

Mountain Rescue and Search in Taiwan

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Abstract

Taiwan's mountain rescue was traditionally under the jurisdiction of the police (government force) and volunteer mountain rescue teams (non-government organization)¹. But with the growing frequency of natural and man-made disasters in Taiwan, disaster response work has grown more complex and critical. After the devastating September 21, 1999 earthquake and with the enactment of the "Disaster Prevention and Relief Law" in 2000, the National Fire Agency (NFA) was given a new mission. In addition to fire fighting, natural and man-made disaster rescue work was also added, presenting the NFA with new responsibilities and challenges. Rescue work has also changed from traditional one-dimensional operations to three-dimensional rescue operations and the work of the National Fire Agency is now more multifaceted and challenging. (*Ann Disaster Med.* 2004; 3 Suppl 1:S30-S34)

Key words: Mountain Rescue; Disaster; Pre-hospital Care

Introduction

Mountaineering and hiking have become more popular and appealing activity in Taiwan. At its simplest, it can mean strolling through the well-marked tourist trails around the village, which is very scenic and only moderately exerting. But there are the more serious hikers who — armed with a daypack (containing a water bottle, lunch, sun lotion, and rain gear) — launch a full-day expedition into the wilderness. Some of these trips can be relatively easy, such as walking along (or in) a riverbed, while others involving a strenuous climb up a tall peaks of the Restricted Area (higher than 3000m). Hiking with a guide or hiking club is safer, and recommended in the restricted area. Most of the ho-

tels and mountaineering clubs beneath this area can arrange guides, and typically offer some sorts of economical tour package that includes a tent, meals and guided wilderness trips. However, some people just ignore this advice and the incident or disaster come.

The Type of Mountain Incident and Emergency

1. Lost
2. Heat stroke or Heat Exhaustion
3. High-altitude Sickness
4. Fall : Bone Fracture, Dislocation ... etc.
5. Poisonous Snake Bite
6. Shock
7. Public Transportation Accidents

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What to Do in an Emergency

1. Remain calm
2. Quickly apply appropriate first aid measures²
3. Maintain a team spirit
4. Call the rescue team and report an incident.

The 24-hour emergency phone number for ambulance or search-and-rescue is 119. For police emergencies, it's 110. These calls are toll-free from any phone, even a public pay phone. The GPS (global positioning system) devices could be used to avoid getting lost.

Current Essential Tasks

For disaster responses, the primary goal is saving life and minimizing disaster related losses. Because of the high altitude of mountain incidents, the rescue work has also changed from traditionally one-dimensional operations to three-dimensional rescue operations. The work of the National Fire Agency is now more multifaceted and challenging. The NFA has made many services including:

Disaster management

In order to prevent incidents and promote effective rescue response measures in the area of disaster management, the NFA actively research disaster prevention laws to strengthen the disaster prevention and rescue system, create a robust disaster prevention and rescue network, upgrade the efficiency of the central emergency operation center, conduct disaster prevention and rescue training and drills, increase the public awareness of disaster prevention and rescue education, promote research on disaster prevention technology and facilitate international cooperation and exchanges.

Disaster rescue

Immediate response to a disaster could minimize damages. Therefore, when a disaster occurs, it is imperative that rescue teams possess the capabilities to react immediately, and make every second count. To increase the efficiency of disaster rescue, build a robust disaster rescue system, and enhance the rescue capabilities, the following measures have been actively implemented: upgrade rescue vehicles and equipment, mountain rescue training and drills, effective training of disaster rescue commanders, found search canine evaluation process, establishment of mountain disaster management and counseling center to enhance rescue response capabilities.

Civilian coordination and application

In order to achieve the ultimate goal of a society free from the threats of disasters, the abundant resources from the private sector must be effectively integrated with the limited governmental mechanism. The following steps have been accomplished: reorganization of volunteer mountain rescue brigades; Mountain rescue committee of Taiwan; specially trained search and rescue teams; as well as working together with various civilian groups which possess unique fields of specialty.

Disaster rescue command³

Working around the clock, the "Emergency Dispatch Center" is ready to respond whenever calamity hits. The center provides immediate commands, coordination, contacts and direction to all rescue departments. Through this closely-knit support and cooperation, disaster relief resources are utilized to maximum efficiency, resulting in an optimization of

capabilities. The center's primary functions include: building a nationwide fixed and wireless communications network as well as satellite communications system, boost disaster rescue communication equipment and set up a nationwide fire information system.

