

The SNAM Mission Following the 2008 Terrorist Attack in Mumbai

KAMEDO report 95

Kamedo – the Swedish Disaster Medicine Study Organisation – has existed since 1964 and was previously known as the Swedish Disaster Medicine Organisation Committee. The committee started its activities under the auspices of the Swedish Research Delegation for Defence Medicine. In 1974 Kamedo was transferred to FOA (the Swedish Defence Research Establishment), now called FOI (the Swedish Defence Research Agency). Kamedo has been affiliated with the National Board of Health and Welfare since 1988.

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Preface

In the event of a serious incident, a society's regular organization for ambulance transport may prove insufficient. In the event of such a situation, the Swedish National Air Medevac (SNAM) constitutes one of our society's emergency preparedness resources. SNAM can be used both nationally and internationally, by civilian or military personnel. The context of its use might be a County Council which, after a significant accident, needs to transfer a large number of patients to other parts of the country for specialist care or because their own resources are insufficient, but it could also be a matter of patients needing to be airlifted from a country that has been severely struck by a major incident. SNAM is used to transport seriously ill and injured patients who have initially been treated on-site in a local hospital but are in need of specialist care or transport to their home country for continued care. Once the Swedish Civil Contingencies Agency (MSB) has made the decision to conduct a SNAM mission, the SNAM organization needs six hours to adapt and man a regular passenger aircraft into a flying intensive care unit.

The first time SNAM was fully used at an actual incident was in connection with the 2008 attacks in Mumbai. Before that, only part of the organization had been utilized in 2004-2005 for the evacuation of persons injured in the tsunami disaster in Southeast Asia and again in 2006 for the evacuation of Swedish citizens from the war in Lebanon. In the Mumbai mission, SNAM carried out its mission above expectations, but it is important to point out a few issues that came to light during the mission. In this Kamedo report, the authors describe the series of events and the mission from the perspective of several different actors in order to get a complete picture and underline the importance of clearly dividing responsibility and roles before a mission, as well as that of clear communication while the mission is being carried out.

SNAM is currently administered by MSB in collaboration with the National Board of Health and Welfare, the County Council of Västerbotten and SAS (Scandinavian Airlines). When the attacks took place in Mumbai in 2008, the structure and distribution of responsibility between authorities was different and the report follows with the organizational structure in place at the time.

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Acronyms and Explanations

ACARS

Aircraft Communications Addressing and Reporting System. ACARS is a system that automatically transmits information regarding the start and landing times of an airplane, to some extent technical status of the airplane and some information about weather conditions. The captain on board can also use the system to manually enter information and send text messages between the plane and certain ground functions

Air medevac

Medical evacuation of sick or injured persons by air

DG (Directory General) Civil Aviation Authority

The Indian Civil Aviation Authority

Early

A warning phase, the initial stage of a disaster management mission

warning

Emergency

In this context, the status of the ambulatory transports from Heathrow Airport to Hillingdon Hospital in London

EU MIC

European Union Monitoring and Information Centre. MIC is a monitoring and information centre which constitutes the operational contact point to the European Commission. It has the task of receiving information and requesting aid from member countries, distributing information and aid to other countries and notifying the affected country of what aid is available.

Focal point

This refers to the fact that the Swedish Rescue Services Agency was the focal point for the EU MIC at the time of the mission.

GMT

Greenwich Mean Time, equal to UTC and Z-time referred to below

GPS

Global Positioning System

Handling

All ground services for the airplane excluding petrol and technical services. The handling includes, for example, the handling of passengers, loading, unloading, helping with food and catering, and other practical issues. Handling usually also includes weight and balance calculations.

High loader

Forklift-truck used for loading goods onto airplanes. They come in different sizes and models but all have a platform that can be raised and lowered in

order to facilitate the loading of the airplane. In the context of SNAM, this device facilitates the handling of the stretchers, which are relatively heavy.

Holding position

Normally this expression is used when referring to the waiting position of the plane in the air if many flights are approaching at once or if the plane must wait for optimal landing conditions due to weather. Sometimes the expression is also used in connection to taxiing in the airport. In that case, it refers to the position on the taxi strip where the airplanes may have to wait before continuing taxiing.

ICU

Intensive Care Unit. This acronym is also used in words such as intensive care transport (ICU transport, ICU stretcher etc.)

MFA

Ministry for Foreign Affairs

MIO

Medical Incident Officer

MIC

Monitoring Information Centre, see EU MIC.

MICU

Mobile Intensive Care Unit

MSB

Swedish Civil Contingencies Agency, founded 1 January 2009

NSG

National Security Guard, the Indian special forces

OP

Operational centre, in this case that of SAS

POC

Point of contact, the contact person who receives emergency calls when SNAM is needed

RDT

Rapid Deployment Team

SAS

Scandinavian Airlines

SAS OP

Scandinavian Airlines' Operational Centre

SIM

Stretcher Interface Module, a docking base between the floor of the airplane and the ICU stretcher in the SNAM plane

Slot time

A system used by air traffic control when entering the planes in a flow system in order to limit the number of planes in an area. The slot time is a specific starting time within a window of only -5 and +10 minutes.

SNAM

The Swedish National Air Medevac

SRSA

The Swedish Rescue Services Agency, which was closed 31 December 2008. From 1 January 2009, their operational activities were transferred to MSB, together with those of the Swedish National Board of Psychological Defence and the Swedish Emergency Management Agency (SEMA).

Flight status hosp

An air ambulance's priority in the airspace. The regulation states the following:

“Priority to hospital aircraft in the air traffic control service will be given to medical emergency flights (carrying any sick or seriously ill person, organs or medical staff) as well as ferry flights to such operations. To obtain such priority, STS/HOSP shall be inserted in the ATC flight plan.”

To draw ATC's (Air Traffic Control) attention to the flight status, the flight crew may add the word “ambulance” to the radio call sign at the first call on each frequency.

TiB

Officer on Duty

Time references

In the report, both the local times for various key locations and the Z-time are stated since the mission took place simultaneously in different time zones. Z-time is the internationally recognized time reference in aviation, and flight operators all over the world use it. Z-time is identical to GMT and UTC. The local times relate to Swedish standard time in the following way:

- London – 1 hour (= Z-time)
- Sweden 0
- Dubai + 3 hours
- Mumbai + 5.5 hours

Turnaround coordinator

The SAS official in the SNAM system who is present at the plane's start and landing in order to minimize the time it takes to load and unload as well as to arrange a new take off for the plane.

UN

The United Nations

UTC

Universal Time Coordinated, synonym to Z-time, equivalent to Greenwich Mean Time (GMT)

Z-time

Zulu time, the same as Greenwich Mean Time (GMT), refer to Time references

Introduction

The Swedish National Air Medevac (SNAM) is a national disaster management tool, developed by and part of the Swedish disaster management system, which can be used for serious incidents occurring in Sweden or abroad. SNAM is intended to be used for aeromedical evacuation of multiple casualties when the normal resources do not suffice. SNAM consists of an SAS passenger aircraft, which can be rebuilt into a flying intensive care unit in six hours. SNAM is currently administered by MSB in cooperation with the National Board of Health and Welfare, Västerbotten County Council and SAS. During a mission, SNAM is directed by a mission command located at Arlanda airport. This command includes representatives from MSB, the National Board of Health and Welfare, SAS and Västerbotten County Council.

The aim of this report is to clarify what it is that distinguishes SNAM as a disaster management tool and to describe the actions taken in the Mumbai mission 27 November – 1 December 2008. In addition, the authors would like to show SNAM's potential importance on a global scale.

During a crisis, management and decision making is a complex process that may be difficult to grasp in its entirety. At the same time, decisions must be clear and structured since an incorrect decision could have far-reaching consequences for many people. It is, therefore, important to study how and why different decisions were made during the SNAM mission in Mumbai in order to clarify whether any improvements can be made to the decision making process. It is also of importance to describe the cooperation between the various actors within the disaster management system since it has a great impact on the results of the SNAM mission.

The actors in a crisis may have very different views on a certain situation or event, depending on who is interpreting the situation. In order to show this complexity, this report contains the various actors' own descriptions of the course of events. This leads to the possibility of an event being described and interpreted in different ways in the text depending on which actor is describing it. Another consequence is a repetition of the description of certain events. This is intentional and partly the purpose of this report.

Summary and Experiences

Summary

The Role of Sweden, and SNAM as a Tool for the EU

Between Wednesday, 26 November and Saturday, 29 November 2008, ten persons carried out extensive acts of terrorism against planned targets in Mumbai, India. The terrorist attacks in Mumbai ended up taking the lives of 175 persons, and approximately 300 were injured.

During the chaotic situation that followed, in which a great number of foreign civilians were killed or injured, Sweden received a request from the European Commission Monitoring and Information Centre (EU MIC), the EU disaster management mechanism in Brussels, to assist the EU with the Swedish National Air Medevac (SNAM). SNAM was deployed and carried out a medical evacuation by air of UK and Spanish citizens from Mumbai to London.

Initiation

On Thursday, 27 November 2008, the Swedish Rescue Services Agency (SRSA) was contacted by EU MIC with a request for any available transport resource that Sweden might have for the medical evacuation by air of injured EU citizens in Mumbai. SRSA, in turn, contacted the Ministry of Defence and suggested SNAM. Initially, it was a question of evacuating 14 French citizens. Through the Ministry of Defence, SRSA contacted the Swedish Civil Aviation Authority, who in turn contacted the Officer on Duty at the Västerbotten County Council for an assessment of whether it would be possible to carry out the commission from a medical point of view. The evacuation was deemed to have the medical prerequisites to be carried out. Shortly thereafter, a consultation took place between the Swedish Civil Aviation Authority, the National Board of Health and Welfare and Rescue Services Agency to discuss how the commission could be carried out. SRSA was then given the official commission by the government to organize a possible mission together with the Swedish Civil Aviation Authority and the National Board of Health and Welfare. That same day, the Ministry of Health and Social Affairs decided to appoint the Västerbotten County Council as the care provider for the medical aspects of a possible deployment. The government guaranteed Västerbotten County Council full cost coverage and promised furthermore that the Council would incur no damages in any liability and insurance matters that could arise as a result of injuries due to maltreatment.

Decision

Midday on Friday, 28 November, Sweden was asked by France, in its capacity as the holder of the Presidency of the Council of the European

Union, to use SNAM to evacuate EU citizens from Mumbai. Somewhat later that day, the Swedish Rescue Services Agency gave the Swedish Civil Aviation Authority the official task of deploying SNAM. The medical evacuation by air was intended for 14 French citizens and Paris was the preliminary destination.

Realization

On the afternoon of Friday, 28 November, the Officer on Duty of Västerbotten County Council deployed the SNAM staff at the Norrland University Hospital in Umeå. The Officer on Duty called in a medical crew and a reconnaissance team. That night, a flight carrying medical personnel left for Arlanda, where the SNAM command was set up. During the afternoon, TV4 had been promised by SAS to be allowed to travel with the plane to Mumbai and document the mission. SNAM's command strongly questioned the appropriateness of this decision and initially gave TV4 a firm refusal. In the end, however, SAS, TV4 and SNAM's command came to an agreement where TV4 would be allowed to join the flight to Mumbai on the condition that they left the plane as soon as it landed and that they would not film the loading of the patients.

During the night and towards dawn on Saturday, 29 November, and with little time to spare, SNAM's command arranged for visas for the medical personnel. The visa processing was delayed as the Indian embassy had reservations regarding the issuing of visas for the TV4 team.

On 29 November at 07:20, the reconnaissance team consisting of one medical doctor and one registered nurse from SNAM departed for Mumbai on a regular flight via Vienna. The reconnaissance team left late in relation to the departure time of the SNAM plane, which came to affect their ability to prepare the reception and transfer of patients in Mumbai in time. At 08:44, the SNAM flight left for Mumbai and a landing was scheduled in Dubai on the way to allow for the rotation of the SAS flight crew. There were two complete crews on board the SNAM flight, each consisting of two pilots and three cabin crew members. The crew that flew the Stockholm – Dubai leg would stay in Dubai to rest, and the second crew would fly the Dubai – Mumbai – Dubai leg. After they had rested, the first crew was supposed to fly Dubai – Paris but ended up flying Dubai – London instead.

Once the SNAM flight was off the ground, the SNAM command at Arlanda found out that the French citizens had already been evacuated to France. The new task for the command then became to investigate whether there were other patients in need of evacuation. The persons on the plane headed for Dubai were unaware of this fact. This is one of several examples of how there were different estimations of the situation in Sweden, on the plane, at EU MIC in Brussels and in Mumbai. This made the decision process, as well as the understanding of the commission and how to carry it out, more difficult.

The Ministry of Defence played an important role in aiding the SNAM command at Arlanda by providing contacts and in opening doors to embassies in India, France, and England. The Ministry maintained a dialogue with the EU MIC throughout the morning in order to find out

whether the mission was to be continued or not. Together with the command at Arlanda, they decided to continue the mission and that its destination would be the place where the majority of the patients were from, i.e. most likely Great Britain. The political dimension of the evacuation with the clear interest in using this resource for the benefit of EU citizens became clear when the decision was made, despite the uncertainties in the information that was received, to complete the mission. The same was true later at the landing in Dubai. The Ministry of Defence also received information during the morning and established contact with a UK consular deployment team, the Rapid Deployment Team (RDT) in Mumbai as well as with the Swedish Embassy in New Delhi.

The reconnaissance team arrived in Mumbai on 29 November at approximately 23:40 local time (17:10 Z, 18:10 in Sweden). The team was met by staff from the Swedish embassy in New Delhi and the consulate in Mumbai as well as by the former Head of Disaster Management at the Swedish Civil Aviation Authority. The latter happened to be on holiday in India and had contacted the command at Arlanda in connection to the terrorist attack, which then asked him to assist in logistical matters at the airport in Mumbai. Once the reconnaissance team was on-site in Mumbai, they were to work with the UK RDT team in a search for European citizens at the hospitals that had admitted foreign patients. In the morning of 30 November, there was a disagreement between the SNAM reconnaissance team and the RDT team as to whether it was possible to evacuate any EU citizens at all. The conflict was based on a misunderstanding and could be resolved only at lunch time. Afterwards, the reconnaissance team was able to identify three UK citizens and two Spanish citizens along with a Spanish relative, who became eligible for evacuation.

The SNAM plane landed in Dubai on 29 November at 18:14 local time (14:14 Z, 15:14 in Sweden). According to the original plan, the plane was to remain on the ground approximately 10 hours and continue on to Mumbai thereafter. At 16:53 Swedish time, however, the EU MIC had contacted the command at Arlanda with instructions to keep the plane grounded in Dubai for at least 24 hours. France in its position as President of the Council of the European Union and EU MIC wanted to obtain a clearer view of the situation in Mumbai. Due to time restrictions on the rental of the plane from SAS, the SNAM command had difficulties accepting this decision, as it would lead to significant added costs and issues with the maximum number of hours on duty for the flight crew. The command contacted the Ministry of Defence to ask for help in finding a solution where the plane could take off according to plan. This was not accomplished, however, until the following day. At that time, EU MIC approved the completion of the commission and the SNAM plane was given clearance to take off from Dubai heading for Mumbai, and did so on 30 November at 13:38 local time (09:38 Z, 10:38 in Sweden).

EU MIC required that the SNAM organization acquired written consent from the affected nations, approving the transport of their citizens. SNAM had not anticipated this and had no forms for this procedure. With the aid of consulate staff, the issue was resolved however and the consent forms were signed.

The SNAM flight landed in Mumbai on 30 November at 18:14 local time (12:44 Z, 13:44 in Sweden). Shortly afterwards, the mission coordinator on board contacted the command at Arlanda, notifying them that the plane was in a concealed location and therefore the media should not be a problem. A problem with the media did arise, however, as the TV4 team, who remained on board the SNAM plane, had started to film the loading of patients despite their promise not to do so. The TV4 team was sent away, and their actions strongly criticized in the aftermath, which led to the Director General of the Swedish Civil Aviation Authority informing the CEO of TV4 that their collaboration had come to an end. As a result, TV4 decided not to air the story on the SNAM mission at all.

At 14:01 in Sweden (13:10 Z, 19:31 local time in India), the command at Arlanda received the information that three UK patients and two Spanish citizens and their son were being considered for SNAM transport. The SNAM command gave this information to EU MIC and also told them that SNAM now had all the permits from Great Britain and Spain needed to evacuate their respective citizens.

