



## Assessment of disaster planning in humanitarian supply chain management (HSCM), Khuzestan: 2012

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### ABSTRACT

*Background and Objective:* Disasters are scarce events; nevertheless, to prepare organizations for events and return to normal condition the accurate planning and education is essential. This study aimed to assess disaster planning in humanitarian supply chain management (HSCM) in Khuzestan Province in 2012. *Materials and Methods:* In this descriptive-cross sectional study, statistical population involved the top managers of the crisis management unit, emergency medicine services (EMS) and relief and rescuing center of the West Country in the Khuzestan Province. Because of the limited number of the statistical population, a census method was used. The data were collected using a checklist developed by reviewing literature and through observation and interview. Data were analyzed by descriptive statistics like frequency, percentage and mean percentage and using by SPSS v.18. *Results:* The results indicated that generally the status of planning of humanitarian supply chain management (HSCM) in the response phase was good. Emergency Medicine Services (EMS) and center of relief and rescuing were ranked respectively in the moderate and good situations. The dimensions of human resource and the control were respectively in the best and the worst condition. *Conclusions:* According to findings, disaster planning in humanitarian supply chain management (HSCM) in the response phase requires more attention in aspect of control. Generally, at the occurrence of disasters stage, particularly in supervision and control, paying attention to HSCM is necessary. So, we stress on the necessary reform of the program to ensure the proper supply of resources and cover the needs.

**Keywords:** Disaster; Planning; Relief / humanitarian Supply Chain, Supply Chain Management

### INTRODUCTION

Crises are events that suddenly arise from events and natural and human functions [1] and during the last two decades, hundreds of millions of people have felt their life in the ring of Injuries and Losses caused by such incidents [2]. As one of 10 disaster-prone countries in the world our country, Iran, [3-6], despite the fact that is home only to one percent of the world's population, but has more than 6% of the world's share of losses from natural disasters [4]. Therefore, the natural and unnatural (man-made) disasters are the most common topic of interest to researchers [7].

Crisis management, with regard to its role and function in unexpected situations and natural disasters, is the system and profession of the application of knowledge, technology, planning and management for dealing with accidents and disasters or prevention of man-made from occurring or reducing the effects of natural disasters [8].

Tatham also says logistics is a vital factor for the effectiveness and accountability for relief programs such as health, food, shelter and improvement [9]. The challenge in the health sector due to the lack of results of the death time of supply chain management with greater intensity can be felt [10].

Supply chain management involves the planning and management of all activities related to funding sources, transform them into products and Support management. As well as supply chain management includes communication and collaboration among members of the chain as well. These members can be suppliers, intermediaries, clients and so on [11, 12].

One of the most important parts of the supply chain management is the planning and management of logistic system of supply chain. 'Logistics has a basic and critical role in the chain of supply and support of crisis management, which, if there is a disorder in playing this role the entire crisis management process will be met with a problem and impaired [13].

The first step in the humanitarian supply chain planning is the identification and assessment of threats and risks [14]. In this case the World Health Organization and the Pan American Organization express that assessment of logistical needs and relief items should be fully merged with the assessments are done in general to determine the environmental disasters, type and severity of the loss, and the priorities of the interventions [15].

In the course of the process of identification of needs, this question should be noted that in forecasting, satisfying and responsiveness to needs we should not rely on only our resources, because sometimes all the resources available in the affected region and adjacent areas, and sometimes all the existing facilities in the country should be taken to task. In addition, the determination of policies and the provision of financial resources are considered among the most important pillars of the strategic planning process in human resources, public training and equipments [16].

The coordination and management of the supply chain of crisis are a challenging issue, because this is a big, complex supply network and with several actors [17] and the lack of coordination hinders the proper use and distribution of the facilities, equipment and service. Coordination of manpower and equipment and performing the coordination by central headquarters of disasters located at the place of accident along with international participation are some of factors *underlying* the provision of health services in disasters; while the results of a study by Mousavi and Kavehfirooz indicated that the lack of communication and coordination between relief agencies is one of the most important problems and one of the main causes of dissatisfaction with rescuer [18].

According to the mentioned facts and of the geographical position of Iran, disaster management system of the country has to possess an effective program for humanitarian supply chain management (HSCM) in disasters. Therefore, this study aimed to evaluate the activities of planning of relief supply chain management in the stage of the disaster occurrence and in order to respond appropriately.

