



PREPAREDNESS OF CIVIL DEFENCE FOR COPING WITH INDUSTRIAL ACCIDENTS IN SAUDI ARABIA

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Abstract

The Eastern Region of Saudi Arabia has been exposed to many industrial accidents such as fires within the factories and oil platforms and refineries and leakage of gas and accidents involving trucks loaded with chemicals, environmental pollution and leakage from some factories in the radioactive process. In view of these, this paper examined the current preparedness of the civil defence departments in handling industrial accidents in the Eastern Province of Saudi Arabia. The findings from the study reveals that there are several industrial accidents that caused by factories and industrial areas in the eastern province that are exposed to different types of accidents such as chemical, physical and fires. industrial accidents in the eastern province cause direct impact and harm people and their surroundings which lead to damage the environment. The result further shows that, civil defence departments have not developed preparedness plans that follow the international standards that it relies on to evaluate its preparation. Furthermore, civil departments have not developed any awareness programmes for foreign workforce. This study suggests transfer of high-risk factories from industrial areas within the urban range to safe areas and Adoption of international standards to measure the response.

Keywords: Preparedness, Industrial Accidents, Managers, Community Leaders, Planning

INTRODUCTION

Industrial and accidents hazards are regarded as extreme risk to people and environment. For this reason, countries represented in their civil defence departments should be prepared well for dealing with such accidents in professional and effective ways. The United Nations emphasises that planning for successful operations for dealing with industrial accidents and proper

preparedness of emergency plans is vital and critical for handling hazardous chemicals (UNEP, 2006). The main aim of any emergency planning is to help organisations to respond swiftly and effectively to minimise the effects of industrial accidents. The first step in the emergency planning is to identify what type of hazards on the sites, the consequences and problems related to hazards. This may include fire, explosions, environmental damages and/or toxic release. These hazards may occur separately or collectively (UNEP, 2015). Therefore, organisations should be prepared for all types of emergency events. Emergency planning for industrial accidents and incidents defined as the process of getting organisations prepared systematically and contingency for future accidents. Therefore, organisations such as civil defence departments have to be prepared through designing relevant plans in collaboration with the community organisations. Dillon (2011) suggests that emergency planning can be deemed as a blueprint for managing future event and how organisations respond to these events and manage their needs. Moreover, Christian et al. (2009) emphasise that emergency planning for industrial accidents relies heavily on information and communication technology and collaboration between public organisations and community organisations. In general, emergency is planning the critical part of organisations' preparedness. In this context, preparedness consists of all measures that enable governmental and community organisations, households and individuals to respond in an effective way and quickly to disaster strike (Sutton and Tierney, 2006). This definition reveals that emergency planning should focus also on how individuals and organisations are prepared to overcome and deal with events such as fire.

Effective and efficient planning is necessary in managing emergency plans (Fink, 1986). Della-Giustina (2003) explained three steps essential in emergency planning: to recognise existing risks, to develop an updated emergency plans and finally to assure the organisation's preparedness for emergencies. Very few studies were undertaken to examine emergency planning and preparedness for managing emergency events. Kapucu and Khose (2013) identified the main substantial factors in the emergency preparation plans and to demonstrate a lack of leadership and coordination with the community organisations at preparedness level. Henderson (2008) found that insignificant level of planning and preparedness affects the future events and hazards.

It is worth to remember what preparedness means? In fact, there are four phases of disaster or accidents: mitigation, preparedness, responds and recovery. According to Sutton and Tierney (2006), the national Research Council (2006), the main area in disaster and hazards empirical research is the pre-disaster hazards analysis (situation analysis), mitigation, the focus on emergency response to disaster and finally recovery. The role of preparedness is to link between pre-disaster phase and post-disaster. The main aim of disaster and industrial

accidents preparedness is to minimise or reduce damages and losses. There are several organisations which may work together such as civil defence, police, and hospitals along with community organisations. This may comprise several tasks such as evacuation of people, sheltering and brining emergency needs for vulnerable people.

It can be said that preparedness consists of all measures that enable governmental and community organisations, households and individuals to respond in an effective way and quickly to disaster strike (Sutton and Tierney, 2006). The International Federation for Red Cross (2000) stated that preparedness also refers to all planning, emergency planning and practical measures that should be taken into account to reduce the impact of disasters and accidents. These include predicting and preventing disasters if possible and mitigate the effect on population and respond to and effectively cope with disaster consequences.

