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Disaster response

Contingency planning for an airport crash

What happens at an airport when disaster suddenly strikes? This is a critical question for an airport manager to assess, since it is the key to his contingency planning. Only a careful and complete analysis of potential problems and activities can lead to a sound emergency plan.

Dr Jay Levinson

An excellent example of a sound emergency plan is the United Airlines crash at Sioux City; as is often recalled, a principal reason for the success of the disaster response was meticulous planning and the holding of an airport exercise only weeks prior to the accident

Planning to rely on outside assistance is not a solution. It is true that within an hour of an accident even the routinely quietest airport will be converted into a beehive of fervent activity The critical time, however, is in the initial minutes of response before off-field emergency services arrive In these moments, the airport must transform itself from regular activity to an emergency operation, and it must function on its own as an autonomous unit If pandemonium is allowed to reign, it will be harder to restore order later

Every airport is required by international convention to maintain certain basic emergency services, such as a ready fire department located within minutes' reach of the runway Fire planning is a part of virtually every airport exercise The more important question, however, is what does one do after the fire is put out.

Injured passengers obviously take first priority, even during the fire fighting effort It has been estimated that in aircraft fires only 7% of the fatalities are from burns; the remainder are from smoke inhalation. Thus, the fire service must be involved in passenger evacuation and aircraft ventilation (being careful not to spread the fire by adding oxygen), while at the same time trying to extinguish the fire

In terms of treating the injured, the basic object is to save the maximum number of people given the resources available It might sound cruel at first, but the practical consequence of this philosophy is to leave the seriously wounded and emphasize treatment of those with a better chance of surviving At this stage, medical resources are also very restricted Before outside ambulances arrive, the medical personnel available are those persons involved in the usual first-aid problems of the airport facility. Response to a major accident is clearly beyond the number of medics available and the equipment which they have at their disposal. A partial solution is training a maximum number of persons working at the airport in the basic principles of first aid, so that they can, hopefully, function until professional staff arrives at the airport.

The onus of initial disaster response falls on the airport. Is your airport prepared?

What is its rescue capacity?
What is the hospital capacity nearby?
What is its telephone-exchange capacity?
How good are the alarm routines?
How good are the "meet the public" routines?
Will your crisis management stand the test?

When full medical services do arrive, the basic guideline is not to set up a field hospital and begin treatment. Rather, the medical objectives should be to establish evacuation priorities and prepare the injured for evacuation by stabilizing their condition. Nor should every patient be rushed by helicopter to a hospital. The method of evacuation is a medical decision, taking into consideration not only the time factor, but also the effects on injuries which an air evacuation and its accompanying change in air pressure might entail.

Treating the 'walking wounded'

The uninjured or 'walking wounded' pose a paradoxical situation. On the one hand, the lack of physical injury does not constitute a description of 'uninjured'. In many incidents, the psychological scars on those involved take more time to heal than physical wounds Planning should take into account psychological screening and assessment.

Dr Levinson has been employed as the disaster victim identification officer of Israel National Police, Jerusalem, for the past seven years, enabling him to gain a certain expertise in handling air disasters

On the other hand, it is often critical to debrief the uninjured as soon as possible to get a clear picture of what happened aboard the flight. The uninjured can also give important information as to who else was on the airplane. The best method of debriefing is generally a prepared questionaire, but any set of questions must be used judiciously, striking a harmonious balance between the person's condition and the need for information

The dead pose a very different problem From the perspective of victim identification, the dead should be left in situ until scene photography and annotation have been completed Yet, the dead often have to be moved before then to gain access to living persons or as a moral factor in running the response operation. Finding personnel within the airport to accomplish this task can be futile, particularly when dealing with bodies in less than pleasant condition

Although baggage handlers, for example, might have the physical strength to remove bodies from the scene, they do not necessarily have the psychological fortitude to stand up to the task. Undoubtedly, the arrival of funeral directory personnel on scene is a positive contribution to the operation

The deceased should never be evacuated to a hospital, since that only brings more work and confusion to a facility whose true goal is saving human life A temporary mortuary should be preselected on or near the airport, and bodies should be gathered there. This allows for concentration for 'evidence' in one area and police evaluation before questions about autopsies and pathology are addressed, since this is a sensitive issue in certain religious/cultural circles

One should not lose sight of the reality that every crash is potentially the result of a criminal act (including criminal negligence) and must be treated accordingly until proven differently

As most eyes are focused on the high-profile activities at the crash site, other essential tasks must be performed Police, for example, must resist the temptation of running to the scene to help save victims. In terms of incident management, it is much more important for them to begin the process of routing traffic to distance the general public, while at the same time enabling emergency vehicles rapid entry and exit. This, of course, includes directing traffic at the crash site itself, by quickly establishing traffic patterns with parking and waiting options If this is ignored, unblocking jammed facilities at a later time is much more difficult.

Even before news of a crash is broadcast the airport must be ready to handle the 'meeters and greeters' on hand to see off or receive their loved ones. This means

gathering them in a quiet facility and worrying about their psychological and physical state, clarifying their relationship to passengers, and releasing selected information to them. The basic rule in divulging information is to deal with the closest relative. This generally means the closest family tie and not the relative closest in physical proximity. Dealing with meeters and greeters can bring this question to issue. It is not exaggerated at times to seek legal counsel in determining closest relative.

As soon as the news is broadcast, that only means a further onslaught of the media and affected families, and once disaster is announced, the airport affected becomes the focal point for telephone inquiries as well. In certain incidents, telephone inquiries to the air carrier involved, the airport and the police, neared ten thousand per day for several days running.