## **MATERIALS AND METHODS**

The descriptive and cross-sectional study was conducted in Khuzestan relief organizations, including the DEMMC and the Rescue Deputy of West of Country, and Relief and Rescue Deputy in 2012. In this study, in order to assess the condition of humanitarian supply chain planning when the incidence of disasters, the checklist was used as a research tool. For the preparation of a checklist by concentrate on the pattern of disaster management and description of the required planning activities when the occurrence of disasters, after reviewing various resources, including articles, related books and search on the Internet, there are several questions in the field of humanitarian supply chain planning in relief organizations in the six dimensions of the program, need assessment, coordination, control, support and manpower was extracted from reputable sources [19].

Through content review the checklist was validated by supervisors and a number of professors of the University, as well as compared to the existing checklists. In the assessment of relief organizations, according to the checklist, initially in accordance with the scale, the points 0, 3 and 6 were used for options of Yes, Somewhat and No in response to any of the questions. Then, with the use of a Likert scale, the average rates less than 50%, between 50 to 75%, and 75% and above were classified as weak, moderate, and good, respectively.

Therefore, after the calculation of the average rating of each variable of planning with 13 components, control with 4 components, need assessment with 13 components, manpower with 9 components, supportive with 7 components and coordination with 4 components, the program was evaluated based on the three mentioned ranks. Data were collected through observation and interviews with different people depending on the need (top manager, intermediate manager, expert, responsible and so on and after calculation of descriptive parameters such as the frequency, mean, and percentage of the average, analyzed using SPSS version 18.

## RESULTS

About the status of relief organizations, from the dimension program, the highest percentage of points (84.6%) belonged to the Red Crescent (Deputy of Relief and Rescue) and the smallest percentage points (57%) belonged to *the Disaster and Emergency Medical Management Center* (DEMCC). As can be observed the Difference between lowest and highest rating is significant, so that the Humanitarian and Rescue Organization was in a good condition and DEMCC was in an average state. In terms of having a program to prevent theft of objects and equipment when the occurrence of disasters.

The DEMCC had not formulated any plans and the Relief and Rescue Deputy had also acknowledged that has paid attention to this issue to some extent. Among other items, there was low attention by both Organizations to identify the environmental and organizational obstacles in the implementation of the accountability program.

In terms of needs assessment, the Relief and Rescue Deputy with the acquisition of 88.46% was in a good condition and DEMCC with the acquisition of 61% points was in a moderate condition. The difference between highest and lowest points was also 27%, which has been remarkable. Of the notable items in this dimension, is the absence of specific strategies for the protection of people with disabilities, the elderly, etc. Also, in the prioritization of the affected individuals both organizations were moderate in terms of the necessity of supplying the needs.

From the supervision and control dimension, with the acquisition of total points DEMCC (54%) was in a downward moderate condition. In addition, in this dimension the mean difference of 21% was considerable. In this dimension the relief organizations were in a moderate condition in terms of the formulation a plan to reapply the rescue product and services from the partners if there was a shortage. Relief and Rescue organization was in a moderate condition in terms of economic evaluation and analysis of its relief activities, while the DEMCC was moderate in terms of assessing the transportation.

In terms of manpower, the total score of 91.6% indicated a good situation in this dimension in Khuzestan relief organizations. Relief and Rescue organization with a point of 94.4% and DEMCC with a point of 88% respectively were in the first and second rank. One of a remarkable note in this dimension, both organizations' limited accesses to experts in logistics and local research. Also, in terms of developing a plan to organize volunteers during disasters, DEMCC was in a moderate condition.

In the supportive dimension (finance and equipment), the total point calculated of 75% indicated a downward moderate situation in the relief agencies in Khuzestan province. With the acquisition of 78%, DEMCC was in a good condition, and Relief and Rescue organization (Red Crescent), with a point of 71.42%, was in an upward moderate situation. A mean difference less than 10 indicates that both organizations were in a similar situation.

Of the points of interest in this section, was the absence of a program in order to fit with the culture and traditions of the area donated goods. Also DEMCC has expressed that it does not have a program to collect relief aid.

In terms of coordination, the calculated total point of 68.7% indicated a moderate level of this dimension in the relief organizations of Khuzestan. With a score of 50%, DEMCC was in a downward moderate, and Relief and Rescue deputy with a score of 87.5% was in a good condition.