In relation to Saudi Arabia, it has been one of the areas which were expected to expose to industrial accidents due to large amounts of oil produced particularly in the Eastern area of the kingdom. Abosuliman et al (2013) discussed the Saudi Arabian disaster management policies prior to the 2009 floods in Jeddah. Their review revealed that although Saudi Arabia has a rigid bureaucratic structure; decision making is still slow, their chain of command is extremely long and is easily broken down under pressure. Consequently, in the 2009 Jeddah floods emergency organisations lacked coordination between them even though they possessed valiant efforts in the emergency response; they were still unable to control the disaster.

Within Saudi Arabia, the General Directorate of Civil Defence (GDCCD) is an important part in emergency planning and response. It is the official body responsible for emergency and disaster management (Civil Defence KSA, 2016). The Ministry of Interior in Saudi Arabia is also involved in emergency management and it conducts professional development activities for several staff in the area of civil defence. They are mainly responsible for teaching and training process which ensures disaster readiness and they are also involved in units such as dealing with emergency cases, civil protection, first aid, investigating accidents of the civil defence and rescue (KSA Interior Ministry, 2013).). Almari (2008) found that emergency management in Saudi Arabia is struggling to manage the current risks and vulnerabilities. Alharbi (2013) investigated the strategic planning for the development of civil defence in Saudi Arabia. Alharbi (2013) study results revealed that planning is still below the required level mainly due to the lack of strategic leadership and culture. He also found that there is poor coordination between the administrative levels of the civil defence plans; this makes it more difficult to activate a certain strategy. Moreover, Alharbi (2013) found that there is lack of administrative units for strategic planning as well as lack of control and follow up system. According to Ottai (2017) focus group discussions results; disaster preparedness and response capabilities for the flooding disaster in

Riyadh was inadequate. The author found that the civil defence did not engage well with the community and did not have any awareness on the factors that contribute to further complications due to the lack of planning and response. Thus, their lack of preparedness capacity has dramatically influenced the capacity of civil defence for an effective disaster response. Ottai (2017) study concluded that there is poor coordination and onsite collaboration between private agencies and governmental departments which may lead to lack of effective disaster response. Furthermore, he also found that the civil defence role and responsibilities are not clearly defined, this results in response delay.

Against this background, this study aims to explore the civil defence preparedness to cope with industrial accidents represented in emergency planning.

RESEARCH METHODOLOGY

Research Design

This study has adopted qualitative research methods represented in semi-structure interviews. This aimed to understand managers' and community leaders' views regarding preparedness for coping with industrial accidents and challenges faced in facing preparedness. Regarding the sample, this study adopted criterion for choosing managers from the civil defence and leaders from the community organisations. The study included managers and community leaders who are experienced and knowledgeable in activities of civil defence and preparedness and industrial accidents. These managers were initially asked about whether they agree to participate in the study.

Participants: Sampling and Recruitment

This study targeted twenty managers were contacted and fifteen of them agreed to participate in the study. However, only twelve managers practically were interviewed as well ten community leaders were contacted but eight were interviewed. A purposive sampling method was used to select managers and community leaders. The selection of managers and community leaders from the Eastern Province was based on wide knowledge and seniority (long years of experience) in general and experience in industrial accidents in particular. Participants' age (managers) ranged between 30 and 45 years where all of them were employed by the departments of the civil defence and community organisations at least in the last fifteen years.

Data collection

Prior to conducting interview, all participants were asked to sign the consent form. All semi-structured interviews were conducted on the premises of the departments of civil defence and

community organisations in the Eastern Region. All interviews were recorded after taking permission from the participants. It is worth mentioning that the sample was sufficient in this study since data collected reached saturation and all themes relevant to the research objectives were identified.

Analysis of Data

All interviews were transcribed immediately after the interviews. Interviews were read thoroughly which helped in identifying the main themes and sub-themes emerged from the transcripts. Coding of the data began once the data collection was commenced so new data or themes emerged. The next step was to develop themes which emerged from the data and grouped into sub-themes where the data analysis was based on.