Establish air operations task forces and three-dimensional disaster rescue mechanism⁴

After Pa-chang River incident (in which 4 persons were drowned as the result of incompetent emergency preparations), in order to strengthen the capabilities of disaster rescue and emergency medical service, air operations task forces were established in 2002, taking delivery 22 helicopters from the Gull Squadron of Ministry of National Defense; the general public call "seagull squadron" and Air police. All have been refitted and fully equipped with rescue and emergency treatment facilities, providing upgraded rescue capabilities. The pilots have completed flight and instructor training, and have traveled to the USA and Canada for helicopter rescue technical training, as well as rescue equipment operational training. In the event of a major disaster, the Air Operations task forces can be integrated with specially trained search and rescue teams and mobilized on the front-line directly. This will compliment rescue operations provided by the local government, and enhance national disaster rescue operations and efficiency. In 2003, the incident of Alishan Forest Railway, the Air Operations task forces successfully rescue many lives.

Set up a specially trained search and rescue team to maximize disaster relief performance⁵

Working to enhance rescue performance in the event of a major disaster, and to implement special personnel rescue missions—the Specially Trained Search and Rescue Team has been set up in the northern, central, southern and eastern parts of Taiwan. The S&R Team is equipped with high-performance rescue vehicles and high-tech rescue apparatus. On a regular basis, they assist local governments to set up search and rescue teams. When disaster strikes, they are under the command of the Central government, working together with the Air Operations Task Forces to support local governments with disaster relief and emergency medical services. The Specially Trained Search and Rescue Team was established in line with the Air Operations Task Forces in 2002, with a workforce of 51 personnel based in the Air Operations' bases in central and eastern Taiwan. This allows them to undertake simultaneous operations and keep abreast of the most up-to-date disaster developments.

Establish a rescue information and communications systems to enhance the overall efficiency of disaster operations⁶

The NFA has established a "119" fixed-wire reporting system for receiving emergency calls nationwide. This system includes caller ID, displaying the caller's phone number and address to ensure rapid processing, and enhances rescue response capabilities. This system is also used by policy-makers to effectively command and dispatch emergency medical technicians. The NFA handles projects to build a nationwide rescue information system to enhance the related computer software and hardware facilities used by local fire departments; develop

operational and application systems; and assist rescue departments to set up public safety service websites. Achieving the goal of sharing resources, improving rescue operations efficiency and ensuring the safety of the public and property.

Future Objectives

Planning a training center, enhance combat capabilities of disaster rescue personnel

The training center now in the planning stages will include 11 training venues for major disaster rescues, including fires, special disasters, air crashes, ship fires, tunnel accidents as well as public transportation accidents, mudslide rescues, rescue dogs, lifesaving in the water plus diving and searching for the drowned, and a training tower for rescue and emergency aid technical training. The NFA will also upgrade various rescue facilities, provide different types of professional training, cultivate new emergency aid professionals, provide professional training for the specially trained search and rescue teams, fire rescuers, volunteers and civilian rescue groups in order to enhance the combat capabilities of fire rescue personnel.

Train emergency medical technicians-paramedics (EMT-P) to strengthen pre-hospital emergency medical service

When the types of disasters and accidents are becoming more and more complex, the present emergency medical service standards no longer meet the public's demands. With this in mind, the NFA has selected the best candidates from among EMT-2, teaching assistants and instructors nationwide for advanced EMT-P training

overseas. Pre-hospital emergency medical service quality can be upgraded through this harsh academic and field training. EMT-P's specialty is treating seriously injured patients or people in critical condition by applying Advanced Life Support techniques to stabilize their vital signs and offering aggressive medical treatment as necessary. All of this is for the primary purpose of extending the so-called "golden time" to save lives.

Enhance disaster response communications system, build a tightly-knit disaster bulleting and report network

An emergency clear-frequency radio network will be established at all three levels of emergency operation center in the central, county, municipal and local governments; as well as in fire units, villages and townships. This will form a closely-knit emergency support and disaster report communications; as well as coordinate public and private radio networks, and provide real-time emergency rescue information to the public. By maintaining rapid updates on disaster developments and responding quickly, public and private participation will be effectively utilized to enhance relief efficiency and effectiveness.

Summary

The purpose of building a disaster response system and regular training drills is to enhance crisis management and emergency rescue abilities. Through these systems and drills, it is hope that government and non-government forces can be integrated in order to assist rescue mission and disaster prevention.

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