Urban Search and Rescue: Concepts and Coverage

Presentation

Day 1
URBAN SEARCH & RESCUE - GENERAL DEFINITION:

"The science of responding, locating, reaching, medically treating and safely extricating victims entrapped by collapsed structures."

1.0 PURPOSE

To facilitate the development and implementation of sequential, time line generated emergency response training modules for CDERA and its regional insular affiliates for the purpose of better defining and augmenting present disaster preparedness in the Caribbean. The goal of the workshop aims to establish a Search & Rescue (SAR) certification process synchronizing SAR and Emergency First Responder Training. Certification process will follow the guidelines established by the International Search and Rescue Advisory Group and Urban Search & Rescue standards recommended by the U.S. Federal Emergency Management Agency)

2.0 WORKSHOP OBJECTIVES

2.1 Familiarize regional participants with Urban Search and Rescue concepts

2.2 Provide pertinent information to regional participants on the range of possible components that can be included in a Regional Urban Search and Rescue Certification Program

2.3 Provide information to regional participants on various approaches that can be taken in developing a Regional USAR Certification Program

2.4 Through working group discussions, identify the components/modules to be included in a Regional USAR Certification Program
3.0 TIMEFRAME

3.1 Post workshop - Target date for CDERA Task Force to assemble for its first organizational meeting.

3.2 CDERA SAR advisory to seek funding to equip the task force.

3.3 Program implementation - over a three-year period to equip, train and operate the task force.

4.0 ISSUES TO BE CONSIDERED

4.1 Synchronizing Search & Rescue (SAR) and Medical First Responder training efforts as it relates to SAR certification.

4.2 Size of CDERA Task Force to include number of team members, and unit structure.

4.3 Assist in the establishment of a US&R Task Force for CDERA to serve the Caribbean Region

4.4 Assist in the establishment of a Regional Search and Rescue Response System

4.5 Establish minimum training requirements for task force members

4.6 Identify Training Resources for Search and Rescue

4.7 Develop Regional Training Capabilities.

5.0 TASKFORCE FORMATION

The Caribbean Disaster Emergency Response Agency Urban Search and Rescue Task Force will be comprised of various emergency response personnel from CDERA Sub Regions, as well as other emergency response professionals and volunteer members from various Islands nations in the Caribbean.

Within the next year, an aggressive recruitment campaign will be conducted to recruit members to fill the following specialty areas vital for the task force development and implementation.
6.0 THE THREATS:

The formation of the Caribbean archipelago came from violent volcanic eruptions coupled with earth movements that caused landmasses that were once submerged to arise out of the Caribbean Sea. Most of the Caribbean islands lay on a fault line sandwiched between the Caribbean and the North American tectonic plates. These tectonic plates are both viable and prone to movement. When these plates move or shift against each other it creates a wave of energy that can be released in two ways. The most common method is to constantly dispel the energy created by small tremors that usually cannot be, felt but registered by seismographs around the Caribbean. The second, and most devastating, is a build up of energy that is released in a major quake. Major earthquakes can quickly and violently destroy buildings and structures causing a major loss of lives.

Following a major earthquake, the movement of the tectonic plates and release of energy underwater often cause major tidal changes in the form of a tsunami (tidal wave). Tidal waves are known to destroy coastal cities, town or seaside villages up to several miles inland. A tsunami often compound the devastation caused by the earthquake itself.

Weather and climate conditions have been known to shape land terrains and also be a potential for disasters. Of the many weather conditions that might affect the Caribbean area, the threat of hurricanes weighs more pressingly in the region. Even though hurricanes can be forecasted and tracked, they have the power to cause widespread devastation to the Caribbean countries in one passing and most importantly resulting in loss of lives.
7.0 BRIEF HISTORY OF UNITED STATES US&R

US&R has a relatively short (1980's to present) history:
1985: Mexico City earthquake (OFDA response).
1989: Loma Prieta, CA earthquake (CAL OES/FEMA).
1991: Hurricane Andrew, Hurricane Iniki (FEMA).
1991-96: Other hurricane deployments (FEMA).
1993: World Trade Center Bombing (New York City).
1994: Northridge Earthquake (FEMA/State/Local).
1995: Oklahoma City Bombing (FEMA/Local).

Multiple isolated structural collapses:
- Kansas City Hyatt Skywalk.
- Brownsville, TX department store.
- Bridgeport, Conn. construction site.
- New York City building collapse, etc.
- Puerto Rico gas explosion.