Problems arose when the patients were to be transported from the hospitals to the airport since there were practically only private ambulance providers in Mumbai. Mumbai General Hospital had no ambulances and the reconnaissance team therefore had to rent one. However, this ambulance instead collected an Australian patient and this person's relatives of the same from Mumbai Hospital and drove them to the airport. As a consequence, the reconnaissance team had to hire other ambulances. The other hospital that had patients that were considered for evacuation, Jaslock Hospital, was a private hospital and as such, provided an ambulance. None of the ambulances used were up to Swedish standards; rather, they were completely empty and equipped according to need. Nor did they provide oxygen. The reconnaissance team was working with a short amount of time on their hands – the SNAM plane was only allowed to be parked in the airport for a maximum of four hours, a limit that was extended to six hours after applying for exemption. Consequently, the team used all the stretchers provided by the Indian ambulances, even though this meant greater stress on the patients. Thus the SNAM concept, which when properly executed would require removing the stretchers from the plane and taking them to the sending hospital, where the patients are loaded onto them and transported back to the plane, was not used in Mumbai due to limited time. Reaching the airport in Mumbai by car alone took two hours, and the heat made the ride very taxing for the patients.

Getting in and out of the airport was, and should be for security reasons, very difficult. Getting the patients through was fairly easy but what no one had foreseen was that the reconnaissance team needed boarding passes to get on the SNAM plane. As they did not have any, the team was denied entry to the plane. They were allowed to board the plane only after diplomatic efforts on-site. None of the medical personnel left the airport since they only had 4 (and eventually 6) hours at their disposal. On the other hand, it was not necessary for them to leave since the patients had already been moved to the airport. The turnaround time, i.e. the time it took from

the plane landing to being loaded up, fuelled and cleared for lift off again, came to a total of 4 hours and 25 minutes.

The SNAM plane took off from Mumbai airport on 30 November at 22:39 local time (16:09 Z, 17:09 in Sweden) with a planned landing in Dubai for fuelling and crew rotation. The flight crew has a maximum of 14 allowed working hours, after which they must be given the opportunity to rest for at least 12 hours, hence the landings in Dubai en route to Mumbai as well as on the return. The equivalent regard was not shown for the working hours of the medical personnel.

During the journey to Dubai, the SNAM flight contacted the Medical incident officer for the command at Arlanda (MIO) with a request of 4 units of blood and 2 units of plasma for an O Rh negative receiver as well as for an infusion set as one of the patients on board was losing blood through an internal haemorrhage in the chest cavity. In turn, the MIO contacted the Airport Medical Centre in Dubai, which promised to provide a team to meet the SNAM plane. This team could not arrange for blood transfusions on-site, however, and said that the patient in question would have to be taken to hospital. Based on this information, the head of health care on the SNAM plan made the call at the landing in Dubai, 21:30 in Sweden (20:30 Z, 00:30 local time) that the patient in question did not need to be taken to hospital but could stay on board.

The SNAM flight continued on to London and arrived early on the morning of 1 December. In preparation for the landing, the captain had estimated the fuel supply in relation to the traffic conditions at London Heathrow and had evaluated several alternative landing sites, including Amsterdam, since the fuel situation would not allow for a long waiting period in the rush hour traffic at London Heathrow. A landing in Amsterdam would have resulted in new logistical considerations, and the crew was not fully prepared for such an eventuality. Once the commanding officer on board had requested a priority landing (flight status hosp) due to it being an ambulance flight, however, the plane was granted a somewhat shorter route and an immediate landing. The plane set down on 1 December at 05:39 Z (06:39 in Sweden) and was met by a well prepared reception coordinated between the command at Arlanda and the disaster management organization at London Heathrow. Five ambulances were there to transport the patients to the nearby Hillingdon Hospital. The doctors from the medical personnel came along to the hospital. The SNAM plane took off again from London Heathrow and landed at Arlanda at 11:36 local time, where there was a planned reception including stress counselling for the accompanying personnel and demobilization of the plane.

Experiences

The SNAM mission that has been studied in this report has provided a number of valuable experiences and shown that a few questions remain to be discussed and further analysed.

Visa The visa processing took time and was carried out under a great deal of stress on the night before the start of the mission. In future missions, this process could be made faster and easier if the personnel records at SNAM included copies of passports and ID photos.

Leadership When an international commission like this one comes up, it must be made clear who the overarching leader is. It is also important to analyse and clarify who will ultimately be leading a SNAM mission since EU MIC, different ministries and EU representatives on board the plane as well as in the SNAM command at different stages came to affect the mission's operational ability.

Reconnaissance The reconnaissance team only managed to leave one hour ahead of the SNAM flight and therefore had difficulties in completing its task. In order to avoid this in the future, the reconnaissance team should be deployed as soon as MSB receives the first request to use SNAM, even if the mission does not go ahead. Should SNAM then be sent out, the team has a better opportunity of preparing for its arrival.

Crew rotation There is presently no plan for rotation of the medical personnel but the matter shall be investigated. There is a risk, especially during longer missions, of the health care personnel becoming exhausted. SAS is able to anticipate the need for a flight crew rotation and to carry one out in accordance with regulations, and the same ought to apply for the medical crew.

Situation awareness and information During this mission, it became evident that different actors had formed very different ideas of the situation. This is an important experience and in future missions, it is vital for the SNAM command to prioritize the gathering and distributing of information at an early stage of the decision process. This includes having the reconnaissance team on-site as quickly as possible.

Communication and follow-up The communication between the airplane and the SNAM command was mainly a one-way communication via ACARS, a communication system where the captain on board can manually enter and send text messages to operatives on the ground. The system may also be used for two-way communications, but in this case the SAS OP gave exceedingly little feedback to the SNAM command and the airplane. This easily leads to misunderstandings, and the transmitter cannot be sure that the message has been correctly understood or even if it has been received at all. Nor is it reasonable that patient information is transmitted to the SNAM command at Arlanda via the captain and the SAS OP. A well-functioning two-way communication is required to handle more advanced issues, the medical ones in particular. This need has been made clear in every exercise with SNAM and now also in connection with a live mission. In preparation for the next mission, these deficiencies must be rectified by all members of SNAM.

Opening doors and important channels The Ministry of Defence brokered several contacts for the SNAM command and were of invaluable use in their work. The Ministry also opened many doors for the SNAM command when contacting ministries, embassies and authorities. It is, therefore, vital that

the Ministry take part in the planning and the implementation of the next mission in order to use its time as effectively as possible.

The political dimension In this case, France in its capacity as holder of the Presidency of the Council and SAS had a strong interest in the mission being carried out in a manner defensible from their perspective. The EU was doubtful and needed a more solid basis to act on before proceeding from Dubai. SAS, on the other hand, wished to stick to the original schedule since the airline was obligated to consider the regular schedule in terms of upcoming commercial flights. In preparation for future missions, MSB and SAS should plan for the eventuality that certain missions may take longer than intended.

Prepared forms In this case, written consent was required from two nations in order to evacuate their citizens. This was time consuming work that no one within SNAM had anticipated. For future missions, the actors involved in SNAM need to prepare forms in different languages, and this issue must be considered early on by the reconnaissance team.

Misunderstandings and diplomacy Information and communications always run the risk of being misunderstood, which happened in the cooperation between the reconnaissance team and the UK RDT team. Due to such misunderstandings, the reconnaissance team can be met with hostility, and their work can be made more difficult. This is especially applicable to situations that are both physically and mentally taxing, such as the mission in Mumbai.

Boarding cards The reconnaissance team was initially not allowed to get on the SNAM flight, which was a new and unexpected problem. The lesson learned is that all SNAM personnel that leave the airplane must carry some form of document or boarding card that gives them access to the airplane.

Contingencies Even if the level of care in SNAM is very high, unexpected events may occur (in this case needing blood for a transfusion) forcing the SNAM mission to look for alternative airports and hospitals. To efficiently meet such needs, a good dialogue between the medical leader and the captain on board is required. In preparation for the next mission, the actors included in the SNAM organization should come up with a plan for how to solve these situations. Alternatively, the SNAM command should plan for alternative developments at an early stage of the mission.

Media The media have the important task of transmitting information in a crisis, reporting from accident sites, disasters or terrorist attacks. It is not appropriate, however, for representatives of the media to join the crews on board the SNAM flight. This includes both public service (SVT or Swedish Radio) and commercial media. In terms of the available space for care inside an airplane or an ambulance, the individual interest of the patient ranks much higher than the public interest. The principles of patient confidentiality and integrity are also more important than the ethical aspects of the press observed by the reporters and photographers when practicing their profession. Should representatives of the media nonetheless be allowed to come on board, they must do so under a written agreement.

Risks (Threats and Vulnerability)

There are incidents where a need might arise for transporting a great number of injured in a secondary phase, such as hotel fires, extensive communications accidents involving buses or trains, floods and major mining accidents. Severely burnt persons in particular may be in need of medical evacuation by air since the advanced burn units are located in Uppsala and Linköping. Since Sweden has a limited number of advanced burn care units, it might be necessary to transport patients to other European countries in the event of fires with many casualties and advanced burns. This was the case in the 1998 fire in Gothenburg, for example.

Risks and threats may affect a large number of Swedes abroad as well e.g. major accidents in transport and communication, fires and floods, such as in the tsunami in Southeast Asia in 2004. There is also the risk of acts of war that may come to affect not only military personnel but also civilians, as happened in Beirut in 2006. Nor are the Nordic nations spared from attacks yielding large numbers of casualties, as the two attacks in Norway – the bomb in the executive government building in Oslo and the shootings on Utøya – proved in the summer of 2011.

Sweden is committed, through such agreements as the Treaty of Lisbon and the Nordhels agreement, to provide aid in the event of a disaster. In order for Sweden to aid the persons affected, there is a need for resources that are specially developed for this purpose as well as personnel that is trained to use them.

SNAM is a unique resource that can fly practically anywhere in the world on very short notice and provide a high level of medical ability in evacuating injured persons after a great accident or terrorist attack. After a serious incident involving many casualties, SNAM can be the tool used by the Swedish government for medical evacuation by air.

The SNAM concept has previously been used on two occasions. The first time was in connection to the tsunami in Southeast Asia in 2004 when SNAM was still in the project phase and the flight in question was not yet prepared. Two MD 80 airplanes and an Airbus A 340 were used instead, fitted with simpler stretchers but manned by suitably educated and trained SNAM personnel [1]. The second time, medical personnel from SNAM manned airplanes chartered by the Swedish government in order to evacuate Swedish citizens from the war in Beirut in 2006 [2]. Following the terrorist attacks in Mumbai in 2008, SNAM played an important role in creating a sense of security by taking care of injured EU citizens.

Background

Between 26 and 29 November, ten persons carried out extensive acts of terrorism against planned targets in Mumbai in India [3,4]. The attacks killed 175 persons and around 300 were injured. Nine of the terrorists were killed, but one was apprehended by the Indian police and sentenced to death almost two years later for “waging war against India, murder, conspiracy and terrorism offences.” [5]. The terrorists were divided into five groups, and the main targets of the attacks included two famous hotels: the Taj Mahal Hotel and the Oberoi Trident Hotel. The other targets were the central train station CST Railway Station, Leopold Café and Bar (a well-known restaurant visited by Mumbai residents and foreign tourists alike) and Nariman House, which is a Jewish centre [6].

Figure 1. Map of the locations in Mumbai that were attacked



Illustration by: Svensk Information

The security forces and the military that were sent in response to the attacks operated under difficult conditions to overpower the terrorists. The situation was especially difficult as the terrorists were heavily armed, had multiple targets in a city of millions, split into smaller groups and were using a highly technological information strategy. They held a large number of hostages and had a defensive advantage because they could take cover in different buildings. The attacks in Mumbai were characterized by the terrorists' use of highly sophisticated weapons and apparent expert knowledge of modern technology [4].

The Region

India

India covers 3.3 million km² (approx. one third of the size of Europe) and is a federal republic with more than 1.1 billion inhabitants and 23 official languages. English has an important function as the administrative and commercial language.

The majority of the population is Hindu (approx. 80 per cent) or Muslim (approx. 13 per cent), but some are Christians, Sikhs, Buddhists or Jains.

Mumbai

Mumbai (formally The Municipal Corporation of Greater Mumbai) is the capital of the Maharashtra state, which consists of Mumbai City and the Mumbai Suburban districts and covers 437.77 km². At the latest census in March 2001, the population amounted to almost 16.4 million people, and according to UN estimations, there were almost 19 million in 2007.

The city's international airport, Chatrapati Shivaji International Airport, is the most trafficked in India, handling 38 per cent of all international passenger transports. The city also has the best port in India – the only natural deep water harbour on the western coast, where among other things manganese and cotton products are exported.

Pakistan

Pakistan is an Islamic federal republic with approx. 160 million inhabitants. Its surface is 796,000 km² (compared with Sweden's surface of approx. 410,000 km²). The official language is English, but Urdu is the national language. The population is 97 per cent Muslim, and the remaining 3 per cent consists of Hindus, Christians and Sikhs, among other religious groups.

Figure 2 Map showing the border between Pakistan and India with Mumbai inserted.



Illustration by: Svensk Information

History

The purpose of this report is not to explain the terrorist attacks in India over the last few years, but to create a better understanding; therefore, the following events have been put into a historical context.

For much of India's early history, the country consisted of a group of smaller state formations, characterized by both competition and coexistence. Parts of Pakistan have been part of various great powers in different periods, such as the Persian Empire, the Hellenistic empire and India during a period as a joint central state.

During the 1500s, the Mughal Empire, a Muslim Indian state, was formed and kept expanding through the 18th century, at which point it included most of the Indian peninsula and present day Pakistan and Afghanistan. The most southern parts of India consisted of smaller Hindu states. During the 18th

century, Great Britain became increasingly influential in the region after a series of armed conflicts. From the 1840s on, all of India was under British rule, and in 1858, Pakistan was incorporated in the British Crown colony of India.

The resistance against the British colonial power united the Muslims, Hindus and Sikhs in a joint struggle for independence. In the early 1900s, however, the Muslim and Hindu leaders began to disagree on how the country would be organized after realizing their sought-after independence. Many of them did not want to allow religion to play too great a role in a new state. There were, however, some extremist nationalists amongst both groups that wished to organize the state in accordance with religious rules. In 1947, Great Britain relinquished its control over the area and the country was divided in two, one Hindu (India) and one Muslim (East and West Pakistan) part. A forced migration followed the division as religious extremists forced Muslims to leave India and Hindus were forced to leave Pakistan, resulting in many deaths [7]. In 1971, East and West Pakistan were divided as a result of civil war, and the eastern part declared its independence as Bangladesh.

The Kashmir Conflict

The war in Kashmir began in 1947, only a few weeks after present day India and Pakistan had been formed [8]. The cause of the conflict was considered to be that both India and Pakistan wanted Kashmir – a small region that was ruled by a local maharaja – included in their territory. The UN mediated a truce between the two nations who came to an agreement on a border dividing Kashmir between them. This border has continued to be disputed, however, and several more wars have been fought between Pakistan and India from the 1960s until 2003. Over the last 20 years, rebel groups who want their region to become part of Pakistan have formed on the Indian side. These groups have been able to seek refuge across the border in Pakistan, and many have also received help from the Pakistani military in the form of training and weapons [7].

Relations between India and Pakistan have improved in the last few years as acts of war have become fewer between the Indian army and the rebel groups in Indian Kashmir [7].

Lashkar-e-Taiba

Several intelligence agencies claim that the Pakistani terrorist organisation Lashkar-e-Taiba was responsible for the attacks in Mumbai of November 2008. The organization has previously been suspected of being behind a series of attacks in Jammu, Kashmir and India [4]. The goal of the terrorists is, among other things, to drive Indian forces out of Jammu and Kashmir. Following the attacks in Mumbai in November 2008, India requested that Pakistan help capture the responsible persons who were suspected to be of Pakistani descent. In December 2008, the Pakistani police apprehended several members of the terrorist group Lashkar-e-Taiba [7].

Actors

SNAM

The Swedish National Air Medevac – SNAM – is a national resource for medical evacuation by air of multiple injured or ill persons to be used when the normal resources are not sufficient. SNAM was developed out of the Cold War era need for a way to evacuate injured Swedish soldiers by air. Until the beginning of the 1990s, SAS, which was then a “k-company” (important company in war), and the then-Civil Aviation Administration had the government commission of being able to, in the event of war, evacuate up to 3,000 injured per day from the north to the middle and southern parts of Sweden. For this very purpose, SAS and the Civil Aviation Administration developed a concept using stretcher stands and 36 military stretchers that could be rapidly assembled in an MD 80 airplane. When the threat of war was toned down in the late 1990s, the need for extensive medical evacuations by air decreased and turned into a concept of more advanced medical evacuations by air. The needs of civil society were added to those of the national defence in the development of a modern national ambulance airplane. This became clear at the fire in Gothenburg in 1998 when many severely burnt patients had to be airlifted to other hospitals in Sweden and abroad [9]. The work on SNAM began in 1999 in a preliminary study where the Swedish society’s needs and abilities were considered, and the tool was then developed during 2002-2005. The concept is based on the possibility of rebuilding civilian airplanes owned by SAS into advanced ambulance airplanes in six hours. SNAM has a capacity for 6 severely injured persons on intensive care stretchers, 6 persons with less or medium severe injuries on ambulance stretchers and up to 23 slightly injured persons and relatives in ordinary airplane seats. The medical personnel consists of nine doctors, eleven nurses and a medical technician, all of which have long experience in emergency care and specialist training to work in a flight environment. SNAM can transport patients to the most suitable care unit within a 3,000 km radius without technical stops in between. The aircraft model used is the Boeing 737-800, a regular SAS airplane which is remodelled in accordance with the above without any technical modifications [10]. The responsibility for health and medical care on board the aircraft is regulated by an agreement between MSB and the Västerbotten County Council.

