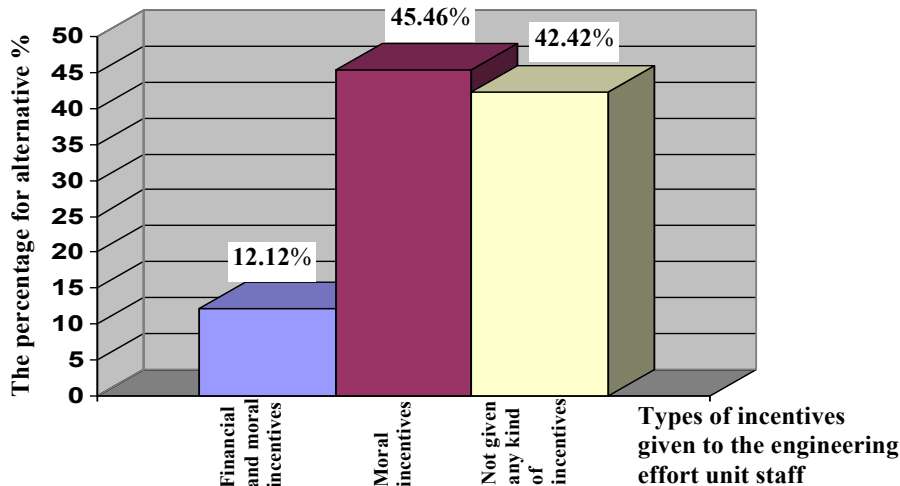


Fig.5 Types of incentives given to the engineering effort unit staff

The study also revealed that there is a known and clear job promotion style, which can be considered as one of the strengths of the existing system. With regard to the means of communication and media, which are used at the time of crises and disaster, the internal and external communication means have the majority of the percentage.

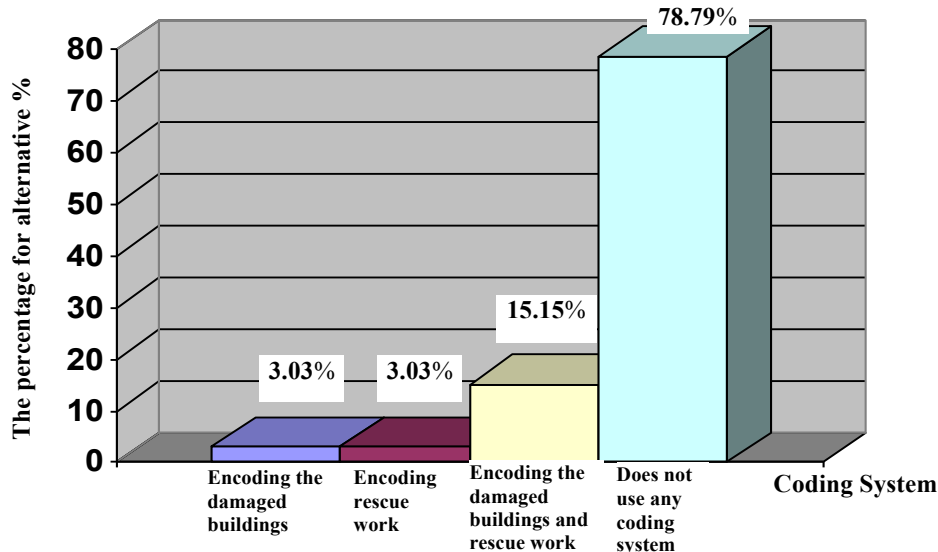


Fig.6 Coding System

4.4. Controlling

As can be seen from Figure 6 there was no existence of any coding system such as digital coding, letters coding and mixed coding for the damaged buildings, rescue work or both. This can be considered as one of the weaknesses in the current system. Regarding the fieldwork reports, they are organized and documented well and that can be considered as a strong point.

About two-thirds of the respondents used logs in documenting the rescue work while one-third of the sample used either computers or paperwork documentation. The study also revealed that the efficiency performance assessment of the engineering effort staff is conducted through an annual evaluation form, which obtained more than 60%. While directorates of civil defence managers are evaluated by quarterly special ministerial form. This alternative obtains more than 20%.