The difference between the highest and lowest of point was 37.5% that can be noticeable. In connection with the components of this dimension, both organizations had acknowledged that are in a moderate condition in terms of a program in order to communicate between the people and the authorities. Furthermore, In terms of communication with international organizations and donors, DEMCC was in a moderate condition.

In general, relief organizations studied in this research with 75.6% of the total point were in a downward good condition. So that with a point of 85% the Relief and Rescue Deputy was in a good condition and DEMCC was in a moderate condition with a point of 66.3%. Among the dimensions examined, supervision and control with a point of

64.5%, was in the worst and manpower with a point of 91.6% was in the best condition. After that, needs assessments and support with 75%, program with 71.1%, and coordination with 68.7% were in the next rank.

The findings of the study also showed that among the dimensions studied in DEMMC, 78 percent of the points with a support dimension was in a good condition and planning with 57% was in moderate condition, and dimensions of coordination and control separately with the 50 percent of point were in a downward moderate state. Human resource with a score of 88 percent and needs assessment with a score of 61%, were in the subsequent ranks, respectively, and in terms of status they were good and moderate, respectively.

Among the studied dimensions, the Red Crescent Society (Relief and Rescue Deputy), supportive dimensions with 71.42 and control with 75 percent respectively were in a moderate condition; after that, planning with a score of 84%, coordination with a score of 87.5%, needs assessment with a score of 88.46% and 46/88 percent and manpower with a score of 94.44% had a good situation (table1 and figure 1).

Table 1. Results of the study by dimensions and the studied relief organization

Organization	Dimensions												Total points	
	Planning		Need assessment		Control		Manpower		Supportive		Coordination			
	Point	Percentage	Point	Percentage	Point	Percentage	Point	Percentage	Point	Percentage	Point	Percentage	Point	Percentage
DEMMC	45	57	48	61	13	54	48	88	33	78	12	50	199	66.3
Relief and Rescue Deputy	66	84.61	69	88.46	18	75	51	94.44	30	71.42	21	87.5	255	85
Total	111	71.1	117	75	31	64.5	99	91.6	63	75	33	68.7	454	75.6

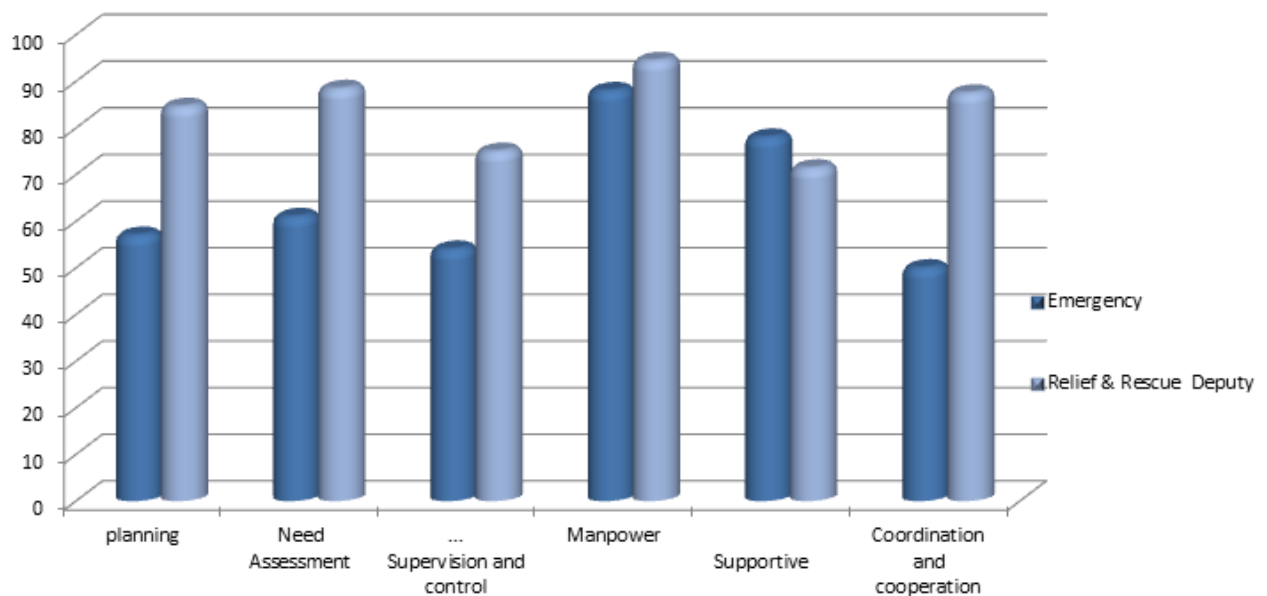


Figure1. Comparison between the condition of relief supply chain management when in terms of planning during the occurrence of disasters by dimensions and the studied organization-2012