Since 1 January 2011, SNAM is administered by MSB, which must consult with the National Board of Health and Welfare before initiating a mission. All missions must also receive external financing, i.e., a buyer from outside MSB who is paying. SNAM as a concept is financed, maintained and exercised by the Swedish disaster preparedness system, and the plane may be put at the disposal of county councils, foreign governments and international organizations.

Other nations that have similar “air medevac” capacities are Finland, Poland, Switzerland, Great Britain and the USA.

Table 1. The air medevac capacity of a few other nations

	Type of civilian aircraft	Response time (hours)	Seats per aircraft	Stretchers per aircraft	Intensive care unit stretcher per aircraft
Finland	A321	4	146	6	2
	B757	2	219	7	
	MD90	4	166	5	
Poland	Boeing 767/300	48	53	18	0
Sweden	Boeing 737/800	6-12	22	12	6
Switzerland	CL 604	2	6	4	2
		2	6	4	2
		2	6	4	2
UK	Boeing 757	12	24	18	
		12	24	18	
		12	24	18	
USA	Boeing 767/200	12-14	35	87	6
	Boeing 767/300	12-24	54	87	6
	Lear/GS3	1-4	2-4	1-2	1
	BBJ/737	4		4-5	2-3

The contents of the table is based on information from NATO's Civil Aviation Planning Committee and applied at the time of the mission.

As a civilian resource, SNAM is unique in its short initiation time, its mobile intensive care stretchers, the number of trained personnel and the number of patients in need of intensive care it is able to transport.

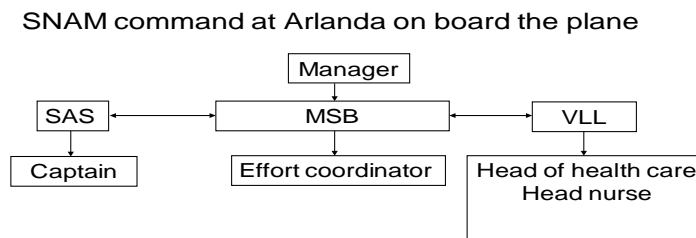
SNAM's Command and Control Organization

During a mission, MSB, SAS and Västerbotten County Council are jointly responsible for managing SNAM. MSB is ultimately responsible for the mission whereas SAS is responsible for flight operations and Västerbotten County Council is the care provider and holds the medical responsibility. During a mission, an operationally responsible command function is set up (called the SNAM command in the text) at Arlanda as well as a supportive staff in Umeå, which handles medical issues and calls in personnel, arranges for their travel, hires health care personnel and makes sure that certain medicine and medical equipment arrives at Arlanda. The Head of SNAM's command at Arlanda is from MSB and holds the overall responsibility for the entire mission. The Head of Staff leads the staff's work and MSB's ordinary press function is responsible for information and stays in touch with the media. The MIO from Västerbotten County Council is responsible for SNAM's medical personnel and the medical part of the mission, including the reconnaissance team.

On board the plane, there is a mission coordinator who represents MSB and is there to coordinate the mission at the arrival at the destination. The mission coordinator has an administrative and logistical function and could be compared to a leader of rescue operations at a traffic accident who solves practical issues such as the means of communications for the head of health care. The mission coordinator should be able to lead the mission if, in a

worst case scenario, the team loses contact with the staff. The person in charge of the medical side of things, the medical leader, comes from the County Council, is a specially educated and trained physician on board and is assisted by a head nurse. On board the airplane, the SAS captain has the ultimate responsibility for the flight.

Figure 3 SNAM's command at Arlanda and on board the plane.



SNAM's Medical Equipment

On board each plane, there are six intensive care stretchers (MICU – Mobile Intensive Care Unit) that have been developed within the SNAM project. One of these stretchers weighs 85 kg and has an internal power supply for up to four operational hours. It includes a pressure and volume controlled ventilator, EKG monitor, pulse oximetry monitor, end-tidal carbon dioxide monitor, two infusion pumps, invasive and non-invasive blood pressure monitors, and a defibrillator. The stretcher has room internally for 1800 litres of oxygen, which is primarily used when the stretcher is handled outside the plane. MICU meets all requirements on airworthiness and patient safety. It is attached to a SIM (Stretcher Interface Module), which is basically a base that lies between the stretcher and the airplane and acts as its power supply. Each SIM contains 7,000 litres of oxygen.

SNAM's medical equipment as well as the clothes and personal equipment of the medical personnel are kept in a special storage at Arlanda.

Figure 4a and 4b. A MICU stretcher on a Boeing 737-800, the model used for SNAM missions.



Photo: Erland Segerstedt, AMT Solutions AB

Personnel on Board the SNAM plane

For on board care, there is a pool of personnel with aeromedical training of 140 doctors and nurses recruited from all around Sweden. They are not officially on call or duty, instead the staff in Umeå sends for a team of in total 21 persons at the time of a mission. The standard SAS flight crew for SNAM consists of two pilots, three cabin crew members, and a turnaround coordinator along with a flight mechanic. The medical crew is engaged by Västerbotten County Council in connection with the mission and consists of nine flight doctors, eleven nurses, one medical technician and one mission coordinator.

Västerbotten County Council

Västerbotten County Council has the medical management responsibility for SNAM, which means that it has the ultimate medical responsibility for a mission and that it also recruits, trains and exercises the medical personnel. In preparation of a possible SNAM mission, the Västerbotten County Council's Officer on Duty acts as the contact person for any requests. When a mission arises, the County Council Director decides whether the Council can accept the responsibility of being the healthcare provider. The Director shall also inform the political organization within the County Council of SNAM and prepare it for the decision. For the missions that have been carried out so far, the responsibility as health care provider has been delegated directly from the Ministry of Health and Social Affairs to the County Council.

EU MIC

MIC (Monitoring and Information Centre) is a part of the European Commission in Brussels and the driving force behind the EU's operative monitoring and information centre. This operative centre conducts strategic intelligence and has an officer on duty around the clock. EU MIC has no resources in its own right, but in the event of a disaster in one of the member countries, the affected country may contact MIC to request assistance. MIC transfers the request to the other member states and gathers information regarding what aid is available and transmits this information back to the affected country.

Assistance from the EU MIC is not restricted to the EU countries; countries outside of the Union may also ask for assistance if they have been struck by a disaster. In such a case, the Commission must consult with the country holding the Presidency of the Council of the European Union, which then decides whether to provide aid or not. If aid from the EU is granted, the affected country must then together with the assisting country make all practical arrangements such as transport and transfer of resources in the form of expert advice or materials.

The resources that are sent from the EU to a disaster stricken area are governed by the national authorities in the affected country, and everyone must abide by local laws and work in accordance with the national regulations and procedures of the affected country [11, 12]. SNAM has not been assigned to the EU MIC as an official resource, nor is it part of the Swedish Response Team under the responsibility of MSB that was formed in connection to the tsunami disaster in 2004. The legislation for disaster medical missions abroad, and especially the missions by the County Councils, is regulated in the Law regarding disaster medicine as a part of Swedish missions abroad and the Ordinance regarding disaster medicine as a part of Swedish missions abroad [13, 14]. The Ordinance describes the role of the Swedish Response Team:

“For missions in support of foreign authorities and those in distress in situations where many persons residing in Sweden are struck by a serious accident or disaster abroad, a County Council may provide

health and medical care abroad in order to minimize the physical and psychological consequences of the accident or disaster (disaster medical missions).”

The world around us has changed since this law came into force, however, and there is a possibility that the law could be changed in order to provide the Swedish Response Team and SNAM the opportunity to care for non-Swedish citizens.

The Ministry for Foreign Affairs

Sweden’s foreign administration consists of the Ministry for Foreign Affairs (MFA) along with other Swedish foreign authorities, such as embassies and consulates. The Swedish foreign authorities are primarily responsible for Sweden’s relationships with other nations, and they answer directly to the MFA while being independent authorities as well. The foreign administration’s assignment is to assist in the realization of the government’s overall goals in terms of foreign policy issues. The MFA also coordinates Swedish foreign policy within the Government Offices. The MFA’s continual work is managed by a number of departments that process and prepare matters before the government makes a decision [15, 16]. The consular tasks include consular assistance and consular disaster preparedness.

Consular assistance is the assistance that Swedish citizens can obtain from embassies and consulates if they find themselves in difficulties abroad. This includes, for example:

- “Help to help yourself”, i.e., advice and information on how to resolve a situation yourself
- Assistance in criminal cases and for victims of crime
- Financial assistance
- Measures for when a Swedish citizen dies abroad
- Measures in connection to major accidents involving Swedish citizens.

Consular disaster preparedness includes:

- Contingency plans in Swedish embassies and consulates
- Consular contingency and rapid deployment teams
- MFA’s consular bases abroad
- Disaster logistics and equipment
- Strategic and threat intelligence
- Travel recommendations
- Consultations with the travel industry.

Ministry of Defence

The Ministry of Defence is responsible for reaching the targets set by the government and Parliament for Sweden’s defensive preparedness, protection and preparedness against accidents as well as preparedness for severe disasters in the peace time society. Within the area of disaster preparedness, the Ministry works within education, training and other

measures to prevent a disaster situation. The Ministry shall also develop the organisational structure that will be used in the event of a disaster or disaster situation. Protection against accidents is a part of disaster preparedness and includes both the prevention of accidents and limiting their consequences [17].

The Swedish Civil Contingencies Agency

MSB was established on 1 January 2009 and replaced the Swedish Emergency Management Agency, the Swedish Rescue Services Agency and the National Board of Psychological Defence, all of which were terminated on 31 December 2008 [18]. In terms of organization, the Agency is subordinate to the Ministry of Defence and is responsible for rescue services as well as accident and damage prevention measures. MSB also has the task of ensuring that there is preparedness for assistance in the event of a disaster abroad and may participate in rescue and disaster missions in other countries in need of immediate attention. The Swedish Response Team is supported by MSB in cooperation with the National Board of Health and Welfare and the National Police Board.

As of 1 January 2011, MSB is also responsible for SNAM. When a request is received for the use of SNAM, MSB shall, in cooperation with the National Board of Health and Welfare, Västerbotten County Council and SAS, map all the possibilities and limitations related to the requested mission. After consultation with the National Board of Health and Welfare, the MSB may then decide to carry out the mission, should it be possible, desirable and financially backed.

The National Board of Health and Welfare

The National Board of Health and Welfare is a government authority under the Ministry for Health and Social Affairs. The government and Parliament decide on the direction of its activities, and the National Board of Health and Welfare currently has a broad spectrum of assignments including social services, health and medical care, health protection and disease control. In the event of a disaster that affects any of these areas, the National Board of Health and Welfare is responsible for the coordination of the disaster management on a national level, they shall provide advice, recommendations and expert assistance, coordinate disaster communications on a national level and cooperate with other authorities in order to utilize the available collective resources in the best possible way. The National Board of Health and Welfare shall keep the government informed of the situation development as well as of the available resources to handle the disaster. The authority shall also submit continuous reports to the government on planned and implemented measures to handle the disaster, and for this reason the National Board of Health and Welfare is developing, monitoring and coordinating the disaster preparedness of the health and medical care sector.

In the event of a request to deploy SNAM, the National Board of Health and Welfare consults with MSB regarding the conditions for a possible mission. If the mission shall be carried out, MSB, the National Board of

Health and Welfare, Västerbotten County Council and SAS will plan it together.

The Swedish Transport Agency

The Swedish Transport Agency, previously the Civil Aviation Department, started its operations on 1 January 2009. Its primary responsibility is to develop a transport system that is accessible and safe also with regard to the environment and health. The Agency works within the EU's regulations but also draws up and implements its own regulations. The Swedish Transport Agency was responsible for SNAM until 31 December 2010, after which time it was transferred to MSB.

Scandinavian Airlines

Scandinavian Airlines, previously Scandinavian Airlines System, is an airline based in Scandinavia. The company is half owned by the governments of three countries (21.4 per cent by Sweden, 15.1 per cent by Norway and 14.3 per cent by Denmark) and the other half is owned by private investors. It was formed in 1946 through a merger of several Swedish, Norwegian and Danish airlines.

At present, the airline's activities primarily consist of European air traffic based out of the three Scandinavian capitals. The company also has some intercontinental traffic from Stockholm and Copenhagen, as well as regional Norwegian domestic traffic and traffic from Finland via the subsidiaries Wideroe and Blue 1 respectively.

The former Swedish Civil Aviation Authority concluded an agreement with SAS on 26 June 2006 regarding airborne medical transports – SNAM. SAS' task is to manage the flight operations, i.e. make sure that an airplane of the model Boeing 737-800 is available to be remade from a passenger plane to an airborne medical transport within six hours [19]. The SAS operational centre (SAS OP) is responsible for the safety of the SNAM flight and is thereby ultimately responsible for the flight crew on board.

The Swedish Embassy in New Delhi

Sweden has had diplomatic relations with India since it gained its independence in 1947 [20]. The Swedish embassy in New Delhi is responsible for the honorary consulates in India (Kolkata, Chennai, and Mumbai), in Nepal (Kathmandu) and the Maldives (Male). The Ambassador in New Delhi is also accredited to Sri Lanka, Nepal, Bhutan and the Maldives. The Swedish embassy in New Delhi is an authority abroad which is subordinate to MFA but at the same time it is an independent authority.

The French Embassy in New Delhi

The French embassy in India is located in New Delhi. The French consulates are in Bangalore, Mumbai and Calcutta [21].

London Heathrow and the Emergency Procedures Information Centre

London Heathrow Airport became the final destination for the patients transported on the SNAM flight. The airport is one of the largest in the world and a hub in the aviation industry. More than 90 airlines are based out of Heathrow [22].

Heathrow has an “Emergency Procedures Information Centre”, which is an operative unit that handles disaster situations involving UK citizens abroad. The Centre is also the base for a UK Rapid Deployment Team, RDT. These teams often consist of six to seven persons who are deployed to provide consular assistance for UK citizens in the event of a disaster abroad. In some cases, the team is joined by representatives of the Red Cross, which provides psychological support. The RDT teams do not provide medical care, however. The first person at Heathrow to learn of the SNAM mission arriving from Mumbai was a planning section officer at the Emergency Procedures Information Centre.

In the case of the SNAM mission in Mumbai, a service manager from a private crisis centre based in London Heathrow Airport, Heathrow Travel Care, was contacted as well. This centre handles matters of disaster management and social work that the airport management is unable to deal with. One of its assignments is to be a focal point when the airport receives people in a disaster situation, for example, after a terrorist attack. Heathrow Travel Care collaborates with the Humanitarian Assistance Unit (HAU), which is subordinate to the British Department of Culture, Media and Sport (DCMS) [23]. Before the SNAM flight landed, the Heathrow Travel Care service manager had coordinated with the Police and ambulance at London Heathrow in preparation for the reception [23].

Course of events

The Terrorist Attacks in Mumbai

On 26 November, ten persons arrived in Mumbai with the intent of attacking a number of predetermined locations. During the attack, nine of the perpetrators were killed and one was apprehended by the Police [4]. The Indian authorities had been warned of future attacks in Mumbai by, inter alia, Indian intelligence services.

The Mumbai attacks were characterized by the terrorists' use of modern technology throughout all stages of the attack, from planning to execution. Interviews and interrogations have shown that the attackers had used images from Google Earth to memorize the locations that were to be attacked. They arrived in Mumbai by boat and used GPS to navigate towards the targets on land as well as mobile phones in order for the leader to be able to coordinate and communicate with the attackers during the attack. This provided the group with an advantage during the siege, since the leaders could coordinate the attack with the unintentional help of local TV channels that were broadcasting live from the scene of the attack [4].

On 23 November, the ten persons who carried out the attacks lured an Indian fishing vessel into stopping with the use of an SOS flag and hijacked it. The entire crew was executed except for the captain, who had to navigate to Mumbai. Just outside the city, the captain was executed as well and the fishing vessel was abandoned. The terrorists used inflatable rubber dinghies for the remainder of the distance and came ashore near Badhwar Park and Sassoon Docks in southern Mumbai at around 20:30 on 26 November 2008. The terrorists split into five groups and thereafter went in two taxis to their main destinations, leaving behind explosive devices which when they later detonated, killed the two taxi drivers. The main targets for the five groups were [24]

- CST Railway Station
- Leopold Café
- Taj Mahal Hotel
- Oberoi Trident Hotel
- Nariman House

Figure 5. Map of the locations in Mumbai that were attacked.