RESULTS OF THE STUDY

The results of this study were organised according to the main theme preparedness and sub-themes represented in planning and emergency planning management from civil defence managers and community leaders. These themes were identified from the series of semi-structured interviews conducted with civil defence managers and community leaders. Preparedness, in general, depends upon several factors. For instance, it depends on how managers and employees administer and deal with incidents, is there sufficient infrastructure consideration for dealing with hazards and finally systematic integration of technical skills and experience.

Theme One: Planning

Managers participated in this study were asked about the plans the civil defence prepared for dealing with the occurrence of hazards and incidents. The results demonstrated different viewpoints of managers from working for civil defence in the eastern province. The results indicate that the civil defence departments have prepared the necessary plans to deal with industrial and natural accidents such as the chemical, biological and radiological accidents as well as prepared plans to deal with natural disasters such as earthquakes, tremors and floods. The role of the civil defence and supporting bodies is determined in these plans. The civil defence remit issued by the Royal Decree specifies that the Civil Defence needs to prepare the necessary plans to deal with risks, disasters and crisis. The Civil Defence leads the response in such incidents and is prepared accordingly to delegate to the participating parties in order to prepare their plans based on the general plans organised by the civil defence. Nonetheless, the results revealed that the civil defence departments, to large extent, have developed short-terms

plans for emergency accidents such as occurrence of fire accidents in some areas. The results show no consensus among participants. Some of the managers mentioned they have developed plans and some have not developed such plans. One of the participants emphasised that there are no clear plans that can be relied on when an event or hazard occurs. He reported:

“The plan is supposed to be built on certain data so that it can be implemented through reality, but in fact sometimes there is a difference between the ground and the construction of the plan because it is not the one who builds the plan that is implemented. The plans within Khobar civil defence department are not applicable to accidents that may occur within twenty-four hours. (Manager No. 4).”

Another participant from agrees with his colleagues where he ascertained that the plans cannot meet the needs of emergency incidents and they are not based on reliable information. He revealed:

“There are regular routine plans and these plans are able to identify the entrances and exits and danger sites or water sources. However, these plans based on real data and are based on certain dangers such as terrorism or the incident that happened in Al Khobar such as Gonu cyclone (2007). The civil defense also took good measures to deal with this situation and also in the case of the earthquake in the Arabian Gulf affected by the city of Khobar specifically, the civil defense could work evacuation of some areas or buildings with high altitudes and deal with the situation as required by the situation (Manager No. 7).”

However, one of the participants emphasised that department of the civil defence department has developed plans but these plans are not effective. In his own words, he stated:

“The Department of Civil Defense has plans based on risk analysis and forecasting of risks. There are also detailed plans for each confrontation, in which experts and stakeholders are employed to carry out the existing tasks and how to deal with the situation. As far as possible, that people and property are maintained as well as the situation is restored to what it was as soon as the most prominent points for the plans (Manager No. 2).”

To large extent, participants' views are in line with other participants' views above where current available plans are not effective in dealing with emergency accidents.

“All the civil defence departments have plans but these plans are nor effective in dealing incidents which may occur every day such as the occurrence of fire in public areas. There are annual plans, but these plans are theoretical and have never been applied on the ground (Manager No. 8).”

Another participant supports this view:

“True, dealing with accidents is not an easy task. We need to expect everything because you would never know what would happen in “x” or “y” areas. We need to have practical plans that help our employees deal with the incidents practically not in theory. I will tell one thing, it is seldom and difficult to find the right persons to do the job. Of course, I am speaking in general terms of risk and location, industrial or natural hazards, but in detail, detailed maps or risk sites are precisely defined (Manager No. 10).

In relation to community leaders' views, they are totally different from civil defence managers' views where community leaders stressed that civil defence departments are working without plans designated for coping with industrial hazards. In relation to this context, community leaders were asked the ability of civil defence departments to plan and get prepared for any event that may occur in the future. There was a consensus among all leaders that the civil defence departments have no plans and just work without any strategic visions. One of the leaders reported:

“Yes, civil defence certainly works alone. Civil defence works without planning. They just go when something happens. For example, if even occurs such as fire in some places, they go to extinguish the fire. The problem they always come late to places. They do not have emergency plans for dealing with such issues (Leaders No. 1).”

Another leader's view supports this viewpoint:

“I would not say that the civil defence do not have plans. They may have some. If there are some plans, however, they are being used. Civil defence do not follow any plans. They have fixed reactions which just focus on one event and do not look for the future (Leader No. 5).

