Rescue Operations During Disasters and Accidents

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Preface

Rescue operations in the case of disasters, crises and accidents, are considered the final and most important phase of the work of Civil Defence and Civil Protection. It could represent the whole of the civil defence work, considering that rescue is their main target, which explains the reason for those centers called (Rescue Centers) in most countries. Several conferences are held under the same title.

Rescue operations are versatile, covering land, sea, air, and others, depending on the nature of the country. Rescue authorities have their own laws and rules, departments, qualified personnel, sources of information and different equipment.

In the State of Kuwait, and following the legal Decree (#21) 1979 for the Civil Defence, rescue operations in the case of disasters, crises, and accidents, are implied, therein, since the objectives of civil defence is to reduce property and human losses during times of war and peace by means of rescue operations. For this reason, we present under “Introduction”, the main reasons for putting the Amiri Decree into action, and the main parameters used for achieving the same, taking into consideration the significance of coordinating and integrating the work of the Civil Defence, and centralizing its command, in order to ensure that operations are carried out following the required sequence of events. The objective remains to face dangers by utilizing optimum competency capable of dealing with the situation.

General Civil Defence Dept.
General Introduction

The State of Kuwait has an important geographic and strategic location in the midst of several intellectual (ideological) and military powers of differing opinions and plans, and which have such military and technological capabilities that could threaten the internal and external security of the country, in addition to the diversified population structure inside the country, thus adding one more element of potential threats against the country’s own security.

Under such circumstances, the country’s senior decision makers have established security laws for protecting and securing the safety of the internal front during times of war and peace, to maximize people’s moral and to maintain smooth flow of productivity and life sustenance and advancement.

The Amiri decree Number (21) for the Year 1979 concerning Civil Defence aimed at achieving this objective, and therefore, established the general framework for legislative grounds. The Decree has handed over the setting up of by-laws to the highest executive authority at the Ministry of Interior, where rules and regulations and work procedures are developed in line with the latest technologies and methodologies tested and adopted in the face of wars and terrorism. Also considered, are latest industrial innovations and inventions and related social changes and potential accidents, which, in turn, lead to large numbers of human casualties and serious losses in properties, such as what happened in Chernobyl.
In light of the above, it is obvious that Civil Defence serves different but integrated objectives. Civil Defence operations are also distinguished for their unified command, of the Civil Defence committee lead by the Minister of interior and his deputy, the versatility of areas of specializations, the broad base of manpower, through the committee’s memberships in all of the country’s related administrations, the accuracy of its means, the sequential operational system, reliance on pre-examined plans and constant research and development. These factors operate inter-dependently within three major parameters:

1. Legislation: for maintaining a unified and centralized command.
2. Manpower: for maintaining skills, knowledge, and expertise.
3. Financial: for maintaining support to above parameters and for achieving objectives.

Serious and targeted planning, therefore, demands that all above parameters should be available, that each parameter is adequately equipped with its requirements, particularly information, which is considered the spinal cord necessary for accomplishing any mission or operation successfully.

Following the instructions of the Acting Director General of the Public Department for Civil Defence, the following is a review of rescue operations in two scenarios, controlled and orchestrated by the “Rescue Operations Command” which runs inter-dependently with the different units and sections of the Civil Defence Department:
Review of Plan’s Elements and Methodology for Execution

Civil protection plans for rescue and facing accidents and disasters are based on these main elements:

1 - Primary preparations before the occurrence of the accident.
2 - Procedures during the incident and its sequence of events.
3 - Procedures, on site, after the incident is over and primary reports.
4 - Analyzing the incident and studying its aspects follow up on social and economic outcome.

For execution, the plan depends on the main parameters mentioned above (i.e.: legislation, manpower and financial). Each of these parameters has different elements that vary according to the type of the incident; however, they together form the requirements for execution. The following is a detailed review of the two above cases:
First: Building Collapse Causes and Procedures

First: Possible Causes:

1. Getting old
2. Landslide.
3. Cracks affecting the building due to indirect and minor earth tremors.
4. Construction defects
5. Cracks or defects affecting the building foundation due to water leakage into the basement or below the foundation (resulting from heavy rain or rising underground water level).