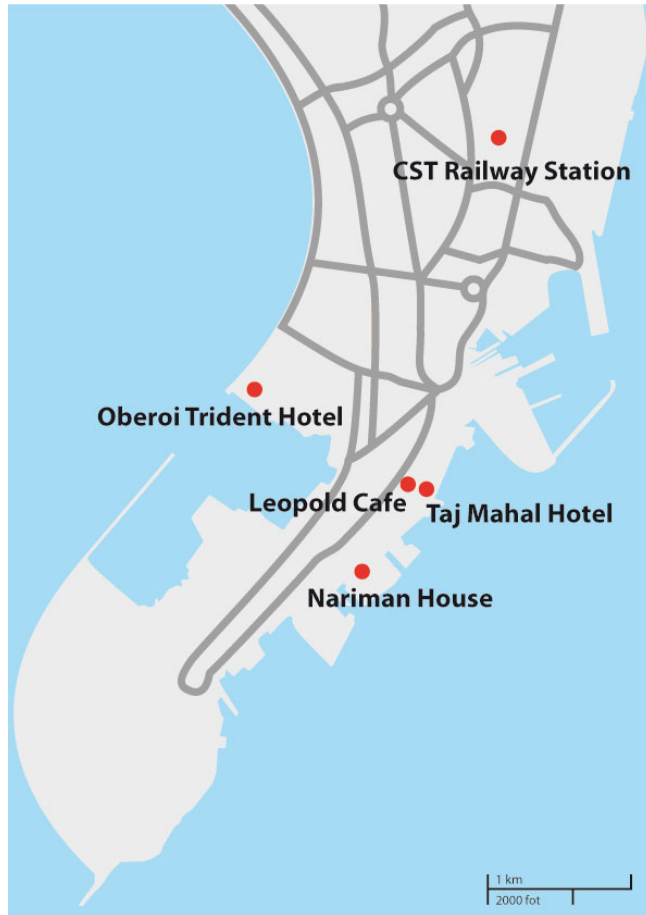


Illustration by: Svensk Information

CST Railway Station

The CST Railway Station is the headquarters of Central Railways in India, and more than 3.5 million passengers use the station every day. At approx. 21:20 on 26 November, the first group of two terrorists arrived at the station and began to fire automatic weapons and throw hand grenades. In total, 58 persons were killed and 104 were injured as a result of the attacks. A number of police officers confronted the two armed terrorists who then fled through an alleyway at the other end of the station. Leaving the alleyway, the men ran into a police vehicle containing seven police officers. They shot at the vehicle and then proceeded to hijack it. They believed that the entire crew was dead but one police officer in the car survived. During the journey in the police vehicle, the terrorists passed a cinema which they shot at and killed 10 persons. After this, the terrorists abandoned the car. The surviving police officer provided his colleagues with the location and description of the car over the radio. This made it possible for the Police to set up a barricade and wait until the terrorists arrived in a car that they had hijacked. At this point, there was an intense confrontation between the two terrorists and the Police. One officer was injured and another one was shot to death. One of the terrorists was also killed, and the other one was captured [25].

Leopold Café and Bar and the Taj Mahal Hotel

The second group attacked Leopold Café and Bar, a bar and restaurant frequented by both foreign tourists and Indians, which was founded in 1871. The two terrorists opened fire inside the restaurant and threw a hand grenade which exploded. Ten persons were killed and several were injured. After approx. 8 minutes of firing, at around 21:40, the terrorists left Leopold Café and Bar and ran towards the Taj Mahal Hotel, which is located 500 metres away [26]. The hotel, which was built in 1903, is a Mumbai icon and consists of two sections: the Heritage wing, with 209 rooms, and the Taj Tower, with 275 rooms. At this hotel, the group met with two more terrorists from the third group and together these four persons attacked the Taj Mahal Hotel. The first group entered the main lobby at 21:38 and immediately opened fire, killing 20 persons in the span of a few minutes. The other group arrived at 21:43 through the North Court entrance. They too opened fire and threw hand grenades. The four terrorists then moved towards the sixth floor of the Heritage wing and set fire to a large part of the hotel on the way. The attack then turned into a hostage situation, since many of the hotel guests locked themselves in their rooms, while others were isolated in different parts of the hotel. Initially, eight police officers from the local police station attempted to overpower the terrorists but later the National Security Guard (NSG) arrived, having been flown in from New Delhi during the morning of 27 November to take over the mission. A total of 32 persons were killed by the terrorists at the Taj Mahal and 450 hotel guests were rescued. The attack lasted for over 50 hours and did not end until the morning of 29 November, when the four terrorists were killed. [4, 27]

Figure 6 Taj Mahal Hotel



Photo: AFP PHOTO/Punit PARANJPE

Oberoi Trident Hotel

The fourth group attacked the Oberoi Trident Hotel complex at around 22:00 on 26 November. The hotel consists of two parts: Oberoi and Trident. In total, it has 877 rooms and is located at Nariman Point, which is considered as one of Mumbai's foremost financial areas. Two terrorists entered through the main entrance and opened intense fire. They proceeded to the Oberoi Hotel, where they fired at a restaurant and detonated two explosive devices. The terrorists then moved to the upper floors and shot at anyone who crossed their path. At the 16th and 18th floors, they captured a large number of hotel guests who were then held hostage. Starting in the morning of 27 November, the NSG became responsible for handling this situation and the mission was deemed completed on 28 November, at which point the attack had been going on for 42 hours.

The Nariman House

The fifth group, consisting of two terrorists, attacked a five-floor building block called the Nariman House, which is one of eight synagogues in the city and a centre for the Jewish congregation in Mumbai. In total, the terrorists killed 6 persons in this attack. The Police and the terrorists exchanged fire all night until the following day, and just before dawn on 28 November, the Indian NSG arrived with helicopters that landed on the terrace of the building. However, the terrorist leader saw the helicopters on the live broadcasts on TV and warned the terrorists by mobile phone. This attack also included the taking of several hostages and the Police were able to rescue 14 persons from Nariman House. NSG completed the mission on the evening of 28 November, having shot the two terrorists to death [4,28].

On 29 November, the Mumbai terrorist attacks were considered to be over. They had taken 175 human lives and caused 304 casualties. Amongst the killed were 26 persons of foreign descent [3,4].

Beginning of the Swedish mission

Thursday 27 November

On 27 November 2008 at 04:30, EU MIC contacted the Swedish Rescue Services Agency for information on whether Sweden had any transport resources available for injured Swedish citizens in Mumbai. The Agency, in turn, contacted the Ministry of Defence and suggested the use of SNAM and then called the Swedish Civil Aviation Authority. The Point of Contact (POC) at the Swedish Civil Aviation Authority at the time was the Manager of the Unit for Disaster Preparedness and Security, the unit under which SNAM is organized.

On that same day, the POC at the Swedish Civil Aviation Authority contacted the Officer on Duty at Västerbotten County Council. The Officer on Duty, who was also acting MIO for SNAM raised the alert for a SNAM mission. Around 08:00, the Officer on Duty informed Västerbotten County Council Director and then at 09:45, the National Board of Health and Welfare, of a potential mission. During the day, the Västerbotten County

Council remained in contact with the Swedish Civil Aviation Authority, but there was no definite information regarding the commission. They were also in contact with the National Board of Health and Welfare in order to resolve the health care provider issue.

In the afternoon of Thursday 27 November, the Division for Public Health and Health Care at the Ministry of Health and Social Affairs, made the decision that Västerbotten County Council would be the health care provider for a medical mission, should there be a commission. The government also gave a verbal promise that the County Council would receive full cost coverage and would incur no damages in any possible liability and insurance matters in the event of a mission. After this, the County Council Assembly and County Council Director made the decision to accept the responsibility as health care provider in a medical mission.

Friday 28 November

At noon a request was conveyed by France, in its capacity of holder of the Presidency of the Council of the European Union, for Sweden to participate with its SNAM resource. Half an hour later (12:30), the Swedish Civil Aviation Authority was formally commissioned by the Rescue Services Agency and shortly afterwards Västerbotten County Council was also notified. The pick-up point would be Mumbai and the mission had to be started as soon as possible. France would provide the name of a contact person in India and the evacuation concerned four severely injured and ten lightly injured French citizens in total. The destination would most likely be Paris, but this fact had not yet been confirmed. The commission would most likely consist of only one flight.

Two hours later (14:00), the County Council in Västerbotten established a SNAM support staff at the University Hospital in Umeå and began the work of recruiting and calling in a medical crew and a reconnaissance team. That evening (18:55), they all flew to Arlanda on a regular SAS flight. At 20:00 that night, a briefing was held at Arlanda and one hour later (21:00) the command at Arlanda had been set up. At this point, the SNAM command encountered its first problem. During the afternoon, SAS had promised to allow TV 4 on board the SNAM flight to Mumbai in order to document the mission. Initially, this was refused by the SNAM command. Eventually, SAS and the command agreed that the TV channel staff would be allowed to join the flight but only under the condition that they would not film the loading of the patients.

Equipment, clothes and materials were prepared during the night. Visas had to be arranged early in the morning of 29 November since the mission came about so suddenly. The POC at the Swedish Civil Aviation Authority contacted the Indian embassy in Stockholm and arranged for visas for the SNAM and reconnaissance teams. POC described the emergency situation to the embassy officials and explained that the flight would take off early on Saturday morning 29 November, and the embassy staff promised to open the office at 04:00 in the morning. All the travellers had to fill out forms and attach two ID photos, but not everyone had to come in person. One of the mission coordinators from SRV went to the Indian embassy around four in

the morning together with the leader of the reconnaissance team and an accompanying observer from the National Board of Health and Welfare, a Swedish “EU team leader” (liaison officer) and the turnaround coordinator (TAC) from SAS. Since the EU viewed this as an EU mission, they wished to send their own personnel along. This could also be a great advantage since these persons are trained in EU contexts and may benefit from the political aspects of the EU. To the surprise of the embassy staff, the TV 4 crew who had been promised by SAS to join the flight also showed up at the embassy. The embassy officials questioned the participation of the media staff, which delayed the take off of the flight.

Authors’ comments: The visa process in this case was time-consuming and could be made quicker and easier for future missions if the SNAM records kept copies of all passports and ID photos. Additionally, it should be made completely clear who has the authority to decide which persons may be involved in the mission in addition to the regular crew. In this case, SAS decided to allow TV 4 to participate and document the SNAM mission without first consulting with the owner, i.e., the Swedish Civil Aviation Authority. Nor had SAS discussed the issue with those ultimately responsible for the medical mission, Västerbotten County Council, or the supervising authority, the National Board of Health and Welfare. It is important, especially in consideration of patient integrity, to know who is in charge and can decide whether to allow other persons on board during a SNAM mission, and if so, who they should be.

SNAM’s Command at Arlanda

During the evening (21:00) of 28 November, SNAM’s command was set up at Arlanda in the form of an Operations Director with a staff consisting of

- A chief of staff
- An MIO for the mission from Västerbotten’s County Council
- A director of air operations from SAS in Sweden
- An information officer from the Swedish Civil Aviation Authority

SAS was responsible for all practical issues regarding the plane and its crew, but when regarding more general issues, all the parties in the management staff cooperated. For this particular mission, two coordinators were part of the work: one was the mission coordinator on board the SNAM flight while the other coordinator’s assignment was to support SNAM’s command at Arlanda as well as to finish tasks that the mission coordinator did not manage to complete before the SNAM flight took off 29 November.

Initially two EU observers – a Swedish “EU team leader” from SRSA [29] and a French doctor – were also included in SNAM’s command. Both represented the EU MIC. Thereafter, the EU observers accompanied the SNAM flight to Mumbai and thereby left the ground staff. The observers’ main role was to have regular contact with MIC, the French chairmanship, the French consulate in Mumbai, the reconnaissance group and the Swedish embassy in New Delhi [30].

The SNAM Staff in Umeå

On the evening of 28 November, Officer on Duty made contact with the Head of Operations at Norrland's University Hospital Operations Centre, who then officially deployed a support team to work under SNAM's command. This team has the task of recruiting SNAM's medical personnel from the staff pool as well as handling the group's certificates of employment, insurance, salaries and all other staff-related issues, including travelling to and from Arlanda. All of the participating medical personnel were temporarily employed by Västerbotten County Council during the mission. This staff consisted of the Head of Operations, the Head's Assistant, the Emergency Preparedness Coordinator from the County Council and initially, two nurses that were working specifically within the SNAM project as Operations Managers.

In the introductory phase of a mission, during an "early warning", SNAM's MIO sends out a group TEXT MESSAGE to all trained SNAM personnel about the possibility of a mission being deployed, and afterwards the personnel receive continuous information up until the decision about the mission is made. In this way, everybody in the SNAM group is mentally prepared for being called up for a mission at short notice. The same process was also used with this mission.

The medical crew, eight doctors, eleven nurses and one medical technician were mobilized in less than two hours. Included in the reconnaissance group were an intensive care unit nurse (ICU nurse) and one anaesthesiologist. When the staff chose participants for the mission, they considered the participant's experience, how they were suited for different appointments and whether they had practiced recently. When everybody had accepted the mission, the flight was booked immediately, the operations manager continued to have regular contact with the MIO in SNAM's command at Arlanda throughout the entire mission.

The SNAM staff in Umeå were deployed again 1 December in the morning (8:00 am), then the staff arranged for the return of the SNAM crew from Arlanda to their respective home towns. The Assistant to the Head of Operations and the Controller of the Operations Centre then managed the supplementary work involving salary payments and invoicing, which continued for two months during 2009.

The Reconnaissance Group

The main task of the reconnaissance group was to reconnoitre on-site in Mumbai and to produce information about which patients could be transported home by the SNAM flight as well as to arrange and coordinate land transportation to the airport. The plan was to have the patients in question on-site when the SNAM flight arrived at Mumbai's airport.

The choice of the reconnaissance group was easy since the staff in Umeå chose the group who had trained with SNAM during the week before the mission: a doctor and an ICU nurse from SNAM's personnel pool. In addition, the National Board of Health and Welfare sent an anaesthesiologist from the joint authority support force as an observer. When all three had received their visas from the Indian embassy in Stockholm, they flew on a

regular flight from Arlanda to Vienna at 07:20 on 29 November then continued to Mumbai.

SNAM Flight and its Medical Crew

The SNAM personnel arrived in Arlanda from different counties in Sweden during the evening of 28 November and received their first briefing about the mission at 20:00 at Arlanda. That evening, two nurses who worked as Operations Managers for SNAM also arrived and assumed responsibility for distributing clothing and medical equipment to the medical crew and for providing the plane with the correct medical equipment. SNAM's team was equipped during the evening and night. The medical care leader went through everything with the persons involved in order to update everybody about the situation and to discuss planning as well as how the mission on board could be made to function in the best way possible. Afterwards, the personnel were able to rest at a nearby hotel.

During the night of 29 November, the preparations for a medical evacuation by air continued. The mission was to transport 14 injured citizens from Mumbai to Paris. The mission then turned into an immediate operational phase, and the description of what happened is different depending on who is interpreting the events.

Immediate Operational Mission

The exact times in the section below refer to local times for different key locations as well as Z-time (GMT), as the mission took place through several time zones simultaneously. The text box below shows how the local times and Z-time stated relate to Swedish time. The exact times in the headings follow Swedish time.

The different elements of the SNAM mission

- SNAM's command at Arlanda
- Local staff in Umeå
- Reconnaissance group
- SNAM personnel on the SNAM flight

Exact times

Z-time is the internationally recognised time reference within aviation, and flight operators around the world use it for exact times. Z-time is identical to GMT and UTC.

The local times relate to Sweden's time zone in the following manner:

- London - 1 hour (=Z-time)
- Sweden 0
- Dubai + 3 hours
- Mumbai + 5.5 hours

Saturday 29 November, time 00:00–12:00

Operations Director of SNAM's command at Arlanda

Around 05:00, the director of SNAM's command had telephone contact with the Swedish Ministry of Defence in order to acquaint them with the situation surrounding the mission. At that time, there was a level of uncertainty within the mission's management regarding who was responsible for giving orders in Sweden. SNAM's command first thought it was the Ministry for Foreign Affairs that had ordered the mission, but as it only concerned EU citizens abroad, it was the Ministry of Defence that took this role instead. After this, the contact people at the Ministry of Defence were of utmost importance for continued contact with India and contacts at a high political level. Early in the morning, around 06:00, the Ministry of Defence notified SNAM that the entire mission could be called off since there were no longer any patients to retrieve – the French citizens were already evacuated. There were, however, people of other nationalities who were injured. A few of the patients were reported to be mildly injured and able to travel on regular flights while others were seriously injured and could not be transported at all. The Swedish EU observer therefore made contact with MIC to find out whether they considered that the mission should continue or be cancelled.

A little later that morning (07:35) Swedish time, the Ministry of Defence communicated their decision to SNAM's mission management to carry out the flights. The mission management forwarded the decision to SAS and the mission coordinator on the plane that took off from Arlanda at 08:44 Swedish time. The plan was to stay in Dubai for about 10 hours then continue towards Mumbai on 30 November. The SNAM flight's estimated departure time from Dubai was 01:00 Z (02:00 Swedish time).

