The Tunnel Blaze in Kaprun, Austria

On Saturday November 11, 2000, one of the most tragic accidents in modern Austrian history took place. One hundred and fifty five people died in a tunnel fire in the Austrian village of Kaprun situated in the federal state of Salzburg. A train with 162 passengers on board caught fire in the 3.3 kilometer long tunnel leading up to the glacier on Mt. Kitzsteinhorn. Only 12 of the passengers survived. These 12 managed to get out of the burning train and run past the fire down the tunnel. The fire developed a very thick poisonous smoke which quickly spread. The steep tunnel acted like a giant chimney, sucking air in from the bottom and sending toxic smoke billowing. One hundred and fifty people on the upward-bound train, two people on the downward-bound train, and three people in the arrival hall at the top suffocated to death.

A big snowboarding event was scheduled to take place that day, which had attracted many national and foreign tourists (many being children). About 2000 skiers and snowboarders were already up on the glacier when the accident occurred.

The Decision-Makers

Sara Larsson wrote a study on the decision-making process during the acute phase of the Kaprun crisis. This study concentrates on the events from November 11 (the day of the accident) until November 15 (when all of the bodies had been salvaged from the tunnel and transported to Salzburg for DNA analysis). Larsson also discusses the aftermath of the acute crisis, such as the issues concerning the investigation, the cause of the fire and the reactions from the victims' families and friends.

Many of the key decision-makers worked together in a crisis group. Two hours after the train caught fire in the tunnel the Governor of the federal state of Salzburg, Franz Schausberger, was in Kaprun. After Schausberger's arrival, a crisis group called the Krisstab was formed. The Krisstab consisted of leaders from various organizations and agencies: the police, the army, the Red Cross, and fire brigades. Schausberger was appointed Chairman of the group, but operative authority was delegated to others.

The group had regular meetings. They collected and analyzed the latest information from the field. They decided what to do next and who should be responsible for what. A large part of their efforts involved working with the media, and Schausberger had a prominent role in this area. Since the accident was so extensive and the victims were from many different nations, hundreds of journalists from all over the world gathered in Kaprun.

Lack of Preparedness and Information

Nobody could imagine that such an accident could occur in Kaprun. As it turned out, the safety of the tunnel was very poor in spite of the fact that the danger of tunnel fires had been vividly demonstrated by several recent accidents in the region and around the world. Many of the wor-

kers involved in the rescue work in Kaprun were also involved in the 1999 Tauern tunnel fire, which also occurred in the federal state of Salzburg. They knew from experience the dangers of tunnel fires and the importance in acting quickly in order to save as many lives as possible.

In Kaprun, the train had no engine so there were supposedly no flammable objects in the tunnel. Thus, the train and the tunnel were considered to be fireproof. For this reason the tunnel did not have any proper fire exits, and the train was not equipped with emergency breaks or fire-fighting equipment. Likewise, the personnel of the mountain railway had not been trained for this kind of situation; they had received training for other types of accidents, but not for a tunnel fire.

Just a few minutes after the fire alarm had been sent, the first rescue forces reached Kaprun. They had a hard time evaluating the situation since the fire was 600 meters inside the tunnel. The smoke was thick and the heat was extremely intense. The need for more rescue teams was deemed necessary, and soon there were hundreds of fire fighters, mountain rescuers, army personnel, doctors, Red Cross workers, and volunteers at the scene. A large crisis organization was developed.

Because of the extremely harsh conditions in the tunnel, no one was able to enter to assess the situation or to assist the victims. A team consisting of three fire fighters with special protective gear investigated the arrival hall and the alpine center on top of the mountain; there they found four people. Unfortunately only one was still alive when the rescue workers reached them.

The lack of information was very frustrating for the rescue workers who had gathered in Kaprun. They felt it was urgent to do something right away in order to save as many lives as possible. Several rescue teams with special skills were quickly gathered in Kaprun, but they were unable to do anything. Everybody was forced to simply stand there nervously waiting and anxiously watching. Afterwards, many of the rescue workers reported that they had felt helpless as the tragedy unfolded.

Lost Hope for Survivors

It took almost three hours before a team could enter the tunnel, and get to the burning train. This was a very dangerous operation, since the smoke was still very thick and the heat was intense. When the first three rescue workers reached the train, they quickly established that there were no survivors in the tunnel. They directly reported to the Krisstab that the train had been completely burned and that there were no survivors.