Likewise, another leader shares the same view:

“To be honest, I am not familiar with civil defence documents about their work. From my experience as observer, I see the civil defence departments do not put enough efforts on planning and executing their work. When they are called by someone or by some organizations, they try to get prepared. However, you do not find sufficient staff sometimes to do the jobs. At the same time, civil defence officers do not allow the community members to interfere or to contribute (Leader No. 7).”

From community members' view point, the civil defence departments do not have plans for dealing with industrial accidents and disasters and they just react when they are called by organisations or community members.

Theme Two: Emergency planning and preparedness

The main aim of emergency preparedness is to reach any person in the target areas. All relevant organisations are to compile information about people at risk. In this study, managers were asked about civil defence departments' emergency preparedness. The results indicate no differences among managers from the eastern province. The results indicated that there are some emergency plans but they are not effective and efficient and in some cases are not used. One of the managers reported:

"Of course, we have a wide range of plans, including a general emergency plan with several assumptions based on detailed plans to deal with these assumptions. The plans exist, but need to activate the roles of government agencies in the implementation of the functions of civil defense; this is still what is done in a strong and correct way. We now see that we have only paper, even if both our hypothesis is successful, it still lacks precise and correct activation (Manager No. 1).

Another participant has the same view as above. He revealed:

"There are some plans for short and long run industrial accidents and disaster. However, these plans are not effective because our staffs are prepared to implement these plans on the ground. They are not skilled enough to deal with the events and disasters (Manager No. 6)".

Likewise, another participant's view does not differ from above views. One of them stated:

"We prepared plans, prepared them correctly, but based on what, on expectations of what may happen in the future. Can I say something, what are the true expectations? If you want to do the things correctly and get prepared, your plans should be based on correct information and expectations. You need to work through other government agencies, local community institutions, even individuals. People need to be aware of what are going to do in case of disasters or anything else (Manager No. 9).

Community leaders were asked the same question about whether the civil defence department have developed emergency plans or not. All of them agreed that the civil defence have not developed effective short or long-term plans that help in dealing with disasters and events as well as industrial accidents. They work only on ad-hoc basis where something happens here or there they go and always arrive late. The results showed that all community leaders are in agreement that the civil defence department have not developed emergency plans:

"I have not seen any civil defence officer or official or even any warning that you should have emergency exits, an alarm system and a fire extinguisher and this is the least safety (Leader No. 4).

Another participant has the same view as above and stressed that the civil defence department in Dammam has not developed emergency plans. He reported:

“As far as know I that the civil defence departments have not developed emergency plans. I heard about an initiative by the civil defense to develop this system and to be present in every home. This system also gives the name of the owner, the number of rooms, the existing safety means and the existing emergency exits. The system can also be built on the required level of civil defense, because the technology is a local technique (Leader No. 7)”.

Likewise, another participant’s view does not differ from above views. One of them stated:

“We prepared plans, prepared them correctly, but based on what, on expectations of what may happen in the future. Can I say something, what are the true expectations? If you want to do the things correctly and get prepared, your plans should be based on correct information and expectations. You need to work through other government agencies, local community institutions, even individuals. People need to be aware of what are going to do in case of disasters or anything else (Leader No. 8).

Likewise, another participant’s view does not differ from above views. One of them stated:

“Civil defense has had a great failure in dealing with emergency events. For example, the civil defence has not established a company with other governmental department’s community organizations. They do not have good fire extinguisher (Leader No. 8).

It can be said that the civil defence departments have not developed effective emergency preparedness plans that enable officers and employees to work quickly and efficiently.

DISCUSSION

This study aims at examining the Saudi civil defence preparedness to cope and deal with industrial accidents in the Eastern province. This study has provided meaningful results and insights about emergency planning and preparedness that may be generalised to other provinces in Saudi Arabia.

The semi-structured interviews conducted with civil defence managers and community leaders indicated that there are no clear strategic planning action plans within the departments. The results showed that the civil defence departments have developed short-term plans rather than long-term or strategic plans. From strategic implementation viewpoint, strategic preparation and emergency planning are not formalised by the civil defence departments due to lack of coordination with other departments and community organisations.