Saturday 29 November, time 00:00-12:00

MIO in SNAM's Command at Arlanda

During the night of 29 November, the MIO in the management staff made telephone contact with the "point of contact" (POC) at the French consulate in Mumbai and communicated that they represented SNAM who would, on request of EU MIC, transport injured French EU citizens from Mumbai to Paris. The aim was to find out how many injured were concerned, where they were and what types of injuries they had. The POC was not aware of SNAM's mission, however, and said that the injured had already left Mumbai with a French plane, but promised to check this and then return with information. The MIO then rang EU MIC and forwarded the answer from the POC in Mumbai. The MIO asked the MIC to double-check with the POC and their own sources whether this was correct, and MIC promised to call back when they knew more about the situation. Later that night, EU MIC rang MIO back and asked SNAM to continue their air evacuation as planned. MIC had checked with the French authorities that there was still the need for a medevac mission, but did not know how many injured required transport. MIC also confirmed that SNAM would have continued

contact with the POC in Mumbai, and both parties assumed that it involved a misunderstanding on the POC's part.

During the night, the MIO also made contact with the French EU observer that would fly with the SNAM plane in order to clarify the issue about the injured and ask about contact channels for receiving more information. The French EU observer then made contact with POC in Mumbai, and afterwards the staff were made aware that the injured French citizens had already been evacuated on a French plane, together with a number of uninjured. According to the POC, however, there were eight UK citizens, six Italians as well as two Belgians injured people remaining who were ready for evacuation. MIO contacted the Swedish embassy in New Delhi and gave the personnel there the contact information for the reconnaissance group that would arrive in Mumbai at 23:40 local time. Embassy personnel promised to contact the reconnaissance group's leader when the team was on-site in Mumbai. The information about the injured French, UK, Italian and Belgian citizens was also to be checked.

At 06:00 in the morning (Swedish time), new information arrived about injured people after the MIO had again made contact with the POC in Mumbai. It now concerned ten ICU patients of mixed nationalities; many were in unstable condition and had recently been operated on. A French doctor on-site assessed that it was not appropriate to transport them and according to the information, they were being cared for in a hospital of good quality. Around 07:00 in the morning Swedish time, the MIO briefed the reconnaissance team's leader at Arlanda on the latest report from Mumbai, which meant that it was now unclear whether the mission would be carried out. At 07:20, the reconnaissance team would fly from Arlanda to Vienna anyway and contact the MIO in the staff after landing.

Author's comments: It became very clear here that the different actors had different views of the situation. This is an important experience and prior to future missions, it is important to get medicinal information early in the decision-making process. Part of this work involves getting reconnaissance personnel on-site as soon as possible.

Saturday 29 November, time 00:00-12:00

The Reconnaissance Group

At 07:00 in the morning, the reconnaissance group's leader was made aware by the MIO that it was now unsure whether the mission would be carried out, but the team should follow the plan and fly to Vienna anyway at 07:20 Swedish time. During the stopover in Vienna around 11:00 in the morning Swedish time, the MIO informed the team's leader that there were injured people in Mumbai that required air evacuation, six UK and two Spanish citizens. They were not considered to be immediately transportable, however. The MIO also communicated that the contact person from the Swedish embassy in New Delhi would meet the team at the airport, as well as that the transport situation in Mumbai was very difficult. This information was conveyed 15 minutes before the team's flight was to take off from Vienna.

Saturday 29 November, time 00:00-12:00

The SNAM flight and its crew

Early on the morning of 29 November, the cabin crew together with the medical personnel made a quick review of the impending mission. The main aim was that everybody would become informed about the situation and the functions of all the personnel on board. The distribution of responsibility between the different groups in the mission was also made. During this review, it was still believed that the mission concerned 14 injured French citizens and that the final destination was Paris. Later, this information was built upon during the journey to Dubai. The SNAM plane took off from Arlanda on the morning of 29 November at 08:44 Swedish time, in the direction of Dubai and with an estimated flying time of approx. seven hours. In Dubai, there would be a stopover with grounding for an estimated ten hours. During the journey to Dubai, personnel took the opportunity to rest and exchange information with each other, but were unable to have any two-way communication with SNAM's command.

During the flight, the captain on board communicated with SAS OP at Arlanda via long-wave radio and with the global text communication system, ACARS (Aircraft Communications Addressing and Reporting System). SAS OP then forwarded this information to SNAM's command at Arlanda. This communication channel between the staff and the flight functioned well generally, but the SNAM flight's captain received no feedback about the information having been received by SAS OP or SNAM's command at Arlanda. The reserve crew travelled in a passive state with the SNAM flight to Dubai. Well after landing, they communicated via their private mobile telephones with the cabin crew on the SNAM flight, which the cabin crew continued doing during the entire SNAM mission. The crew found it significantly more effective to send text messages directly to their colleagues instead of having the information pass via ACARS to the SAS OP, which would then forward the information to the cabin crew.

Author's comments: The personnel on board had mainly one-way communication with SNAM's command at Arlanda without any feedback. This allows for misunderstanding and uncertainty, regarding both whether the message has been received and whether it has been correctly understood. More complicated issues must be handled with a properly functioning two-way communication. This has also been observed in connection with all earlier exercises by SNAM, but a solution is required prior to upcoming missions.

Saturday 29 November, time 00:00-12:00

The Swedish Ministry of Defence

At 05:11 Swedish time (04:11 Z, 10:36 Indian time), SNAM's command at Arlanda asked whether the Ministry of Defence could help with contact channels to the French authorities in order to arrange reception and further transport in Paris. The Ministry made contact with the French authorities

and were told that there probably were not any patients to retrieve, or at least, no French ones.

During the early hours of the morning, the Ministry of Defence and EU MIC discussed whether the mission should continue or be cancelled, as well as which patients could be retrieved. It was clear that the mission no longer concerned French patients, but that the SNAM flight would be able to retrieve UK patients and land in London instead. The French consulate in Mumbai thought however that the mission was not at all appropriate, as a few of the patients had been recently operated on and not transportable while a few others were only mildly injured and did not need SNAM transport.

Despite the uncertainty of the situation, the Ministry of Defence decided at 07:35 (06:35 Z) that the mission would be completed, and together with SNAM's command it was decided that the SNAM plane would fly to the nation where the majority of the patients belonged, probably Great Britain. The Ministry of Defence at that time had information about a total of six injured Britons who would be transported to London Heathrow. The personnel on board the SNAM flight still knew nothing about the change in patient clientele or final destination. The Ministry of Defence wanted SNAM's command at Arlanda to plan for the SNAM plane's journey to London and a reception there instead. At about 08:00 in the morning, the Ministry disseminated contact information to a UK RDT group (Rapid Deployment Team), to the Swedish embassy in New Delhi as well as to London Heathrow. During the morning the Ministry of Defence continued to gather information about the situation in Mumbai

Author's comments: The Ministry of Defence's channels and network provided contact information that was invaluable to SNAM's command. The Ministration also functioned in many cases as door-opener for contact with departments, embassies and authorities. This is enormously important prior to upcoming missions, and the department level should therefore be included in the planning and execution of international missions.

During mid-morning, the Ministry of Defence had again made contact with the French consulate in Mumbai and a French doctor who worked there. Both the consulate and the doctor were of the opinion that SNAM risked landing too early since there would probably not be any patients ready for transportation for approximately another 24 hours. The Ministry of Defence then asked SNAM's command what could possibly happen if the SNAM flight was put in standby mode in Dubai. The Ministry also had further contact with doctors on-site in Mumbai and were told that there would not be any transportable patients within 24 hours, and that 40 hours could be considered more realistic.

Saturday 29 November, time 00:00-12:00

Swedish Embassy in New Delhi

The contact person from the Swedish embassy in New Delhi who would meet the reconnaissance team at 24:40 Indian time (about 18:10 Z, 19:10 Swedish time) flew from New Delhi to Mumbai during the morning. The Swedish embassy tried to find out where the injured people were located as well as check the information they had about injured French, UK, Italian and Belgian citizens.

Early in the morning, 04:36 Swedish time (03:36 Z, 10:06 Indian time), the MIO in command at Arlanda found out from the Swedish embassy in New Delhi that the day before at 16:00 Indian time (09:30 Z, 10.30 Swedish time) there had been nine injured EU citizens who would have been ready for transportation. Two of them were from the UK, two Dutch, one Finnish, two Spanish as well as two German citizens. The Swedish embassy would then try and make contact with the French consulate in Mumbai for an update of the situation.

During mid-morning, 09:19 Swedish time (08:19 Z, 14.49 Indian time), the Swedish embassy in New Delhi provided new information about the injured people. Transportation was now required for six Britons requiring intensive care and two Spaniards (a couple) with mild injuries, one with a broken leg that had been operated on and one with wounds and gunshot injuries. The Spanish couple's son was on his way to meet them.

Later that morning, 10:25 Swedish time (09:25 Z, 15:55 Indian time), the Swedish embassy in New Delhi communicated to SNAM's command at Arlanda that the Spanish citizens did not want to be transported from Mumbai. This turned out later to be incorrect.

Saturday 29 November, time 12:00-24:00

Operations Director for SNAM's Command at Arlanda

At 12:46 Swedish time (11:46 Z, 18:16 Indian time), the SNAM command at Arlanda had contact with the Ministry of Defence, which had spoken with the French consulate in Mumbai and the French doctor there. The conversation concerned the logistical problem of transportation in Mumbai, as the patients were apparently located at different hospitals. There would, however, be an ambulance at the airport, but transport by road to and from the hospital was estimated to take at least two hours because of the traffic situation in Mumbai.

At 13:01 Swedish time (12:01 Z, 18:31 Indian time), the command was made aware by SAS OP that India had requested information about which hospitals the patients would be retrieved from. The Indian authorities considered there to be a need for these details in order for the plane to be granted permission to land. SAS OP consulted with MIO, but at that time the answer was not known. At 13:42 Swedish time (12:42 Z, 19:12 Indian time), SAS OP communicated that the plane was only able to stay in Mumbai's airport for a maximum of six hours. The Ministry of Defence found it difficult to accept this limitation, but since SAS' safety division had made the assessment, command could not revise it. During the afternoon,

the members of the command at Arlanda continued to discuss how to go about gaining permission for landing, take off clearance and fly over. The SNAM command also had contact with the Swedish Ministry for Foreign Affairs regarding how this issue could be resolved. At 15:14 Swedish time, the SNAM command was made aware that the SNAM plane had landed in Dubai, 18:14 local time. Just over an hour later, 16:19 Swedish time (15:19 Z), SAS OP communicated that the problems with permission to fly over and land at Mumbai's airport had been resolved.

Late in the afternoon, 16:53 Swedish time (15:53 Z), the Operations Director was made aware by EU MIC that France, in its capacity as presiding country of the EU, had given an order that the SNAM flight should wait in Dubai for one day from that moment in order to gain a better description of the situation. The Operations Director of the SNAM command then requested this decision in writing as this would affect the possibilities of SAS continuing the mission. The Ministry of Defence was contacted to assist in this matter at a high level. France, as presiding country of the EU, wanted to have a written permission from all parties for extracting the patients, since they wanted to be certain that there were actually patients to transport. SNAM's command thought, however, that permission to transport patients could be arranged when the SNAM flight was in the air and then submitted verbally to France. The discussions became drawn out and the matter was not resolved until the day after. The Swedish command's largest problem was that SAS had a strict schedule for their airplanes. EU MIC, however, gave no great consideration to these operational limitations, but wanted primarily to get a better overview of the safety situation as well as to ascertain which patients would be retrieved. Command attempted to explain to EU MIC that the SNAM plan must receive approval to take off as soon as possible otherwise the plane would have to return from Dubai.

Saturday 29 November, time 12:00- 24:00

MIO in SNAM's Command at Arlanda

At lunchtime, MIO made contact with the French consulate's doctor in Mumbai in order to find out more about the patient situation in Mumbai with the help of a French-speaking SNAM doctor within the local staff in Umeå. The French doctor promised to arrange a list of patients and the hospitals that they were located in.

During the afternoon, 16:13 Swedish time (15:13 Z, 21:43 Indian time), the MIO, with help from the Ministry of Defence, made contact with the UK rapid deployment team RDT that was connected to the UK consulate in Mumbai. The RDT group said that there were a total of seven UK citizens with varying grades of injuries. The assessment was that they would be transportable on Tuesday, 2 December at the earliest, but more likely on Thursday, 4 December. The MIO informed them about the SNAM concept and the ability to take care of the seriously injured and sick on board and explained that the patients could be flown to London Heathrow. Their attitude changed at this point, and the group concluded that the transportation could be executed. The MIO planned for the RDT and the

reconnaissance group to make a joint inventory of the patients the following morning at 09:00 local time (02:30 Z, 03:30 Swedish time). The RDT group's contact person, a "UK services adviser" with a nursing background in the Red Cross, explained that they needed to be able to sleep a full night and therefore did not want the reconnaissance group to contact them during the night. At 16:31 Swedish time (15:31 Z, 22:01 Indian time) in the afternoon, the MIO made new telephone contact with a contact person for the RDT group who said that the UK patients could only be transported if SNAM could guarantee a hospital stay in London as well as if the patients in question accepted the offer.

During the evening, 18:04 Swedish time (17:04 Z, 23:34 Indian time), the MIO made contact with the previous emergency preparedness manager for the Swedish Civil Aviation Authority who was on holiday in India and had been given the assignment by command at Arlanda to help with logistical issues at the airport in Mumbai. The goal with this contact was to have the previous manager meet the reconnaissance group and help them with logistical issues.

Later that evening, 21:22 Swedish time (20:22 Z, 02:52 Indian time), the MIO made contact with the leader of the reconnaissance group that had landed at 23:40 local time (18:10 Z, 19:10 Swedish time), and explained that the group should not contact the RDT group and hospitals until the morning. During the night, the group contacted the UK RDT group's contact person anyway, as the French doctor, the EU's representative on board the SNAM flight had given the group an English contact person that should be contacted as soon as they had reached Mumbai. A misunderstanding occurred here and the reconnaissance group never realised that it was the same contact person. Therefore, the RDT group's contact person was woken in the middle of the night after clearly having asked to be left to sleep undisturbed. After this, a conflict arose between the reconnaissance group and the UK RDT group (this conflict is described comprehensively in the section about the reconnaissance group's role in the mission).

Saturday 29 November, time 12:00-24:00

Reconnaissance Group

When the reconnaissance group landed at 23:40 local time (18:10 Z, 19:10 Swedish time), they were met by the previous manager of the Swedish Civil Aviation Authority, a contact person from the Swedish embassy in New Delhi as well as a local contact person from the Swedish consulate in Mumbai. These people turned out to be of great assistance with their local knowledge and ability to contact key persons.

The reconnaissance group then travelled to a hotel with the embassy and consulate contact people in order to make further plans. The previous manager for the Swedish Civil Aviation Authority, who was now responsible for logistics, remained at the airport to work together with personnel from the RDT group. At this point in time, there was still agitation in Mumbai and some of the battles with the terrorists still ongoing. There was even unconfirmed information that a terrorist had hijacked a

police car and driven out towards the airport. The whole city was to a large extent cordoned off by a large number of military and police, who had built up road blocks.

Author's comments: The reconnaissance group arrived just a few hours before the SNAM flight and were therefore barely able to complete their assignments. In order to avoid this in the future, the reconnaissance group should be sent out as soon as it is possible that a SNAM mission will happen. Sometimes the reconnaissance group will go off without any mission being carried out, but in the event of a mission, the group has the opportunity to prepare for the SNAM flight's arrival in a better manner. It is also quite important to receive assistance from contact people on-site who have knowledge of local conditions and people.

Saturday 29 November, time 12:00- 24:00

The Swedish Ministry of Defence

In the middle of the day, 13:00 Swedish time (12:00 Z, 18:30 Indian time), the Ministry of Defence participated in a telephone conference with the consular departments of the EU, where the Ministry provided information about SNAM.

At 16:13 Swedish time (15:13 Z, 21:43 Indian time) in the afternoon, the Ministry was informed about the latest situation by the SNAM command. As the chaotic traffic situation in Mumbai was now known, the Ministry of Defence now offered to see whether helicopters could be used to move patients from the hospital to the airport. They later informed the reconnaissance group that this would not be possible as the hospitals did not have helicopter landing pads.

At 16:57 Swedish time (15:57 Z, 22:27 Indian time), another problem arose at a political level that the Ministry of Defence was able to help solve. It concerned the decision that the SNAM flight would wait in Dubai for a day and that all involved parties should provide written permission for patients being transported out of Mumbai. The decision, made by France in capacity of presiding country of the EU, was discussed up to the Secretary of State level since the requirement jeopardised the schedule that SNAM and SAS had agreed on. If the mission were extended, SAS could miss the next scheduled flight with the plane, which would involve a significant additional cost for the Ministry of Defence. France, as presiding country of the EU, was now uncertain whether the mission would be carried out since it was not known for certain that there were any patients to retrieve. Therefore, the Ministry of Defence worked through the night and the following day to obtain clearance to take off from EU MIC. At the same time, SNAM's command worked for SAS to postpone the take off, which was unsuccessful. During the evening, 21:58 Swedish time (20:58 Z, 03:28 Indian time), command made contact with the Ministry in order to receive assistance in gaining access at the highest level within SAS to ask about being able to utilize the plane for a longer time period.