Second: Procedures and Sequence:

1. Prior to the Incident (General Survey/Collection of Statistical Information)
   A - Survey buildings in different areas at each governorate by groups of volunteers and scouts, under the supervision of police officers of each respective area, in cooperation with the municipality and the Ministry of Labor, necessary for collect information, providing maps and technical support.
   B - Collect information on old buildings, classifying them according to outside /construction condition, and durability against different types of shocks, and suitability for use under normal conditions.
   C - Collect information on medium age buildings showing minor cracks, by means of the following:
      • Distributing questionnaires on the ten-
ants of the residential buildings (to be designed later), analyzing the data to determine the degree of potential danger.

• Designating a unit for receiving doubts on leakage of water inside buildings / basements that may lead to future damages, and which may not be clearly visible (during rainy season, recurring every year, causing serious potential dangers.)

• Urging owners of buildings (private or public) to report any cracks or other indication of collapse (with the help of the media).

D - Detect invisible or unclear cracks (using special instruments).

E - Collect information on other large buildings ([non]-government or private) large residential compounds where chances of existing cracks are high.

F Record data using computers, conducting statistical analysis and taking precautionary measures (preferably by a technical committee to be formed by the Municipality, Ministry of Public Works, Civil Defence Department), to make decisions / recommendations and follow up procedures, as follows:

• Demolish buildings proved technically to be 10% or more liable for collapsing (or as may be decided by the Technical Committee).

• Repairing the building as required.

• Proposing solutions for buildings proved to suffer from construction defects (type of cement, foundations, supporting columns, the type of land on which the building stands).

G - Follow up and marking locations on maps by using the computer and by marking (using different colors) on buildings liable for collapsing (maximum to minimum potentiality).

H - Prepare for regular and periodical inspection and follow up (committees and specialists).

I - Keep geographical and statistical data, and updating the same, at the Operations Room.
2 - Procedures during the Incident
A - Record report (received at Operations Room by any means possible).
B - Follow pre-set direct and specific instructions by the person receiving the call, to include (in certain cases) directions for the caller to conduct primary procedures until the arrival of specialists, followed by contacting comment authorities (hot lines) depending on the magnitude of the incident.
C - Send an inspection team (usually available in the area) to assess the situation and determine the need for calling in ambulance and rescue teams, etc.
D - Call in specialist teams (removal of debris, searching for living survivors under debris, conduct first aid and field treatment, if necessary), as may be determined by the inspection team; set up group liaison plan (pre-set) and contact nearby hospitals.
E - Call in volunteers of the same area, if necessary.

3 - Procedures on Site of the Incident
A - Conduct evacuation procedures at and around the site and the surrounding area, if required.
B - Cordon the site / area depending on the size of the incident; detour traffic, do not allow for crowds in the area, provide access to specialists to arrive to the site.
C - Conduct security checks and controls on site and the surrounding area, if necessary.
D - Organize rescue operations for casualties under debris, provide aid to injured cases as soon as possible, transfer serious cases to nearby hospitals, set up temporary hospital facility on site, if necessary after designating temporary accommodation and provide requirements for basic living (it is advisable to determine conditions beforehand for each area).
4 - Procedures at the End Fighting the Incident Operations (may last for few days):

A - Remove debris, carry dead bodies and decontaminate the site (to avoid spread of diseases).
B - Investigate causes behind the incident and collect evidence (by specialists).
C - Attempt to restore pre-incident conditions, ensure safety of electric connections at the site and the surrounding areas, water pipes, infrastructure; set up security checks if necessary to maintain order for certain period of time, as required by social and economic conditions at the area.

5 - Writing reports and submit same to competent authorities, including:

A - Situation analysis and possible causes.
B - Conduct check of losses in human lives and properties.
C - Effectiveness of procedures, strengths and weaknesses, adequacy of specialized and technological provisions.
D - Effectiveness of communication and reporting procedures.
E - Effectiveness of supporting entities (volunteers, outside bodies, regional / international organizations).
F - Recommendations for improvements.

Third: Requirements for Execution:

As mentioned earlier, the execution of the plan depends on three main parameters (legislative, manpower and financial)

1 - Legislative:
A - This constitutes the pivotal element necessary for unifying the central command and not allowing personal guesswork outside the framework, which could lead to disastrous results. This parameter operates by the following:
B - Competent authority in charge of making general directions, during emergencies or potential threats.
C - Bylaws for safety regulations, technical rules and regulations for pre-incident scenarios, organizational structures for controlling the incident.