Through these and many less notable events nationally, the need for a specialized response was clearly identified and considerable experience was gained in testing response capabilities.

8.0 RESPONSE "REALITIES"

Limitations on response resources:
- Financial: who's paying for it?
- Logistics: size and payload limits of the plane; numbers and abilities of support personnel and equipment; safety; etc.
- Personnel: number, qualified?, type, availability.
- Politics: bringing an outside unit into a stressed locale.
These limitations have helped shape the response system development.

With all of this as a background, CDERA is becoming involved in the US&R field.

9.0 THE MISSION

Urban Search and Rescue rapidly deploys components of a national or international Urban Search and Rescue Response System to provide specialized lifesaving assistance to local authorities in the event of a major disaster or emergency. A SAR Team must be composed of technical specialists from a variety of fields who support the victims of a disaster. Teams must be organized, staffed and trained to provide the functions necessary to mobilize, operate and demobilize at event of disasters or emergencies.

Urban Search and Rescue is considered a multi-hazard discipline, as it may be needed for a variety of emergencies or disasters, including earthquakes, hurricanes, typhoons, storms and tornadoes, floods, dam failures, technological accidents, terrorist activities, and hazardous materials releases.

USAR Response System is a framework for structuring existing emergency services personnel from the local level into integrated disaster response task forces. These community-based Search and Rescue teams take advantage of the preexisting organizations that support them, and emergency services personnel already doing this work on a day-to-day basis. In addition to being a national resource when activated, most Task Forces can easily be utilized as a regional emergency response mechanism by the National Emergency Management Agency.

US&R addresses only the above-mentioned operational activities specifically referring to victims of structural collapse. Other forms of search and rescue (e.g. Water, wilderness, subterranean) are managed by other technical teams not encompassed by a USAR Task Force.
In order for task forces to be able to function in this capacity, they must develop and maintain the following capabilities:

- Physical, canine, and electronic search capability.
- Rescue operations in a variety of structures, including wood frame, steel frame, non-reinforced concrete, and reinforced concrete.
- Advanced life support capability, specializing in crush syndrome and confined space medicine.
- Structural integrity assessments of structures in rescue operations.
- Hazardous materials assessments in rescue operations.
- Heavy equipment operations for rescue efforts.
- Communications within the task force, with the IST, and with the home jurisdiction.
- Resource accountability, maintenance, and equipment procurement.
- Technical documentation.
- Public information.
- Task force management and coordination.

In addition to having the above listed capabilities, task forces are structured to be able to operate under the following guidelines:

- 24-hour operations in two 12-hour shifts.
- Self-sufficiency for 72 hours.
- Report to the POD within 6 hours of activation.
- Cross-trained personnel.
- Standard equipment and training.
- Standard operating procedures.
- Operate under the Incident Command System (ICS).
Each USAR Task Force team should be staffed with a team management component and have at a minimum; the functional capabilities of:

- Search - Operations Div.
- Rescue – Operations Div.
- Medical – Operations Div.
- Technical (Planning)
- Logistics Support

*The functions of Search, Rescue, and Medical are grouped into an Operations Division*

9.1 Management

Roles include interacting with the local government (through Incident Manager), defining the needs to be met by the task force, planning the response, coordinating the task force teams, and assuring logistical support.

9.2 Search Team

The search function must have the capability to search and locate trapped victims using physical, canine and electronic means either separately or in an integrated fashion as required.

The following operations should be conducted by the search team:

I. General area/building search, reconnaissance and evaluations

II. Structure I.D., structure/hazard evaluation and marking, search assessment and marking
III. Assess general atmospheric conditions in/around confined spaces or voids

IV. Victim location identification.
   A. This would include canine, electronic and physical search operations.
   B. The location of viable victims would be denoted by marking the exact location with International Orange spray paint or orange surveyors tape.

V. Sketch the general search area and note all significant issues

VI. Communicate findings and recommend priorities back to the Task Force Leadership.

Search teams should have the capability to perform physical search, consisting of conducting interviews with survivors and a systematic movement across the site while listening for calls for help; canine search using specially trained dogs to locate living persons; and electronic search using sophisticated listening and seismic equipment.

These three primary types of search will allow search personnel to focus on the most important potential rescue opportunities. Prior to initiating search operations, the team must determine the search strategy to be followed. This should be based on detecting and locating the greatest number of victims in the shortest amount of time.