Author's comments: Both France, in its capacity of presiding country of the EU, and SAS, were extremely anxious for the mission to be carried out in a way that they could defend if questioned. The EU felt doubtful and wanted to have better information before it went further from Dubai. At the same time, SAS' SNAM mission had another timetable to keep to in order to accommodate for upcoming scheduled commercial flights. Prior to future missions, the MSB and SAS should examine the nature of the mission and consider the possibility of the mission taking longer than planned in their calculations.

Saturday 29 November, time 12:00-24:00

The SNAM Flight and its Crew

The flight landed at 18:14 local time in Dubai (14:14 Z, 15:14 Swedish time). The information received on board the SNAM flight was insufficient. The SNAM personnel did not know whether they would stay in Dubai for a few hours or an entire day. It was also only then that SNAM personnel were told that the mission no longer concerned evacuating French people, but people of other nationalities. The personnel therefore went to a hotel to rest and wait for orders. As mentioned previously, the lack of clarity was a result of the desire for SNAM to postpone the flight and wait for a better overview of the situation. In the middle of the night, however, SNAM's mission coordinator made contact with the medical team and informed them that permission from EU MIC had been granted to fly on to Mumbai the following day with a planned take off at 11:00 local Dubai time. The flight remained standing at the airport anyway for approximately another two hours while waiting for France to approve the mission. During this wait, SAS OP also decided on their own that the flight would not take off before it was certain that the crew would be retrieving some patients as well as what injuries the patients had. Just before the SNAM flight would take off from Dubai, the head of health care in charge made contact with command at Arlanda as well as the reconnaissance team in Mumbai in order to get information about the situation, but above all to find out more about which patients they would take with them on the SNAM flight.

Sunday 30 November, time 00:00-12:00

Operations Director of SNAM's Command at Arlanda

The Operations Director contacted EU MIC at 06:45 Swedish time (05:45 Z, 12.15 Indian time) to explain that the flight could not be postponed since SAS, for commercial reasons, could not keep the plane after 24:00 on 1 December.

During the morning, efforts to gain permission from EU MIC for the SNAM plane to take off from Dubai continued. The Operations Director at Arlanda had made contact at 08:30 in the morning with the mission coordinator on the SNAM plane and communicated that EU MIC had not yet given any permission to take off. As planned, the SNAM command was contacted by EU MIC later that morning to discuss the permission to take off during a telephone meeting. In parallel with this, the Operations Director

made contact with the Ministry of Defence and asked that they use their access channels to EU MIC and explain the importance of a quick approval. The mission coordinator on the SNAM flight received regular updates about the situation. With assistance from the Ministry of Defence and the Department for Foreign Affairs, at 10:30 Swedish time (09:31 Z, 16:01 Indian time), the staff finally received the news that the SNAM flight was able to take off from Dubai towards Mumbai. EU MIC, however, wanted the UK and Spanish authorities to confirm that their patients were allowed to be moved. The SNAM flight took off from Dubai at 13:38 local time (09:38 Z, 10:38 Swedish time).

At lunch time, the SNAM command at Arlanda received the news that five patients and one relative would be transported with the SNAM plane: three UK citizens, a Spanish couple as well as their accompanying son. Command then awaited written approval from the respective embassies in order to meet EU MIC's requirements. At 12:34 Swedish time (11:34 Z, 18:04 Indian time), command was made aware via the reconnaissance group's leader that the Spanish embassy had given their consent for the Spanish patients and that a doctor from the RDT group had approved transportation of the UK patients. About half an hour later, the French consulate in Mumbai communicated to the command that they had received written permission from Spain and Britain's consulates, which would be faxed within an hour. The staff then spoken with the French consulate in Mumbai and asked them to inform France of this, in their role as presiding country of the EU.

Author's comments: The work on gaining written permission from the two nations took time and was not something that SNAM's command had foreseen. Prior to future missions, the procedure can be made easier if there are pre-prepared forms in different languages and if the reconnaissance group takes this issue into account early in their work.

Sunday 30 November, time 00:00-12:00

MIO in SNAM's Command at Arlanda

Early in the morning, 06:03 Swedish time (05:03 Z, 11:33 Indian time), the reconnaissance group in Mumbai made contact with the MIO in the command at Arlanda and reported that a conflict had arisen with the RDT group as a result of the unwanted contact during the night. Some members of the RDT group were now doubtful about sending the intended patients away with the SNAM flight, despite them being positive about this the day before.

After the news about the difficulties in cooperating with the RDT group, the MIO made contact with the Ministry of Defence at 06:23 Swedish time (05:23 Z, 11:53 Indian time) and explained that the reconnaissance team were not allowed access to the UK patients or their doctors because the RDT group no longer wanted to cooperate. Regardless, the reconnaissance kept working to find out which patients could be ready for evacuation. There are approximately 40 larger and smaller hospitals in Mumbai, many of which are private. About 10 hospitals had received injured and dead from

the terrorist attacks, but only 2 of them had patients from the EU when the reconnaissance group landed: the private hospital, Jaslock Hospital, and the public hospital, General Hospital [31]. There were, among others, three patients at Mumbai General Hospital, but according to the doctors in charge at the hospital, they were not sufficiently stable for coping with transportation. On the other hand, they did not know about the resources that SNAM had at their disposal. The MIO had continued contact with the RDT group's leader to try and resolve the conflict and informed him about the level of transport that SNAM had to offer. The RDT group was grateful for the offer, but thought that the UK patients should not be moved anyway since several were not sufficiently stable. The RDT group thought that the transportation should preferably be delayed until Tuesday 4 December when additional patients could also be ready for evacuation. At 07:45 Swedish time (06:45 Z, 13:15 Indian time), the reconnaissance group's leader informed the MIO in SNAM's command at Arlanda that they had now been given access to the UK patients at Jaslock Hospital in Mumbai. According to the patient register, however, there were more patients that could potentially be evacuated. The MIO therefore made contact with the POC at the French consulate in Mumbai and went through the patient register. The POC promised to examine it and get back in touch.

During the morning, at 08:40 Swedish time (07:40 Z, 14:10 Indian time), the MIO had made telephone contact with a contact person from the Swedish embassy in New Delhi who had been made aware that there was a Norwegian citizen at Mumbai General Hospital with gunshot and shrapnel wounds. There was also information about a Finnish citizen who might be able to be located at one of the hospitals in Mumbai. The reconnaissance group was given the task of following up on this (see reconnaissance section for more information about the search after the Norwegian and Finnish citizens).

Sunday 30 November, time 00:00-12:00

Reconnaissance Group

After the unsuccessful contact with the RDT group, the reconnaissance group went to sleep at around 03:00 Indian time and slept until 06:00 in the morning (11:30 Z, 00:30 Swedish time). The group then appeared at the Swedish consulate at 07:00 Indian time in order to go through the hospitals' registers of the injured and dead people that the contact people from the Swedish consulate in Mumbai and Swedish embassy in New Delhi had produced. The information was compared with a preliminary list from the French doctor at the French embassy. The hospitals that had accommodated patients that were EU citizens and that patients were retrieved from were Mumbai General Hospital and Jaslock Hospital. Jaslock Hospital is a private hospital, while Mumbai General Hospital is a public hospital [32].

At 06:03 in the morning Swedish time (05:03 Z, 11:33 Indian time), the reconnaissance group's leader made contact with the MIO and communicated that they had made contact with the RDT group during the night anyway, and the RDT group themselves looked after their patients and did not allow the Swedes to enter. With assistance from the patient register

from the Swedish consulate personnel, however, the group had managed to identify four UK patients as well as two Spanish patients at Mumbai General Hospital. The RDT group claimed that the four UK patients at Mumbai General Hospital did not want to fly with SNAM, but the reconnaissance group had not been given the chance to explain to the patients what SNAM had to offer. The two Spanish patients, however, were grateful for the offer of transport with SNAM. The reconnaissance group had not been able to identify the three UK patients at Jaslock Hospital as they did not have the RDT group's approval for this. The reconnaissance group's leader had, however, already spoken with the administrative manager at Jaslock Hospital, who did not think that any of the patients there would be eligible for transportation, but was also of the opinion that the RDT group was slowing down their work. In that situation, it was not possible to evacuate any of the seven UK patients that had been ready for transportation or any of the Spanish patients either as the doctor in charge had ruled that they were not sufficiently stable for transportation.

The reconnaissance group contacted the Swedish embassy in New Delhi in order to get help in resolving the conflict with the RDT group. The reconnaissance group's leader also attempted to persuade the RDT group to hear what SNAM could offer as well as let the patients themselves know what possibilities existed. About an hour later, when the reconnaissance group had contacted the Swedish embassy in New Delhi, the RDT group themselves got in contact and said that the three UK patients at Jaslock Hospital were now grateful for the offer to fly home with the SNAM flight. The Ministry of Defence had contacted the UK Foreign and Commonwealth Office for assistance during this time, and this may be one explanation for the RDT group changing their minds.

After this news, the reconnaissance group went to Jaslock Hospital to meet the RDT group's contact person. Together they would assess whether the three patients could be transported or not.

At 08:40 Swedish time (07:40 Z, 14:10 Indian time), the reconnaissance group's leader was given the task by the MIO of investigating whether there was a Norwegian citizen at any of the hospitals, as the Norwegian Ministry of Foreign Affairs had asked SNAM for assistance with this. The group would also check information about a Finnish citizen. At 09:14 in the morning Swedish time (08:14 Z, 14:44 Indian time), the group's leader confirmed that there were three UK patients at Jaslock Hospital that were ready for transportation. The Norwegian with gunshot wounds had been found, but he wanted to remain at Mumbai General Hospital. The Norwegian was grateful regardless for the offer from SNAM to travel home, as was the Norwegian Ministry of Foreign Affairs. The Finnish patient, however, could not be found again and was not present in any patient register from hospitals in Mumbai either. The reconnaissance group began planning the transportation from Jaslock Hospital out to the airport.

Author's comments: Information and communication can always be misunderstood, which in this case happened between the reconnaissance group, the French doctor, the EU representative on board the SNAM flight, the MIO in the command at Arlanda and the UK RDT group. The mission in

Mumbai was both physically and mentally stressful, and this may be one explanation for the manner in which the RDT group received the reconnaissance group. The group members were also unsure of whether they were supposed to take orders from SNAM's command or from the EU representative, which must be made clear before the group sets out on a mission.

Sunday 30 November, time 00:00-12:00

The Swedish Ministry of Defence

When it became clear early in the morning, that the reconnaissance group had difficulties in cooperating with the RDT group, the staff MIO contacted the Ministry of Defence to inform them about this. The Ministry reported this information on to the UK Foreign and Commonwealth Office, which may have contributed to the RDT group wanting to resume cooperation in the end.

During the morning, the Ministry of Defence also worked to try and find access to MIC in order to explain the importance of permission to take off for the SNAM flight in Dubai. SNAM's command received news about the permission to take off at 10:31 Swedish time (09:31 Z), on the condition that EU MIC would receive confirmation from the UK and Spanish authorities that their patients could be moved. When the permission was given, the Ministry of Defence began to work on producing written permission from the Spanish and UK authorities, which was done in practice through contact with the UK and Spanish consulates in Mumbai.

Sunday 30 November, time 00:00-12:00

The SNAM Flight and its Crew

SAS OP had set up security-related limitations, which meant that the flight crew were not able to leave the plane in Mumbai. The strict regulations regarding the pilots' working hours meant that the SNAM group were given only four hours at Mumbai's airport. SAS OP therefore applied for an exemption from working hours with the Swedish Transport Agency and were granted an additional two hours. However, in order to land the plane at all, SAS OP were forced to apply for permission for both landing and flying over from the Indian authorities. This also took time and led to the Swedish Ministry of Defence being involved in order to assist with all necessary permits. However, all of this was finished so that the SNAM flight did not need to wait in the air. The plane's handling in Mumbai was managed by an Indian company, but SAS OP had a good deal of communication problems with the person who was the station manager for the company in New Delhi. This was probably a result of the company being located in New Delhi and not in Mumbai. These problems would likely be avoided if SAS had sent a turnaround coordinator together with the reconnaissance group who would have been able to have direct contact with the company in New Delhi. It also proved difficult to arrange for the "high loaders" that were needed in order to be able to lift patients up onto the plane. The mission coordinator was required to pay the local handling agent cash in order to

procure the high loaders and handling equipment that was needed. Problems with the plane's permission to take off from Mumbai's airport also arose later. The handling agent from New Delhi did not know how to arrange permission to take off, so SAS OP in Sweden contacted the Swedish Ministry for Foreign Affairs, who in turn faxed a document to Mumbai's airport. The Swedish Ministry of Defence also assisted in obtaining permission to take off.

The high temperature, 25-30 C, and humidity placed extra strain on the patients when they were required to wait at the airport. The Spanish male's condition worsened before he was loaded onto the SNAM flight. The ambulances did not arrive at the same time, which meant that there was time to load in one patient at a time and stabilise the situation before the next ambulance arrived. However, the loading could have gone more quickly if all the ambulances had arrived simultaneously. There were also problems with bringing the ambulances alongside the plane. An elevator platform in a delivery van was used to load the intensive care stretchers; personnel sent one SNAM stretcher down at a time, the patient was loaded on and then the platform elevated and the stretcher transported further into the plane. This method worked extremely well.

Figure 7. Patients are loaded on board the SNAM airplane



Photo: Stefan Isberg

Besides the head of health care, most of the SNAM group stayed on the plane. None of the medical personnel left Mumbai's airport since there were only a couple of hours available. This was not needed either, since the patients had already been transported to the airport [33].

Figure 8. The airport's ambulance



Photo: Stefan Isberg

Sunday 30 November, 12:00–24:00

The Reconnaissance Team

EU MIC wanted written consent from the patients, following which an official from the UK and Spanish consulates respectively would provide written consent for them to fly home on the SNAM flight. As France held the Presidency of the Council of the European Union at the time, this permission was then to be faxed to the French consulate, which could issue written consent for the SNAM transport. The reconnaissance team therefore had to work hard, together with the Swedish embassy in New Delhi and the Ministry of Defence to gain this permission. If pre-printed forms had been available for service personnel, relatives and patients to sign, the procedure would have gone much more smoothly. Around lunchtime, 12:34 Swedish time (11:34 Z, 18:09 Indian time), the reconnaissance team leader announced that the Spanish embassy had given its consent and that the UK patients had received the go-ahead from their representative in the RDT. In the end, the people who were to be transported home were two UK patients from Mumbai General Hospital as well as a Spanish couple and a UK patient from Jaslock Hospital. The Spanish patients had their son with them, and he was to fly home with them on the SNAM flight. This patient group included both individuals in need of intensive care and individuals requiring normal supervision. All of the patients expressed their gratitude for having been given the opportunity to fly home on the SNAM flight.

New difficulties arose when the patients were to be transported from the hospital to the airport. Nearly all ambulance services in Mumbai are private. Mumbai General Hospital didn't have any ambulances and the reconnaissance team therefore had to hire two themselves. One of the two ambulances they had booked arrived at Mumbai Hospital but collected an

Australian patient instead, with relatives, and drove them to the airport. As a result of this, the team had to hire an additional ambulance. Being a private hospital, Jaslock Hospital provided an ambulance of its own. None of the ambulances used were up to Swedish standards. They were completely empty and they are only equipped according to requirement. They didn't come with oxygen either. It wasn't possible to use the SNAM stretchers with either of the ambulances, as there was nothing to fasten them to. As the team were working against the clock, they used the stretchers provided for the Indian ambulances, even though this entailed unnecessary stress for the patients. The SNAM concept – to unhook and bring the stretchers from the flight, get the patients into them, transport them back to the plane and hook the stretchers up inside the plane again – was therefore not possible in the Mumbai mission. The journey from Mumbai to the airport took two hours and was very taxing on the patients. The male Spanish patient in particular had a hard time coping with the journey due to the oppressive heat. Other forms of transport such as lorries or vans could have been used, but the team had access to ambulances, even if the equipment was non-existent, and transportation to the airport could commence as soon as they knew which time for the SNAM plane would be landing. To wait for the landing, unloading and transport of MICUs to the hospital was deemed by the reconnaissance team to be a waste of valuable time. It would in all probability have been even more complicated to gain access to Mumbai General Hospital, which was under strict police monitoring, and to arrange transport to the airport, which initially was to be taken care of by the airport ambulance.