After this disappointing news, the Krisstab decided to restructure the entire operation. They needed to redirect their energy on comforting friends and relatives and on removing the bodies from the tunnel.

Although everybody had been preparing themselves for the "worst case scenario," the news still came as a shock. The accident was then declared a catastrophe.

Identifying and Salvaging the Bodies

Identifying the people in the tunnel was a difficult task in many ways. Actually locating and transporting the bodies out of the tunnel was physically (as well as psychologically) demanding. The army performed this task. This undertaking was interrupted several times because the tunnel was deemed too dangerous or that it stood in the way of the police investigation. Another difficulty was identifying the victims, many of whom were of different nationalities. In order to identify the bodies, DNA testing had to be performed since many of them had been so badly burned.

The Red Cross began the work of identifying the survivors. They established four checkpoints on top of the mountain, through which everyone had to pass to get down the mountain. The list of survivors was published on the Internet. The police and the Red Cross worked together in trying to preliminarily identify the people in the tunnel. They got information from the survivors and tour conductors. They searched for abandoned cars and uncollected luggage at the area hotels. As soon as the names of the missing persons were collected, they too were published on the Internet.

The Cause of the Fire

In September 2001 the cause of the fire was made public by the federal court in Salzburg. The 1700 page long report made clear that a hot air ventilator had overheated behind the driver's cab. The flames from the ventilator reached a broken hydraulic oil wire and thus triggered an explosive fire. No individual or party was pointed out as being responsible for the accident.

The findings from the investigation confirmed the fact that the train and the tunnel were not completely fireproof. The fire had not been caused by careless passengers who were playing with firecrackers on the train, but by the construction of the train and therefore posed a chronic risk.

Conclusions and Practical Lessons

- **The Titanic syndrome:** The lack of preparedness for a railway tunnel fire made the rescue work extremely difficult. The perception of being invulnerable can be very dangerous, since it can contribute to resisting contradictory information and opinions. Larsson calls this kind of false security the "Titanic syndrome" in her report. The Titanic was supposedly unsinkable, and the mountain railway in Kaprun was supposedly fireproof. It was not the first tunnel blaze in the region, and thus the danger was well-known. The Tauern tunnel accident a year earlier could have been a warning, especially since it had happened in the same federal state.

- **Effective operational management:** Despite the lack of emergency preparedness, the operational management of the crisis was handled well. It was a good example of effective crisis management, given the difficulty of the task before them.

- **Prepared for different crisis scenarios:** This period of uncertainty was utilized by the crisis managers to prepare different crisis scenarios and lay the foundation of a crisis organization. However if the actual scenario had been different, perhaps the rescue teams and the crisis managers would have faced very different issues. For example, if the rescue teams had found many badly injured victims when they came to the scene, then they would have had to make other rapid decisions and their organization would have been tested in an entirely different way.

- **One central decision-making organ:** Important lessons were drawn from the Tauern tunnel blaze. The rescue workers and the crisis managers were aware of the problem of having several different decision-making units. Instead they used the Krisstab as the central decision-making organ during the Kaprun crisis. Leaders from all of the various groups involved in the rescue work were represented during these meetings. The fact that Governor Schausberger was appointed to be the Chairman for this group was no coincidence. Schausberger was not affiliated with any of the operative groups, and thus was perceived to be independent. This tactic worked well in Kaprun.

- **An existing crisis management plan:** The organization of the crisis response was smooth because there was an existing crisis management plan in Kaprun. This plan had been designed for a possible accident at the local power station, but it was quite useful for structuring the rescue work in Kaprun. Likewise, the contact network in the crisis management plan specified who should be called and what their respective responsibilities were. This made it easier to quickly put together a crisis team.

- **Local involvement:** The fact that the local leaders promptly came to the scene and were able to help the external actors with managing information about the crisis plan was also very helpful. Kaprun is a very small village, and thus everyone in the village had a good sense of the available resources (material and human) there and in the surrounding villages. Local knowledge is often essential for effective crisis operations.

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This study highlights the difficulties in predicting and preparing for every possible scenario. This is

impossible and that is something we simply have to accept, but at the same time it is very important to question and think about all of the potential risks. By daring to consider the impossible, mental barriers can be diminished and thus crisis preparedness can be strengthened.

This report in its entirety can be obtained by writing to: crismart@fhs.mil.se

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* There is a summary available of this study in English.
** There is a summary available of this study in Swedish.

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