The results of the study showed that the civil defence department is the only organisation which is responsible for making decisions regarding all issues related to hazards and industrial accidents including planning and emergency planning. This is, in fact, a

centralisation of decisions which does not allow for community organisations' participation in making decisions. According to Sutephan and Waugh (1998), decentralisation is very important and reflects the coordination and cooperation between the governmental organisations (i.e. civil defence departments) and civil society organisations. Participation of the community organisations increases the faith in the local community and acknowledges the need for coordination and collaboration.

It can be concluded that the department of civil defence have developed plans but these plans are not based on actual data and information and do not help in dealing with contingency incidents such as fire in the public places. According to Persad (2003), planned procedures and related facilities as well as emergency planning reduce the consequences of hazards and disasters. Many researchers (i.e. Wisner et al., 2011, Dular et al., 2009) argued that planning is critical in dealing with all types of hazards and disasters. According to these researchers, all organisations responsible for coping with disasters and industrial accidents reduce the risk of accidents and disasters. These authors mentioned that there is a strong association between development planning and reducing the impact and risk of hazards.

The results of interviews show that the civil defence departments in all areas have not developed effective emergency preparedness plans. The civil defence plans are almost reactive to events that occur rather than responsive and protective. This may be attributed to the fact that the simple plans developed by civil departments are weak and do not follow the international standards or international scientific bodies that it relies upon to evaluate its preparation. Alamri (2008) in his study on Saudi Arabia, stressed that emergency planning and management in the kingdom is weak and struggle to manage risks. The results of this study and Alamri study (2008) are in line with Alharbi (2013) who found that planning for accidents and disaster is still below professionalism due to lack of effective leadership.

As the results showed, there a lack of planning which reduces performance of the civil defence. Again, the performance of civil defence is evaluated through the cases of rapid response and the number of casualties and deaths in the accidents (Ardalan et al., 2013). Indicatives from officials to prepare an evaluation of the response unit based on the arrival time of the teams and their concentration and the manpower and the machinery, etc (Lindell & Perry, 1992). This is based on a subjective analysis and changes depending on the position of the person and administrative level. In addition, a meeting is held after some of the major incidents to evaluate the performance through supervisors and operational managers (Sylves, 1998). These meetings discuss short comings and the difficulties faced by the Civil Defence response units. Although the Kingdom is represented by the Ministry of the Interior/Civil Defence, one of the members of the International Civil Defence Organisation. There are many practical

frameworks such as the Hyogo Framework and the Sendai Framework in Japan (UNISDR, 2015) which were adopted globally and plans the response preparations. For example, these days, there is a more push towards proactive and preventive actions and role for emergency responders (Alexander, 2005). In this case, responders (i.e. civil defence staff) may play a vital role along with the community in planning, managing, responding and preventing accidents and disasters.

CONCLUSION

This study was aimed at exploring the civil defence preparedness for industrial accidents represented in emergency planning which is regarded as a part of preparedness. From the results presented in the results and discussion sections, it can be concluded that the civil defence departments in the Eastern province have not developed effective emergency planning which enable them to cope with any emergent accidents. The civil defence departments have no short and long-terms plans in which they rely on. They work on ad-hoc basis and respond only to emergency events. Civil defence departments in collaboration with other governmental and community organisations should prepare plans for pre-occurrence of different types of accidents. In other words, there should be incidents and hazards management plans. For instance, are there contingency plans that cover any potential problems (i.e. fire, disaster) in all cities and regions? Are there vulnerable areas that need more care than others; has the civil defence prepared evacuation plans? Have the civil defence departments coordinated with other public organisations and the community? All of these questions are related to planning before the occurrence of industrial accidents.

RECOMMENDATIONS FOR FURTHER STUDIES

On the basis of the study results, it will be beneficial to conduct further empirical studies. For instance, other researchers can carry out a study on preparedness of civil defence departments in other areas of Saudi Arabia and compare the results with the current study on eastern province. Furthermore, researchers may conduct a study using both quantitative and qualitative research methods. So, the study can measure the capability of civil defence preparedness quantitatively from managers' viewpoint complemented with in-depth interviews. Further studies may target several organisations such as the Saudi Red Crescent, Health Care Commission and General Authority for Meteorology and Environment Protection. This will help determine the extent of response and preparedness of these organisations to civil defence organisations in coping with industrial accidents.

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