Once at the airport, the reconnaissance team encountered new problems when trying to enter the airport and get to the SNAM plane. The team were not allowed to drive in with the hired ambulances; Mumbai airport's own ambulance was to be used. The patients therefore had to be transferred from one ambulance to another at the gates. Only authorized personnel were allowed between the gate and the plane. One of the UK citizens from the RDT was, however, accredited at Mumbai's airport, which meant that he could ride in the ambulance out to the SNAM plane. Naturally, it was difficult for the team to have control of the situation and the transport logistics when they couldn't even get to the SNAM plane.

The reconnaissance team had problems when they were to check themselves in as they didn't have boarding passes; they only had their passports with them. Consequently, they had to go around the entire airport to get to the transport gate where a member of the RDT would take care of the check-in for them. There the team handed over their passports to the RDT member to look after. They then went back to the security check area, which the patients also needed to go through. Here the next problem arose, as the reconnaissance team now could not present either passports or boarding cards to the security personnel. The team managed to get hold of SNAM's mission coordinator, who could confirm that the passports and boarding cards issued had been taken on board the SNAM plane by the RDT. The security personnel followed the reconnaissance on board the SNAM plane, where the passports and boarding cards could be presented.

Late that evening, 22:39 Indian time (16:09 Z, 17:09 Swedish time), the SNAM plane finally took off. Among the passengers were the reconnaissance team, who had by then spent 17–18 hours in Mumbai.

Author's comments: To not be allowed access to their own SNAM plane was a new and unforeseen difficulty for the reconnaissance team. For future missions, no SNAM personnel should leave the plane without some form of document or boarding card which would allow them back on board.

Sunday 30 November, 12:00–24:00

The Swedish Embassy in New Delhi

In the afternoon, the Swedish embassy in New Delhi helped with the diplomatic contacts required to transport the patients. The embassy also helped with getting the written confirmations required by EU MIC from the patients and the UK and Spanish consulates.

Sunday 30 November, 12:00–24:00

The Ministry of Defence

The SNAM plane landed in Mumbai at around 13:00 Swedish time (11:44 Z, approx. 18:14 Indian time), whereupon the Ministry of Defence's efforts to gain clearance with DG Civil Aviation Authority at Mumbai's airport commenced, assistance that SNAM command had requested help with. This was the Ministry's only contact with Indian authorities, and the clearance was eventually granted. In the afternoon, 16:17 Swedish time (15:17 Z, 21:47 Indian time), SNAM command were informed by the Ministry of Defence that clearance had been granted and that according to contacts in Mumbai, no other permissions were required in order for the SNAM plane to take off from Mumbai.

Sunday 30 November, 12:00–24:00

Operations Director of SNAM's Command at Arlanda

At 13:37 Swedish time (12:37 Z, 19:07 Indian time), the chief of staff received confirmation that the SNAM plane had landed in Mumbai at 18:14 Indian time (11:44 Z, 12:44 Swedish time). It was estimated that the patients would begin boarding within 30 minutes. Shortly afterwards, SNAM's mission coordinator contacted the command at Arlanda and informed them that the plane was hidden away and that there should therefore be no problems with the media. This was not the case, however, as TV4's crew on the plane started filming when the patients were being taken on board despite promises not to do so (see the media section for more information).

At 14:01 Swedish time (13:01 Z, 19:31 Indian time), the French consulate in Mumbai got in touch to ask if the Indian authorities had actually granted permission for transportation of the patients from the country. The command also spoke with the EU MIC and informed them that three UK citizens and two Spanish citizens and their son were to be transported via

SNAM. EU MIC found that SNAM had the required permission from the UK and Spain and that documentation of this had been forwarded to the EU MIC and the French consulate in Mumbai. SNAM command decided that the reconnaissance team would now fly home on the SNAM plane.

In the afternoon, at around 16:00 Swedish time (approx. 15:00 Z, 21:30 Indian time), SNAM command made contact with the Ministry of Defence regarding the problems they had had earlier with receiving clearance from DG Civil Aviation Authority at Mumbai's airport.

At 18:14 Swedish time (17:14 Z, 23:44 Indian time), the chief of staff received information that the SNAM plane had left Mumbai at 22:39 Indian time. The SNAM plane then made an intermediate landing in Dubai during the night, 00:32 local time. Late in the evening, 22:36 Swedish time (21:36 Z), the mission coordinator on board announced that the plane was clear for takeoff from Dubai and at 01:36 local time (21:36 Z), the SNAM plane departed for London.

Sunday 30 November, 12:00–24:00

The Emergency Procedures Information Centre and Heathrow Travel Care at London Heathrow, and the MIO of SNAM command at Arlanda

In London, the Crisis Centre at Heathrow airport had a meeting on Sunday morning at around 07:00 and received information that SNAM was on its way to London from Mumbai. The information was somewhat unclear, coming either from the EU MIC and the RDT or from the UK's High Commission in Mumbai. The Crisis Centre's "Planning Section Officer" was given responsibility for ensuring that all personnel involved in receiving the plane and the patients knew what was to be done. The practicalities surrounding the coordination were, however, the responsibility of a service manager at Heathrow Travel Care.

At midday, 12:15 Z (13:15 Swedish time), Heathrow Travel Care received an e-mail from the Ministry of Defence in Sweden informing them that an Air Medevac with SNAM was on its way. It was estimated that the plane would land at London Heathrow early Monday morning. Usually, Heathrow Travel Care has two days to plan and coordinate reception of a Medevac and were therefore surprised but took the information seriously. Heathrow Travel Care informed the police, local authorities, the airport's own ambulance service and other nearby ambulance services. At 13:15 Z (14:15 Swedish time), the Ministry of Defence called Heathrow Travel Care and confirmed that the information in the e-mail concerning the SNAM plane was correct. In the afternoon (14:00 Z, 15:00 Swedish time), Heathrow Travel Care contacted SAS in order to obtain information on the flight number and estimated landing time.

The MIO of the SNAM command at Arlanda contacted the Crisis Centre in London that afternoon (15:26 Z, 16:26 Swedish time) in order to start planning SNAM's reception. The contact person referred the MIO to Heathrow Travel Care, which the MIO then contacted. Heathrow Travel Care wanted information on the patients' relatives and local hospitals, so the MIO contacted the head of health care in charge on board the SNAM plane

just before it took off from Mumbai. They promised to call back with the requested information, after which the information regarding the patients would be e-mailed to Heathrow Travel Care.

At 19:44 Z (20:44 Swedish time) the Service Manager at Heathrow Travel Care reached an agreement with nearby Hillingdon Hospital, about 10 km from Heathrow, that they would receive the patients from the SNAM plane. The Spanish embassy in London was contacted and they were to send out an officer to the airport to meet the Spanish family. Heathrow Travel Care worked all afternoon and during the night to prepare for the reception of the SNAM plane on Monday. The limited time frame was perceived as particularly problematic. They were to arrange five ambulances within a short period of time, which is more than usual for reception at Heathrow.

During the flight to Dubai, the head of health care contacted the MIO via ACARS and asked that four units of blood, two units of plasma for O Rh negative recipients and an infusion set to be arranged for their intermediate landing in Dubai. The MIO in turn contacted the Airport Medical Centre in Dubai, who promised that a crew would come out to meet them but that they could not arrange the blood to be available on-site; the patient in question would have to be taken to a hospital. Upon their intermediate landing in Dubai at 21:30 Swedish time (20:30 Z, 00:30 local time), the head of health care on board the SNAM plane informed the MIO that the items were for the Spanish patient with a chest drain, but that it was deemed unnecessary to take the patient to the hospital. He could remain on board even if the blood could not be made available on-site. The MIO also received a telephone call from the assistant head of health care on board the SNAM plane at 22:15 Swedish time (21:15 Z, 01:15 local time, Dubai), as the relatives of the UK patients wanted to know which hospital the injured were to be taken to. The MIO responded that the most workable solution would be to refer all relatives to the coordinator at Heathrow. At the same time, the MIO confirmed that the Spanish patients would be able to stay at the hospital in London for at least 24 hours with their permits.

Sunday 30 November, 12:00–24:00

The SNAM Flight and its Crew

The SNAM plane took off from Mumbai at 22:39 Indian time (16:09 Z, 17:09 Swedish time). The destination was London with an intermediate landing in Dubai. During the journey to Dubai, the male Spanish patient began to bleed from the drainage tubes inserted into the chest, which is why the head of health care decided to try to arrange access to blood at the intermediate landing in Dubai. The MIO for the command at Arlanda was contacted in order to ensure the SNAM plane was met by a medical team at Dubai's airport but, as previously mentioned, the blood could not be arranged. The plane landed at 00:32 local time in Dubai (20:32 Z, 21:32 Swedish time) and was met by a medical team from Dubai's airport. The medical team in Dubai wanted to take the Spanish patient to the hospital, and the Swedish head of health care was forced to make a risk assessment. The patient was deemed to be reasonably stable, however, and it was decided that the patient would continue the journey to London for further

treatment. The head of health care therefore declined to leave the patient in Dubai. During the intermediate landing in Dubai, the head of health care had also been in contact with the MIO of the SNAM command to compare notes, and the situation was deemed medically stable. The plane then took off from Dubai at 01:36 local time (21:36 Z, 22:36 Swedish time).

Before departure for Heathrow, the captain on board the SNAM plane had said that he wanted to fly as high as possible; partly to save fuel and partly to avoid turbulence, bearing in mind the patients' condition. This was arranged through permission from another airplane at Dubai's airport, which was to fly to Amsterdam but with the same flight path towards London. The other plane had taken off a few minutes before the SNAM plane and was therefore contacted for assistance. The crew of the other plane then continuously reported on any turbulence to the SNAM plane. The captain of the SNAM plane and the head of health care kept good internal communication on board. The captain also received running updates on the patients' condition, in order to be able to plan a timely landing should a patient's condition rapidly deteriorate, for example. The cabin crew appointed liaisons who regularly conveyed information to the pilots. This cooperation worked well.

Authors' comments: There is a high standard of care in SNAM, but unforeseen problems can still arise which necessitate an urgent change of plan and finding an alternative airport or hospital. To be mentally prepared for such complications, good dialogue with the head of health care and the captain is required. The planning of a SNAM mission should include how such situations are to be resolved.

Monday 1 December, 00:00–12:00

The Ministry of Defence

The Ministry of Defence contacted the Spanish Embassy in London as two Spanish patients were to land at Heathrow. In addition, they required hospital treatment in London before they could continue the journey to Spain. The Spanish embassy in London therefore sent one of its officers to meet the SNAM plane at the airport.

The Ministry of Defence maintained contact with SNAM command at Arlanda right up until the SNAM plane landed at London Heathrow at 05:39 Z (06:39 Swedish time). At 06:56 Swedish time, the Ministry of Defence thanked the SNAM group for its assistance.

Monday 1 December, 00:00–12:00

The SNAM Flight and its Crew

When the SNAM plane was supposed to land at London Heathrow, there was rush hour traffic at the airport. During the flight there, it was still unclear as to whether or not air-traffic control had prioritized the plane as *status hosp*. Status hosp indicates a medical flight, which thereby takes precedence over other flights. In order to receive permission to land, the

captain of the SNAM plane first contacted SAS OP in Stockholm, which in turn contacted SAS in London, which then contacted air-traffic control at London Heathrow. When air-traffic control was certain this was an Air Medevac, the SNAM plane received permission to land. When the plane was over Budapest in Hungary, the captain received information that the SNAM plane had a straight passage for landing. In the meantime, the head of health care was worried that the male Spanish patient would not cope with being in the “holding position” for very long and explained this to the captain, but the matter was already taken care of. Leading up to the landing in London, the medical personnel could stay with the patients up until approx. 20 seconds prior to landing, when they were to take their seats. In this way the doctors and nurses could work without too much disturbance. The plane landed at London Heathrow at 05:39 Z (06:39 Swedish time).

Five ambulances were waiting when they landed. The personnel from Heathrow Travel Care also met the relatives of the UK patients who had arrived at the airport. An officer from the Spanish embassy in London met the Spanish patients and their son. There was a problem at the airport as the Spanish family had hired a Spanish air ambulance which was waiting for them there. Heathrow Travel Care had tried to avert this, however, as they had received information that the male Spanish patient was too seriously injured to take another flight. This assessment turned out to be accurate.

Once the SNAM team had unloaded the patients, a number of logistical problems presented themselves regarding the ambulances that were waiting for them. The ambulances were sent by different hospitals and each representative wanted the patients to ride back in their ambulance to receive care in their respective hospital. There were many different opinions on what was to be done, and the situation was not resolved until the coordinator from Heathrow Travel Care arrived and explained that all patients were to be transported to Hillingdon Hospital, as previously decided.

Hillingdon Hospital was closest to the airport and was also the hospital that had made preparations to receive the patients. Each patient was accompanied to Hillingdon Hospital by a doctor and nurse from SNAM, who were then back at Heathrow at 07:35 Z (08:35 Swedish time). The representative from the Spanish embassy in the UK followed the Spanish patients to Hillingdon Hospital. The EU observers gave information to the representative from the Spanish embassy regarding the *Medevac* which had just been carried out [30, 32]. The SNAM plane then departed for Arlanda at 08:09 Z (09:09 Swedish time) and landed there at 11:36 Swedish time.

At Arlanda, a review of the mission took place at 14:00-16:00. No formal debriefing was held, however. The local Human Resources team in the support staff in Umeå had booked flights home for all participants, with the earliest at 16:00 [31].

Authors' comments: It was thoughtful to arrange for the SNAM personnel to fly home as soon as possible, though this possibly did not take full advantage of the situation. For future missions, it should instead be arranged for the entire group to meet for debriefing and discussion, dinner and an overnight stay before everyone flies home.

Monday 1 December, 00:00–12:00

Operations Director of SNAM's Command at Arlanda

SNAM command received information that the SNAM plane had landed at London Heathrow at 05:39 Z. Soon after, the staff informed the EU MIC and the Ministry of Defence of this and explained that the crew were preparing to unload the patients to transport them to the hospital in London.

Monday 1 December, 00:00–12:00

The MIO of SNAM Command at Arlanda

In the morning, the MIO of SNAM command contacted the coordinator at London Heathrow regarding the reception. Five ambulances had been ordered to transport the patients to Hillingdon Hospital. The MIO also contacted SNAM's head of health care to inform about the planned transport and reception. Doctors and nurses were to ride with the ambulances to the hospital and the ambulances would be on *Emergency* status in order to avoid the risk of getting stuck in customs. The MIO then contacted a location manager at Hillingdon Hospital and e-mailed the list of patients there. At this point, the first patient was already on the way to the hospital.

At 08:41 Swedish time (07:41 Z), the MIO received information that the patients had been left at Hillingdon Hospital and that the medical personnel had arrived back at the airport at 07:35 Z (08:35 Swedish time). The SNAM plane then took off from London Heathrow at 08:09 Z (09:09 Swedish time).

At Arlanda, a review with all participants was planned to take place once the plane had landed, which then took place at 11:36 Swedish time.

The staff at Norrland University Hospital in Umeå set to work at 08:00 Swedish time in order to start booking flights home for the crew.

The media's Role in the Mission – TV4

TV4 approached SAS early on about flying with the SNAM team to Mumbai. The Swedish Civil Aviation Authority and Västerbotten County Council opposed this, but SAS was very keen for TV4 to follow the team under certain conditions. The SNAM crew were to decide for themselves if they would consider taking TV4 team with them to Mumbai. The crew eventually agreed to this, with the following proviso: The TV4 team would be allowed to accompany them on the outward flight to Mumbai, but not on the return trip. It was also made clear that no filming was permitted when the patients were to be taken on board the plane, as a matter of preserving the patients' integrity. The SNAM command felt this was positive as the TV channel's presence on board could be a way of showing the public what SNAM is and what the group does. The parties made an oral contract despite the fact that the EU MIC was hesitant about allowing media on board the flight. The Ministry of Defence would definitely have said no if they had known this from the beginning. But in this case it was the crew that had the final say and TV4 flew with them to Dubai and Mumbai, to later leave the plane.

30 November TV4

At approximately 09:30 Swedish time, the TV4 editorial office in Stockholm contacted the SNAM staff's public relations officer to request that their team on board the flight be allowed to take some footage of the patients' care and follow developments. The answer was no, which had been made clear from the beginning. On location in Mumbai, however, the SAS turnaround coordinator decided to let the team film the patients being taken on board the plane. The medical personnel saw this as a betrayal as they had discussed morals and ethics during the outward flight. At 17:00 Swedish time, the public relations officer of the command at Arlanda received information that TV4 had filmed the boarding and the patients despite promises not to. The Director General of the Swedish Civil Aviation Authority therefore contacted TV4's CEO to discuss the situation, and the result was that TV4 called off the entire report [31].