D - Controlling and organizing volunteer work for public interest and adopting training methodologies and providing provisions required for execution.

E - Follow up and develop capabilities to ensure continuity in light of a pre-set plan based on fixed principles and flexible details to keep up with scientific and technological innovations.

2 - Manpower:

A - Testing aptitude of specialized teams having confirmed their interest in operations.

B - Testing their mental / psychological competence, focusing on the specialization and size of each team.

C - Providing training, as follows:

1 - Specialized training for qualifying individuals to work on different teams (outside and inside the country).

2 - Continuous training (refreshing / boosting programs)

E. Conduct simulated experiments on a periodical basis under specialized supervision.

3 - Financial (Budgeting):

A - Set up communication means and data bank.

B - Become active members in specialized international and regional organizations (pay Kuwait’s annual subscription fees, participate in activities such as conferences,
training, books, newsletters.)

C - Set up provisions for completing maintenance workshop for all departments of Civil Defence (to ensure continuation of operations, saving money, saving time which is considered the most significant factor for Civil Defence operations) [Future plan].

D - Identify equipment, machinery, vehicles and other fieldwork requirements, protective clothing, etc. and estimate cost against specifications and monitor proper installations etc.

E - Provide Operations Room with geographical information systems to include dynamic tracing and monitoring the incident (to be installed at the patrol, rescue and reconnaissance vehicles) together with operations manuals.

F - Setting up specifications for first aid facilities, mobile hospitals (in coordination with the Ministry of Public Health), shelter tents, evacuation (varies according to the incident); identify shelters and rescue operations centers before hand for each area.

**Fourth: Execution Plan and Stages**

In general, in the area of civil protection, there should be a clear plan with pre-set sequence of events, to be checked and objectively reviewed in light of the Amiri Decree and Civil Defence measures, and should be approved by executive and financial senior authorities after endorsement, in order to ensure problem-free implementation. This is the first step towards implementation. The Execution Plan – with respect to this part of the Civil Defence operations – and in addition to the above, includes the following:

1 - Surveying and Collection of Information:

A - Use information facilities to locate the countries most advanced in rescue related operations (subscribe in international and regional organizations to benefit from their data base and capabilities); note that Kuwait is not a member in any of these organizations.

B - Send senior specialists to all / some of those countries for collecting information on equipment, effective means for rescue operations (in both cases). Take advantage from agreements concluded between Kuwait and other countries – Finland for example.
2 - Forming teams:
A - Test aptitude of individuals for forming specialized teams (after identifying duties of each group, number of persons, function of each).
B - Contact specialized organizations at the government for establishing framework for cooperation between them and the Civil Defence, assign duties and identify “protocols” for cooperation in a legal framework in light of Civil Defence measures and operations.
C - Set up training programs, facilities (equipment and supplies) and identify countries where training can be provided, training cost and durations.

3 - Setting up organizational structure of Rescue Operations Command (Current):
As mentioned earlier, rescue operations are versatile. This is the practical stage of field operations in a series of civil defence operations.
At this primary stage, rescue operations can be limited to daily routines in minor accidents and building collapse (including collapse of bridges), leaking of chemical or dangerous smoke or fumes.
Note that this simple organizational structure could constitute the nuclei of a rescue organization as far as Civil Defence operations and the Amiri Decree and its bylaws are concerned.

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Rescue Operations Command
  Rescue Operations Commander
    Rescue Operations Assistant Commander
      Specialized Departments
        Chemical accidents
        Minor daily accidents
        Building Collapse
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Introduction:

These kinds of accidents are different from cases of building collapse, given their scope that spreads with the wind movement. Weather conditions are considered a major factor on the seriousness of such cases. Legislation parameter is pivotal in limiting and controlling their effects and minimizing losses in human lives and in properties (in cases of flammable gases).