A plan should be developed which prioritizes the search opportunities based on a number of factors including occupancy, time of day, and local information on missing persons. In most cases, if the local rescuers have not identified locations of trapped people, the team's search operations will begin with a rapid initial search of their assigned area followed by a more thorough main search.
9.3 Rescue Team

The rescue teams primary responsibilities are:
I. Evaluation of compromised areas
II. Structural stabilization
III. Breaching and site exploration
IV. Live victim extrication (removal)

Rescue operations follow search operations and are focused on extricating the greatest number of victims in the shortest amount of time, prioritizing technical rescues that cannot be accomplished by local resources. Based on the search results, the team must prioritize the rescue sites and determine what resources to commit to a rescue site based on the potential success. The rescue function must be capable of working at multiple work sites. Generally, rescue operations are prioritized based on rescues that are easily achievable and moving on to those that are more complex. A rescue plan will ensure that all efforts are brought to bear in a systematic and coordinated manner, using the most up to date intelligence about the victims and buildings.

9.5 Medical Team

The medical function must provide medical doctors and paramedics capable of providing advanced life support to trapped/rescued victims as well as provide for the medical needs of team members. Early in the incident, team medical personnel should meet with the local medical authority of the affected work area to determine the procedures to be followed. Team medical personnel should also develop a medical plan for the on-site operation that includes handoff procedures, re-supply needs, deceased victim management, indigenous health concerns, and evacuation procedures for injured team members or canine. The team medical personnel should work closely with the rescue personnel even prior to victim release to monitor and ensure proper care is provided to trapped victims. Medical actions may be necessary to prevent hypothermia and reduced oxygen consumption. Failure to provide necessary care to trapped victims can lead to an untimely death form crush injury syndrome.
Following the rescue of trapped victims, the team must provide an advanced level of medical care until such time as the victim is handed off to the local medical system. Additionally, the medical team personnel must provide care to team member and canine from injury and illness while on-site and make recommendations to the Team Leader on the need for specialized care and/or evacuation to an appropriate medical care site.

9.6 Medical Team Priorities

I. First priority
   A. Task Force personnel (including support personnel and canines).
   B. "Take care of your own" - Sounds self-serving but is vitally important; it is to the credit of the programs involved in US&R development that they signed on early to the concept of caring as well as possible for the volunteers who perhaps have the riskiest roles in collapsed structure response.
   C. Includes other on-scene rescuers and support personnel and search team canines

II. Second Priority
   A. Victims directly encountered by the task force.

III. Third priority
   A. Other victims as indicated
   B. This objective cannot interfere with first and second priorities (i.e. It is important not to become a free-standing medical resource/ambulatory care center - this would interfere with primary functions).
9.7 Medical Team Objectives

I. To provide a wide range of medical care, including medical/trauma/pediatrics.
II. Medical care for task force and victims (adults and peds, wide range of expected medical and trauma problems, sophisticated care for complicated medical conditions).
III. We do not expect to be providing "Golden hour" trauma management except in the case of a task force member being critically injured.

9.8 Technical Team

The technical assistance (planning) function should provide support to the team by providing hazardous materials detection and protection, structural integrity assessments, as well as interacting with heavy equipment operators.

Technical Team Responsibilities

- Evaluation of hazardous or compromised areas.
- Structural assessment.
- Stabilization advice.
- Hazardous materials monitoring.

9.9 Logistics Support Team

The Logistics Support Team function should provide all logistical and communications needed for the team. This is also to include all information management and documentation requirements of the task force. The management component has the responsibility for overall supervision of the team while ensuring its safety and security. It will also represent the team concerning media and public information requests, provide various types of mission planning, and have the ability to liaison with the various entities encountered during a mission.
9.10 Safety

To oversee safety aspects of all task force activities (i.e., in transit, Base of Ops, worksites, demobilize).

9.11 Organizational Structure of the Task Force

Just as the task force integrates with on-scene managers and other responders through the ICS, the task force is also organized and operates under the ICS structure.

9.12 Standard Operating Procedures

Several standard operating procedures have been developed for urban search and rescue task force response (i.e. INSARAG and FEMA USAR Response System), including briefings, logistics support, etc. A system description and operating procedures manual for the CDERA USAR Task Force orientation will be developed by CDERA.