Authors' comments: Here, both SNAM command and the personnel on board the flight were presented with an ethical dilemma. SAS and TV4 had already made a policy decision which they were trying to keep to. The media do, of course, have the important task of bringing news on crises and reporting on accidents, disasters and terrorist attacks, but in the context of medical care in a plane or ambulance, the patient's special interests must take precedence over the public interest. Matters of patient integrity and confidentiality are also more important than the rules that reporters and photographers abide by in their respective professions. For future missions, it will not be considered appropriate for media representatives to accompany the SNAM team on board. All parties involved must also be contacted before such decisions can be made. Furthermore, no oral contracts should be made. All contracts must be written.

Financing of SNAM's Mission

For missions within Sweden, it is most often the County Council making the request that provides the funding for the mission. In connection with international missions, the former Civil Aviation Authority would request remuneration from the Ministry of Enterprise, Energy and Communications based on an offer. For the SNAM mission in Mumbai, however, the Government decided that SRV would receive compensation in consultation with the Civil Aviation Authority. SRV was thereby given financial responsibility. The mission was so urgent that the budget was produced without a prior offer. The EU MIC would pay for half of the cost. The mission was finally financed through EU aid amounting to 25 per cent of the total cost of SEK 5.7 million, which means that the Swedish Government covered 75 per cent.

Authors' comments: The total cost was SEK 5.7 million, but according to a commercial operator, it would have cost just as much if the mission were carried out with small air ambulances with space for one patient per plane,

e.g., Lear Jet. SNAM stands out as more cost-efficient when considering the quality of care, the space and the expertise offered by the SNAM flight, as well as the possibility to transport significantly more patients in one flight.

Measures

Below is a summary of the roles and responsibilities of the various departments, authorities, embassies, consulates and other players in connection with the SNAM mission, as well as the measures they took.

The Swedish Rescue Services Agency

SRV was the Swedish “focal point” for the EU MIC and therefore became the first authority to be involved in the SNAM mission in Mumbai. The former Swedish Rescue Services Agency was commissioned to make authoritative decisions on various types of missions, even though they were under the Ministry of Defence. The SRV was available 24/7 for cases including, for example, rescue missions or interventions in the face of a disaster in a foreign country which called for an immediate response.

The Swedish Civil Aviation Authority

At the time of the mission, it was the task of the Civil Aviation Authority in collaboration with SRV and the National Board of Health and Welfare to decide whether or not this was to be a SNAM mission. Initially, the Civil Aviation Authority was given responsibility for the final decision, but as the mission became an international mission financed by the Government, the decision became a matter for the Government Offices of Sweden and the EU MIC, which had requested the mission.

The National Board of Health and Welfare

The role of the National Board of Health and Welfare in the first phase was to determine in collaboration with the SRV and the Civil Aviation Authority whether or not the mission was feasible. In this case, there was a strong political interest to carry out the mission as soon as possible, which meant there was not enough time to clarify and fully understand the implications of flying out with an unclear mission and commission. The role of the National Board of Health and Welfare during SNAM’s mission in Mumbai was to follow developments and keep up-to-date on the mission status, to collaborate with agencies and organizations involved where required, and to submit progress reports to the Ministry of Health and Social Affairs. If the patients had been Swedish or if the SNAM flight’s destination was an airport in Sweden, the role of the National Board of Health and Welfare would have been to assist in planning the reception of the patients and to coordinate the work of the County Council.

The Ministry of Defence, the Ministry of Enterprise, Energy and Communications, and the Ministry for Foreign Affairs

The EU MIC requested the SNAM mission in Mumbai through SRV, but following a government decision it was the Ministry of Defence that took charge and had overall responsibility for the mission from Sweden. Had the flight required transporting only Swedish citizens back to Sweden, the Ministry for Foreign affairs would likely have been given overall responsibility. At the time of the mission, SNAM was under the former Swedish Civil Aviation Authority, which was in turn under the Ministry of Enterprise, Energy and Communications, but the decision to carry out the mission was made in consultation with the Ministry of Defence, the Ministry of Enterprise, Energy and Communications, and the Ministry for Foreign Affairs.

On 1 December 2008, the Treaty of Lisbon came into force, which is in essence a solidarity clause stating that all Member States of the EU shall help other EU countries that request assistance in connection with natural catastrophe, terrorist attack or other man-made disasters [32]. The ratification of the Treaty of Lisbon was of immediate importance between the EU countries in connection with the terrorist attacks in Mumbai, and there may have been political interest in carrying out the SNAM mission.

The Head of the Society and Crisis Management Department at the Ministry of Defence had overall departmental responsibility for the mission, with the help of a small “staff” consisting mainly of Officer on Duty and a deputy head.

The mission in Mumbai was in many ways unique. Firstly, India never requested assistance to transport the injured EU citizens home – nor did the EU nations who had injured citizens in Mumbai, which is unusual. What is truly unique in this case was that it was the EU itself that was considered to be the victim, and thus the EU citizens’ transport home was to be managed by the EU.

The SNAM command at Arlanda maintained regular contact with the Ministry of Defence in order to inform them of the situation as well as to request assistance when needed, mainly with regard to political contacts at a higher level. In this mission, the Ministry also had to take care of a number of operative tasks, such as arranging take off and landing permission. Under normal circumstances, a number of different agencies would handle much of the operative work which the Ministry of Defence assumed responsibility for in this case.

The French Consulate in Mumbai

France held the Presidency of the Council of the European Union at the time of the terrorist attacks in Mumbai and initially contacted the EU MIC with a request for assistance from SNAM. This is also why the French consulate in Mumbai played such an important role in the SNAM mission. The Swedish embassy in New Delhi and the staff in Sweden maintained regular contact

with the French consulate in Mumbai in order to receive lists of patients, gain permissions and to have a link with the French presidency.

The Swedish Embassy in New Delhi and the Swedish Consulate in Mumbai

The Swedish embassy in New Delhi reported all available information on the injured persons to the command before the reconnaissance team were on location in Mumbai and tried to contact the embassies of other countries in order to see if there were injured citizens that required transport home. The Swedish embassy took care of practical arrangements such as booking hotel rooms and receiving the reconnaissance team. When the team arrived, the contact persons from the Swedish embassy in New Delhi and the Swedish consulate in Mumbai worked together with the team to obtain information about the patients who were to be transported on SNAM plane.

SAS' role in the Mission in Mumbai

SAS OP worked both from its operative centre at Arlanda and via a representative in SNAM command at Arlanda. An early warning came two days before the mission received the go-ahead, and SAS had already begun to prepare for the possibility of a mission.

The SAS crew on board the SNAM plane consisted of two pilots and three flight attendants. An additional two pilots and three flight attendants went on the flight from Arlanda to Dubai “passively” to act as a replacement crew. The cabin crew was selected based on their previous experiences with SNAM and their individual qualities.

SAS had several reasons to choose Dubai as the intermediate landing destination: firstly, SAS has regular air traffic to Dubai from Kastrup and secondly, an intermediate landing was made in Dubai in connection with the tsunami in 2004 when the SNAM concept was first put into action. SAS therefore had previous experience of flying with SNAM via Dubai for refuelling and crew changeover. SAS also cooperates with Lufthansa regarding operations in Dubai.

Another reason behind the intermediate landing in Dubai was that the SAS crew's working shifts would likely have been too long if the plane had flown directly to Mumbai. SAS cabin personnel may work for a maximum of 14 consecutive hours [33], which can also vary to a certain degree depending on the shift. SAS uses the principle *check in* and *check out* for its personnel, which means that the crew member's shift begins from the moment he/she commences safety-related measures on the ground such as planning the flight with regard to weather, fuel and technical status. In Dubai, both crews rested, and for the Dubai–Mumbai leg of the journey SAS switched out the crew members on duty. SAS went via Dubai for the return journey as well and switched the crew around for the last leg, Dubai–London.

The flight plan otherwise followed common procedures. SAS OP deemed the security situation to be instable, which imposed restrictions that affected the actual mission. The SAS cabin crew couldn't stay overnight in Mumbai

or even leave the airport, and so the parking time in Mumbai was limited to four hours at first, in order for the pilots' working hours not to exceed the maximum. The time was eventually extended to six hours following a request for exemption.

Authors' comments: SAS anticipates the need for and carries out crew changeovers in order to follow regulations. This should also be the case for the medical crew, especially where longer missions entail the risk of exhaustion among the medical personnel. Currently no planning exists for changeover of SNAM medical personnel, but the matter will be looked into.

SAS's responsibility for in-flight safety assessments was established early in the creation of SNAM and has never been questioned. This was based on the fact that SNAM flights were to be conducted with the same level of safety as with any commercial flight with regard to weather, landing conditions, choice of airport, etc. The notion of the SNAM plane flying into a warzone was ruled out at an early stage of the project. In this case, those involved found themselves in an unexpected situation; that SAS deemed it safe to land at Mumbai's airport but that the security "on the ground" in and around the airport could not be guaranteed. This came to have considerable consequences for the conditions surrounding the execution of the mission, whilst everyone involved was subject to political pressure to carry out the mission. Matters concerning responsibility for security assessments and where to draw the line between "flight safety" and other forms of safety should be the subject of more in-depth analysis.

Restoration, Recovery and Development

In accordance with the SNAM organization plan, the plane will be restored to its original condition and ready for a new mission no later than twelve hours after the previous one. Once the mission is complete, the personnel will be afforded the opportunity to rest and undergo debriefing. In the case of this mission, however, no debriefing took place and the personnel flew home on the same day they came to Arlanda. For future missions, this phase of the mission should also follow the plan.

The SNAM concept is expanding, and in late autumn 2011 there will be a SNAM plane (SNAM 2) with room for six additional stretchers (twelve compared with the six available in SNAM 1). Otherwise, the new plane will have the same configuration with regard to MICU stretchers, seating and crew. In both planes, the basic stretchers will come equipped with oxygen tanks, which was not the case for the Mumbai mission. The development of SNAM also entails training existing medical personnel from the SNAM organization to act as a mobile reception team which will receive patients when the plane lands at the airport of entry and then continue the care and perform the handover to the receiving hospital. This applies first and foremost to the patients on the MICU stretchers.

Discussion

SNAM is a unique instrument for Air Medevac of multiple patients with serious injuries, both nationally and internationally. The result can be best described as an airborne intensive care unit with the capacity to provide care for and supervise as many patients as an intensive care ward at any of our medium-sized hospitals. The crew has a high level of competence and the platform, the Boeing 737, is of high quality and is a powerful tool for executing advanced Air Medevacs both quickly and with a high standard of comfort.

The Swedish Government has allocated a substantial sum of money both in investment and operations in order to ensure that the concept embodies high standards and is simple to understand.

How does SNAM work in an international scenario? The Air Medevac of injured persons from Mumbai provides a basis for analysis and evaluation of both organization and capacity.

SNAM was at first a part of the Civil Aviation Administration, then the Civil Aviation Authority, and from 1 January 2011, MSB. The adjustments that have taken place between changes in ownership have to a certain extent affected the possibilities for development of the concept as some of the work with operational matters and development has been held back in order to prioritize the overall organizational changes.

The SNAM organization ability to effectively monitor the world arena and assess potential scenarios for SNAM evacuations is good. The events in Mumbai clearly show that both its initialization and organization work satisfactorily on the whole.

SNAM's way of activation time is well known and functioning from a national viewpoint. The Mumbai mission also showed that the EU is aware of SNAM via the EU MIC and can request their services through their focal point in the former SRV, now the MSB.

In the event of international missions, SNAM may need to be able to quickly obtain visas for the personnel. The process can be accelerated if documentation needed for the visa applications including personal information, passport photos and copies of passports for all personnel is available.

The basis for whether or not a mission is to be carried out needs to be improved. As soon as a request is received by the responsible authority, a reconnaissance team should be dispatched. This may mean that in some cases a mission is not forthcoming, but it may still be a wise investment when considering the cost of sending SNAM on a mission which would have been better carried out using other resources. Regarding the Mumbai case, the question is whether or not the intelligence was sufficient as it was discovered that the original mission to evacuate injured French citizens was already taken care of by the French themselves. There were, however, several injured people in need of evacuation. Consequently, the mission

could be carried out, but if SNAM had had better information, part of the diplomatic and logistical work could have been less complicated. If a reconnaissance team is to be sent out in an early phase, funds must be allocated for this, which is not the case at present.

The technical possibilities for communication between SNAM command and the SNAM plane once it is airborne are inadequate. Whilst ACARS is a global communication system, it is designed for normal in-flight requirements and not for management issues and constant reporting from an air ambulance. ACARS requires feedback as it is basically a text messaging system comparable to SMS – if there is no response, it becomes a one-way communication with all the associated complications such as delays and uncertainty over whether or not the message has been received. Furthermore, it is not designed for sending long messages (e.g., patient lists) and does not provide room for extensive consideration. Finally, the system is installed in the pilot's cabin, which is not the workplace of SNAM personnel. A more secure communication system which facilitates both verbal communication and text messaging between the plane and command at Arlanda is necessary and should be given high priority. An internet connection and satellite phone could be the solution to this problem. Both systems are already available in the field of aviation.

In the event of an international mission like the Mumbai case, it is important that overall management issues are clear. The matter of who takes the executive role in a SNAM mission must be analyzed and clarified based on experience from the Mumbai case, in which the EU-MIC, departments, EU representatives on board the flight and in the command negatively affected the SNAM mission's operative ability through different processes.

Concerning management, SAS's assignment during a SNAM mission should also include an analysis and agreement regarding what SNAM and SAS are to do in the event that the mission time is prolonged with regard to the costs and logistical difficulties which SAS may then incur. From an operative viewpoint, SAS and the world of aviation strictly follow the applicable working hours regulations. From a safety aspect, this is extremely important. The same should apply to medical crews in consideration of both personal and patient safety.

In the SNAM organization, departments and embassies proved to be very important partners, both of which can open doors, provide support in the form of practical help on-site and act as a link to departments and embassies of other nations. This was clearly reflected in the Mumbai mission. It cannot be stressed enough that such cooperation must be an early part of the planning for an international SNAM mission.

The ground transport of the injured people from hospital to airport and plane requires further analysis. Mapping access to ambulances and their equipment is part of the intelligence gathering that should precede a possible SNAM mission. The Mumbai case clearly illustrates how these factors made it impossible to utilize the intensive care stretchers as planned (i.e. transferring patients onto the MICU's at the dispatching hospital). This is of course partly explained by the fact that the reconnaissance team had to arrange for ambulance transport on-site and with very little time, just as the safety situation meant that the SNAM personnel could not collect the

patients at the hospital in Mumbai. Future SNAM training exercises should include dealing with the logistics involved in ground transport.

The matters of responsibility, jurisdiction, and authority in connection to missions as regards foreign citizens have not been clarified in Swedish laws or statutes up to the present time. In the Mumbai mission, SNAM worked on the presumption that the interior of the plane constituted “Swedish land” and that Swedish law thereby applied. It is, however, not clear as to what happens if a foreign citizen is given the wrong treatment and the matter of responsibility is examined. Nor is it clear as to whether or not Swedish medical personnel, employed by a Swedish County Council (Västerbotten County Council in the case of SNAM), are permitted to exercise healthcare on foreign territory. For future missions, this is one of the most crucial matters to handle. To solve this also means that the matter regarding which actors can use SNAM can be clarified and that SNAM can be formally registered with the EU MIC as a resource.

The cost of a SNAM mission in relation to alternative forms of transport in the Mumbai case proved to be equivalent to using several small air ambulances. The point at which it is cost-efficient to use SNAM, when expressed in the number of injured and the distance, should be analyzed, as it could be perceived as too expensive to use SNAM in certain conceivable scenarios, not least in an incident such as Swedish soldiers injured in connection with service abroad. It can also be perceived as too expensive for a Swedish County Council, e.g. in an incident which leads to several people suffering from burn injuries, compared with using several small air ambulances. Such consideration would be made considerably easier if there were models for cost in relation to the number of injured, the distance, time expressed in 24-hour periods or sections thereof. Each mission is unique, and in the considerations leading up to a mission it should be gauged as to whether the SNAM organization is to be used in its entirety or in parts, as was the case in the evacuation of Swedish citizens from Lebanon, when only SNAM medical personnel were used in chartered planes. This was also the case in the tsunami catastrophe in southeast Asia, when a different plane concept was used; simple stretchers were used and there was room for several patients. The SNAM organization should strive to be as flexible as possible and capable of adapting itself to the incident, rather than vice-versa.

The handling of the media with regard to the TV crew present during the Mumbai evacuation was not good.

Following supervision of the filming of patients in a hospital in Sweden, the National Board of Health and Welfare made the following assessment, which may be of interest for future assessments and conduct [34]:

“In accordance with the assessment made by the National Board of Health and Welfare, there is an obvious risk that confidential information is revealed if a TV crew accompanies an emergency vehicle. If, for example, a patient’s identity has been exposed, it is not possible to rectify this afterwards by ceasing all filming. //“If the hospital intends to allow media presence on several occasions, the personnel involved should receive instructions on how to handle and document the situation. The prerequisites for the presence of unauthorized persons and filming of patients should be clearly

regulated in an agreement” [] (The National Board of Health and Welfare, 2005).”

The same should apply within SNAM.

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