

# The Use Of Helicopters For Disaster Relief

H Kurz

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## Abstract

Helicopters have become an indispensable aid for dealing with disasters. They particularly come into their own when they are put into operation during the initial stages after the disaster has taken place. People who have fallen victim to a catastrophe or are endangered by a disaster cannot afford to wait until a "clearer picture" of the damage has been established. In fact, the helicopter can contribute towards establishing this picture, and as a result should be promptly called out as soon as "a major occurrence" has taken place. It is advisable that the procedures for rescue operations of this kind are prepared in advance by an authorised body. The final decision-making powers should be delegated as far as possible to those at the scene of the disaster. Otherwise considerable time might be wasted which could lead to very serious consequences.

The more extensive the disaster area, the more remote the location, the more inaccessible the terrain, and the more difficult the approach - the greater the advantage, indeed the necessity, of rapid assistance by air.

In Switzerland, a coordinated air-rescue service has been conceived and provided for by contract between Rega and the Swiss Air Force. This concept is a joint arrangement between civilian and military air-rescue organisations.

The deployment of military units in case of a disaster is an integral part of this concept. The employment of troops always follows the principle of subsidiarity, that is, military assistance is only provided when civilian resources have been exhausted.

The objectives of the coordinated air-rescue service are:

- Optimal utilisation of all available personnel and resources
- Cooperation in regard of:

1. exchange of experiences
2. training
3. exchange of rescue staff.

The allocation of tasks between the civilian rescue teams and the military emergency forces is regulated as follows:

**Figure 1**

	Peace time, normal situation	Normal situation, disaster	Abnormal situation, crisis/ war
Rega and partner organisations	precedence	precedence	inclusion as part of the team
Swiss Air Force	as required	second priority, subsidiary role	precedence

In cases of disaster, helicopters are used as a means of operational command, rescue and transport.

Everyone is familiar with the helicopter as a means of transport. The fact that it is also used as a means of rescue is also widely known.

It can be used to

- fly in specialists and vital equipment,
- transport personnel and equipment to rough terrain or inaccessible locations,
- fly out injured or endangered persons,
- carry out rescue operations and evacuations.

In Switzerland, the wide-body helicopter type operated by the Air Force is the Super Puma. It is mainly used by the coordinated air-rescue service to carry out missions of this kind.

The fact that the helicopter can also be used as a means of operational command is still not widely acknowledged by

the rescue services, let alone by the general public.

One of the first and foremost tasks during a disaster is to gain an overall view of the situation in order to be able to mount a rescue operation in an as effective a way as possible. Swift reconnaissance is therefore top priority. Wherever possible, helicopters should be used to carry out this task, as they have the advantage of being able to combine an excellent field of view with the necessary ability to cope with both the terrain and weather conditions.

The helicopter can also be used in its capacity as a means of operational command to:

- ascertain the extent of the damage and report back to the operation command unit, indicating exactly what resources are required
- investigate the possible access routes and the various organisation areas as well as the possibilities of closing off the area and diverting the traffic (various safety zones),
- identify any particular or possible additional (secondary) dangers, including those which could arise in the case of the damage becoming more extensive,
- transport experienced members of the rescue services to enable them to gain a rapid overall picture of the situation,
- direct additional rescue personnel,
- alert endangered persons (for example, by means of a loudspeaker or, after making an interim landing, direct instructions),
- monitor road-blocks, detours and volume of traffic, both in the vicinity of and further away from the disaster zone,
- report back on the traffic situation and the detour possibilities,
- function as a radio relay between topographical regions,
- carry out search operations by air,
- take aerial photographs (for situation reports and documentation),
- determine the most suitable landing places for the

command and rescue helicopters, taking account of any obstacles.

The most common type of mission carried out by rescue helicopters - that is, being called out to assist individuals by bringing medical care to the injured person at the scene of an accident and subsequently flying him to the nearest suitable hospital - is not of prime importance during the initial stages of a helicopter operation in a disaster. Unfortunately in such cases the rescue helicopter and its crew are all too often only assigned this role.

During the first stage of the mission, the helicopter crew should primarily be used to carry out tasks other than those generally regarded as "standard".

If the senior medical officer or doctor who is to take on the function of senior emergency physician or triage doctor has not yet arrived on the scene, the rescue helicopter's paramedic and emergency doctor can take on these functions in order to ensure that some sort of structure is brought into the rescue procedure as quickly as possible.