Following, are the reasons for the above:

First: Causes

1 - During transportation (by land, sea or by air) inside or outside the country.
2 - During storage (bad storage conditions, failure to implement Civil Defence measures).
3 - While dealing with materials on designated areas.
4 - Explosion or fire breaking out at any site containing these materials.
5 - Leaking of materials, or on the way to factories, due to poor control measures for failure to carrying out Civil Defence measure on site.
1 - Primary Procedures (Pre-incident):

A - Statistical survey and Collection of Information:
Inspection and safety controls at factories and industrial areas are considered most significant for collection of informing and making safety instructions to workers at factories and ensuring implementation of Civil Defence measures (safety and security).

It is imperative to identify a way for collecting statistics on the movement and dealing of dangerous chemical materials, as through:

B - Seek support from the following authorities:
- The Public Administration for Civil Aviation and Industrialisation.
- Ministry of Commerce
- The Public Administration for Customs
- Environment Protection General Authority
- Kuwait institute for scientific Research.
- Ministry of Civil Defence.
- Ministry of Health.
- Public Administration for industry.

C - Printing a “questionnaire” to be distributed on commercial and industrial companies dealing in dangerous chemi-
cal materials for identifying quantities, usage sites, storage areas of dangerous chemicals (to be specified in the questionnaire).

D - Forming a technical committee to visit the factories and companies dealing in dangerous materials for collection of information and determining weaknesses in storage or usage (or both).

E - Classifying and entering information on the computer and locating sites as potential liable to chemical accidents (use GIS at Operation Room).

2 - Procedures at the time of the accident:

• In case detection stations (as mentioned earlier), reporting will be made automatically to the Operations Room.

• In certain cases, contacting the Operation Room by phone will make reporting.

A - In the first case: dealing with the call will be made through detection instruments by monitoring the effects of the accidents, and to verify the call is real. Contacting officials will follow. Remaining procedures as in the case of building collapse apply).

B - Contact the Environment Protection General Authority, if necessary.

3 - Procedures on site:

Procedures applicable on the site will follow same sequence as in the previous case, taking the following into consideration:

A - Conduct evacuation to the opposite direction of the wind, especially in sites located in the wind’s direc-
tion, and to warn inhabitants of this area immediately by means of traffic and po-
lice and police stations and the media.

B - Provide ambulance and rescue per-
sonnel with adequate personnel cloth-
ing, and fire fighters, in case fire breaks out.

C - Provide gas/ fumes and poisonous
detection instruments with rescue and
other operating teams.

D - If necessary, take samples for lab
testing.

4 - At the End of the Incident

Procedures at this stage are similar to
those applicable in the first stage in ad-
dition to the following:

A - Conducting chemically treated de-
contamination (for persons, personnel,
equipment, machinery and the site, if
possible)

B - Taking samples from the soil and
the air to ensure absence of chemical
pollutants (to help in treatment of ca-
sualties, tracing pollution and ensuring
removal). This is an important stage es-
pecially in case of fire (leading to evapo-
rating and dispersion of materials used
in industries, and other heavy elements
such as lead and mercury, considered dangerous).

Third: Execution Requirements

1 - Legal parameter:
This is considered pivotal in executing safety measures. If “precautionary measures are taken”, then Civil Defence measures would prove most effective in reducing potential dangers, thereof, minimizing losses in human lives and properties. This parameter also helps in unifying the command, as mentioned earlier.

2 - Manpower:
This is similar to procedures mentioned earlier.

3 - Financial:
This is similar to procedures mentioned earlier.
It is clear that all Civil Defence operations are integrated and closely connected and cannot be separated. A clear line simply cannot separate the functions and tasks of its many departments and units, given their collective target.

The above focused on the significance of Civil Defence measures, which

Fourth: Execution Procedures and Steps:

1 - Conduct necessary communication for setting up a statistical survey plan, as proposed earlier, or as per further recommendations.

2 - Follow sequence of events as demonstrated earlier, noting the difference in requirements between the equipments and machinery used. Also, note that we have adequate experience in this area and might not need to call in experts to help determine the type of equipments used.

Closing remarks

Conclusion

It is clear that all Civil Defence operations are integrated and closely connected and cannot be separated. A clear line simply cannot separate the functions and tasks of its many departments and units, given their collective target.

The above focused on the significance of Civil Defence measures, which
primarily aim at providing safety and security, and the protection of the internal front, disseminating awareness and optimizing capabilities for taking appropriate decisions in the cases of disasters and crises, at times of peace and war.