### DISCUSSION AND CONCLUSION

An occurrence of a disaster in the society while creates bodily non-compensable injuries, strikes the society’s body of the economy two fatal blows. One of these is a damage that will be imposed to national wealth and assets directly and the other is the diversion of resources and society’s efforts for the development and to achieve the growth of life level and enjoyment of the usual standards of life that is done in order to repair the losses and remedy the hazardous effects of disaster.

Paying attention to these two points, *more than ever before*, indicates the necessity of establishing a correct attitude and vision and the need for a comprehensive and strategic planning in the field of disaster management [20].

Planning covers all of the different stages of the cycle of disaster management, and deals with the various dimensions, including planning to reduce the damaging economic consequences caused by the occurrence of natural disasters. There are different strategies that can be used in the process of planning in order to reduce the destructive consequences of natural disasters and risk factors during the occurrence of natural disasters and unexpected events [21].

The results of this study showed the need for the global and appropriate strategic planning in crisis management generally and for the supply of relief goods and services specifically for the DEMMC that is fully consistent with the results of the study by Amerion *et al.* [22] in military hospitals in the country's border cities. In the need assessment dimension the results of the study showed that the dimension in the DEMMC is in a downward moderate.

On the other hand, executives of both organizations acknowledged that they are in a weak state concerning identification of specific groups such as the elderly and disabled, and prioritization of the affected individuals in terms of the degree, whilst in their study, Jahanbani *et al.* [23] indicated that matching of relief services to the affected people is a success factor in relief.

The Manitoba Organization (2002) writes that occurrence of a natural disaster fully affects the needs of community health and the health sector's ability to respond to these needs is changed [24]. So, by the needs assessment based on the groups and the severity of the damage, management of the disaster is a non-denial necessity with the relief operations.

A study of supervision and control dimension showed that in relation to the cost of the transfer, storage and use of donated goods, also there are not specific measures in order to inform the partners along the way about receiving and carrying the goods again if they are faced with a shortage.

While Pan American Health Organization believes that in the process of accountability, having regular health approach towards the design, implementation, monitoring and evaluation of services is the main sponsor for satisfying the main needs, the appropriate coverage and optimum access to high quality services [25].

Referring to problems of supply of materials and supplies and the lack of balance between needs and resources inherent in emergency hospitals, Maleki *et al.* [26] stress fully and comprehensively on a contract set about the circumstances related to supply of materials and related requirements.

A study of the manpower dimension showed that the Relief and Rescue organization is equipped for office of professional education in which the basic trainings are run to deal with disasters. But both the Organization has had limits for accessing to local research and logistics planning experts.

The other important point was the weakness of DEMMC in organizing the volunteers when the occurrence of the crisis. In their study, Farajzadeh *et al.* [27] reported the human and organizational resources as a factor for determining the quality of prevention and deal with the crisis, and they noted that there is a need to train the human resources as expert in relief in fit with the type of crisis for coping with natural and non-natural crises.

In relation to the support dimension the results of the research showed that DEMMC lacked a plan to collect donations humanitarian *help* and *donations* at the time of the occurrence of the crisis. As well as both organizations lack a plan to fit to items donated by international organizations with the culture, traditions and values accepted by people in the affected area. Another notable point is weakness of the aforementioned organizations in absorption of financial assistance in times of need that is needed to pay special attention.

Based on the results of the study, DEMMC is in a good situation in conjunction with the participation of stakeholders in its planning and implementation; establish a connection between the people and the authorities, effective communication with donors and international agencies and organizations.

The Relief and Rescue organization have the Office of candidates for effective communication with donors and the General Administration of International Affairs to communicate effectively with international organizations and agencies. In their study, Mousavi and Kavehfirooz [18] noted that the lack of communication and coordination between the relief organizations is one of the most important problems of relief organizations.

In connection with the coordination in response to disaster, *Pan American Health Organization* (2000) believes that the amount of influence of responses to disasters depends on close coordination and collaboration with other sectors, this coordination and collaboration prevents rework and ensures the quality of service [12].

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