The all-important factor here is that the first rescue team to arrive on the scene organises and does not rescue. If rescue work is already under way, the paramedic and doctor in the first helicopter to arrive are integrated into the rescue team in accordance with the instructions given by the local operation command unit, and continue to carry out these functions until they are assigned another task, such as, for example, the evacuation of patients.

During a rescue mission, only if there are sufficient rescue personnel - in particular doctors -, and a properly controlled evacuation of patients can be set under way, is it sensible and possible to allow rescue helicopter crews to carry out their usual tasks.

The transport capacity of ambulance- and rescue helicopters is limited; helicopters that are used on a daily basis to carry out rescue missions are normally equipped to carry one, or at most two, lying patients. Larger machines, such as the Super Puma operated by the Swiss Air Force, can generally accommodate 6 stretcher patients. However, it should also be pointed out that large helicopters of this kind can only land at a very limited number of hospitals due to their down-wash, that is, the downward deflection of the airflow caused by the rotors during take-off and landing. As a result, in cases where there are a large number of patients, precedence should be given to those who need to be transported to

specialised clinics some distance away.

The disaster command unit responsible would also be well-advised to delegate any organisational and coordination problems arising from rescue operations by air to a specialist at the scene of the disaster as soon as possible, and thus relieve itself of a tricky secondary task. In Switzerland, the various police forces have special flying operation command officers to carry out such tasks. Swiss Air-Rescue, Rega, also generally offers the services of an air-transport operation coordinator, in addition to helicopters and crew. He is the person responsible on location for coordinating and looking after all operations by air, as well as for safety and logistics, the sensible use of the helicopters and relieving the crews. He can be called on by the operation command unit, and deployed as required (see attached list of possible tasks). The paramedic from the first rescue helicopter to land can also initially take on this role as a local operation coordinator for operations by air. He is then responsible for designating landing places, holding areas and landing and take-off paths, as well as safety zones in the vicinity of the helicopter. He pinpoints other potential risks, such as cables, overhead power lines, pylons and trees, as well as impending landslides, explosions and avalanches, and takes all the necessary measures to ensure the safety of the helicopters. Once these tasks have been fulfilled, he makes sure that accidents are avoided by coordinating the helicopter landings and take-offs until a special operation command, in the form of an air-transport operation coordinator, has been set up.

Air-rescue organisations such as Rega generally have at their disposal a centrally-based operations centre. It is from here that, in normal everyday situations, the helicopter is called out by radio or other means of communication, dispatched on a rescue mission and monitored and controlled during the mission. The operations centre also gives instructions and makes all the necessary operational and administrative (including financial) decisions. From the beginning to the end of the rescue mission, the operations centre is in charge of its helicopters and their crews, supports them where needed and makes all the necessary decisions.

However, this is not so in the case of disaster where the local operation command takes overall charge. The air-rescue organisation's operations centre has no command role to play during the rescue mission. The local operation command unit, the task force in the field or the relevant command organisation is responsible for the entire relief operation and makes all the necessary decisions. The

helicopters, as well as any specialised command support staff, such as the air-transport operation coordinators, are placed at its disposal. Consequently, the air-rescue service assigns its resources to the local operation command unit and from this point on is merely kept informed of how they are being or will be employed. The air-rescue organisation's operations centre is left with a supporting and advisory role. However, the command unit is constantly able to call on the assistance of the operation centre if necessary, for example, as a central communications, information or service unit.

### Tasks of the Air-Transport Coordinator

- Assess the situation as regards the deployment of aircraft
- Advise the local command unit at the scene of the disaster (suggest/draw attention to):

### Suggest the following (examples)

- Reconnaissance

### Transportation to the disaster area of

- Medical assistance: doctors, (para-)medical staff, medical equipment /materials (incl. new supplies)
- Specialists: e.g. rescue experts, dog handlers, engineers, divers, operation command personnel, etc.
- Authorities, commanding officers
- Materials
- Lighting
- Special tools
- Tents, blankets, etc.
- Food supplies
- Water
- Transport from the disaster area:
- Evacuations
- Patients

### Immediate measures

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Ensure communications between the scene of the accident and

- Authorities - in person
- Local command unit - in person

by radio

- Rega OC/ Air Force Air - by telephone
- Rescue Unit, etc. - by radio

Reconnoitre/fix suitable landing places, coordinate locations

Make arrangements at the landing place to:

- set up operation command
- block off the area
- identify obstacles
- designate holding and waiting areas
- designate areas for depositing equipment
- refuel aircraft
- install lighting
- carry out administrative work

### **References**

**Author Information**

**Hans-Peter Kurz**

Swiss Air Rescue REGA