5. Conclusions

The increasing number of organizational crises and disasters stimulates the researcher in this field to consider crisis and disaster management best practices more than ever before. This research contributes to the understanding of the significance of crisis and disaster management in the directorate of Iraqi civil defence at a time when the entire Arab region faces huge political instability.

Results revealed many weaknesses and strengths in the current administrative system for disaster management. The most important is the existence of only light rescue effort, which does not meet the requirements and conditions of the rescue effort and reliance on heavy rescue coming from the other departments. In terms of safety hedging of newly constructed buildings, there are no legal consequences due to lack of activation of Civil Defense Revised Law No. 64 of 1978. Regarding the implementation, priority relied on informing precedence, while hazardous situations and the other necessary priorities have been limited.

The findings revealed that there is a lack of expert engineering staff for facing crises as well as divers' staff. The strategies and actions adopted in disaster and crisis situations relied on the staff coming from other department. Such staff are undefined in the rescue effort unit as well as not being subject to training sessions in facing crisis. It is widely believed that 6-10 years is the perfect range for degree of experience in the engineering effort unit, which opens the way for the new staff to be admitted to the specialized training courses on rescue work and facing crisis. Whereas, various internal development courses have been held for engineering effort unit staff.

With regard to execution policy a lack of clarity is recognized due to the fluctuation between decentralized rescue work policy and mixed rescue work policy. Furthermore, no financial incentives are given to employees of the directorates of civil defence and it is limited only to moral incentives. Moreover, there is a lack of a coding system for damaged buildings and rescue work.

On the other hand, there are some strong points, such as clarity in the method of promotion factors in terms of number of training courses or number of service years. Moreover, internal and external communication and information technology are affected and moderated. Also, the approved rescue fieldwork reports are organized and documented and the written records are used in the accredited rescue work documented in the directorates of civil defence. Also, the performance assessment of the engineering effort staff efficiency is conducted through an annual evaluation form. While directorates of civil defence managers are evaluated by quarterly special ministerial form.

6. References

- Al-Khudhairi, M. A. *Crisis management: an economic approach to resolve the crisis at the national economy level and the economic unity*. Cairo: Library Madbouli.
- Al-Shaalan, F. A. (1999). Making decisions during disasters and crises. *The Policeman Thought Journal*, Volume (7), Issue No. (4), Police Sharjah, United Arab Emirates.
- Baker, D. & Refsgaard, K. (2007). Institutional development and scale matching in disaster response management. *Ecological Economics*, 63(2), 331-343.
- Biswas, B. C. & Choudhuri, S. K. (2012). Digital Information Resources for Disaster Management of Libraries and Information Centres. *Bangladesh Journal of Library and Information Science*, 2(1), 12-21.
- Carreño, M. L., Cardona, O. D. & Barbat, A. H. (2007). A disaster risk management performance index. *Natural Hazards*, 41(1), 1-20.
- Comfort, L. K. (2002). Managing intergovernmental responses to terrorism and other extreme events. *Publius: The Journal of Federalism*, 32(4), 29-50.
- Gospodinov, E. and Burnham, G. (2008). The John Hopkins and International Federation of Red Cross and Red Crescent Societies Public Health Guide for Emergencies. The John Hopkins and the International Federation of Red Cross and Red Crescent Societies: second edition, 26-28.
- Gunn, S. W. A. (1992). The scientific basis of disaster management. *Disaster Prevention and Management*, 1(3).
- Harding, S. (2007). Man-made disaster and development The case of Iraq. *International Social Work*, 50(3), 295-306.
- Humayun, S. & Al-Abyadh, I. R. (n.d.). Disaster Risk Reduction: Legal & Institutional Framework in Iraq.
- Noji, E. K. (2000). The public health consequences of disasters. *Prehospital and disaster medicine*, 15(04), 21-31.
- Smirnov, A., Levashova, T., Pashkin, M., Shilov, N. & Komarova, A. (2007). Disaster response based on production network management tasks. *Management Research News*, 30(11), 829-842.
- Vihar, P. (2006). Natural hazards and disaster management. A Supplementary Textbook in Geography for Class XI on Unit 11: First Edition, Delhi, p. 9.