The philosophy for handling these telephone inquiries is to realize that the common interest of the airport and the air carrier affected is to return as quickly as possible to 'business as usual'. That is to say, all crash-related matters must be diverted to an emergency unit, freeing standard telephone lines for routine matters. That emergency unit is then tasked with responding to inquiries (within the guidelines, of course, of incident information policy), recording information collected from telephone conversations, and disseminating that information to relevant offices. Reports of missing persons, for example suspected of having been aboard the flight in question, are of interest to the Disaster Victim Identification Unit.

Today, one of the leaders in establishing an emergency unit to deal with public inquiries after a crash is EPIC (Emergency Procedures Incident Centre) run by British Airways at Heathrow Airport. In times of a crash of British Airways or a London-related flight of another subscribing carrier, the centre is opened to receive the huge volume of telephone calls.

Although the onus of initial response falls on the airport, a primary portion of the burden will quickly shift to the air carrier. The carrier's name is at stake. In bluntest terms, the carrier's very existence is often at stake. An airline can survive jokes about delays, cold food, overbookings, and lost luggage; quips about bad security or unsafe aircraft, however, are much harder to overcome.

It is imperative that carriers have disaster contingency plans which interface with the airports from which they operate. Whenever an accident occurs, there will be bad publicity. The object of planning is to limit that bad publicity by cleaning up quickly from the accident. Pan Am for example, suffered weeks of bad publicity as the Lockerbie story dragged on in the press.

It should be noted that official responding agencies, such as police or transportation accident investigators, have important functions in an accident, and co-operation with them is essential. Yet, there is a basic

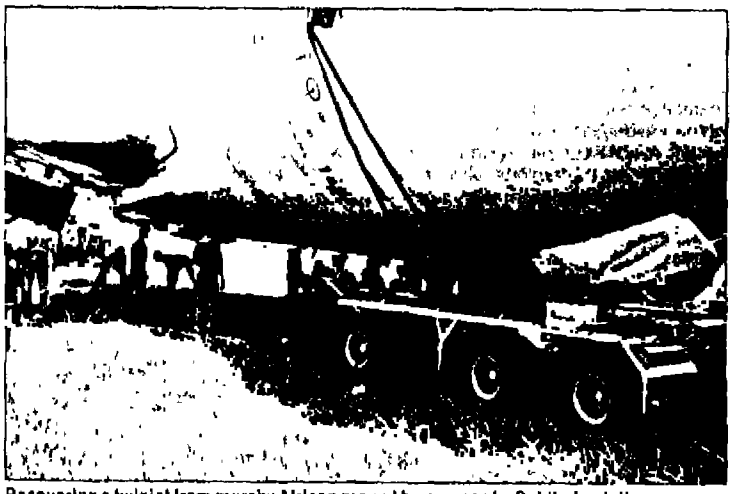
Aircraft recovery ... made easier

A twin-jet airliner got damaged last year at an African airport because the nosewheel had not extended fully. It came to a halt in soft ground beside the end of the runway and could not be recovered by a bulldozer as the nosewheel sank deeper into the marshy ground during the recovery operation. Finally, a material handling and transport company was entrusted with the job, and this company used two prime movers and a Goldhofer dolly.

The aircraft's nosegear was lifted by two cranes to position the dolly under the gear, and then the dolly with bolster took over the function of the nosewheel. Also, the load was better distributed over the base support due to a greater number of wheels. Therefore, no real subsoil consolidation was required to tow the aircraft to the runway.

At first, a winch pulled the passenger jet to the runway, then the prime movers towed the disabled jet to the parking apron. Only a couple of jours were needed for the complete action.

Goldhofer trailer systems have repeatedly been used for recovering disabled aircraft which overshot the runway. One such recovery and transportation system was delivered to Frankfurt Airport in 1991. ***mmo***



Recovering a twinjet from marshy African ground by means of a Goldhofer dolly

Rescue boats for New York's airports

The Port Authority of New York & New Jersey (PANYNJ) recently purchased three new Boston Whaler Challenger 25' boats to provide increased life-saving capabilities as well as greater utility for maintenance and inspection of the Port Authority bridges. Two of the three Challenger 25's will serve as airport rescue boats at LaGuardia and Kennedy International and will be on standby 24 hours a day for emergency service in all weather conditions.

In case of an accident, the Challenger 25' travels at high speed to the scene and deploys life rafts which allow aircraft passengers to get out of the water quickly. Each of the two "airport boats" can carry up to 35 inflatable rafts with capacities of approximately 12 to 15 persons each.

The Cayman Islands Fire Department also added a new 25-ft Boston Whaler Guardian fire-rescue boat to its fleet of rescue craft. Completely unsinkable and designed for emergency services in all conditions, the new boat will be primarily used for rescue operations in the event an aircraft is down in the waters around Grand Cayman Island. The new Guardian 25' carries a variety of marine rescue gear including four 25-person life rafts, a tow bar for towing life rafts or disabled boats, fire service and marine radios, mast-mounted spotlight, floodlight and digital depth finder. Equipped with an 18-HP fire pump, the Guardian 25' also provides a limited fire-fighting capability at sea.

Boston Whaler airport rescue boats have been developed specifically in compliance with FAA requirements (AC 150/ 5210-13A), and each of them is built and equipped according to specific airport requirements. ***mmo***

conflict While the air carrier is interested in a rapid conclusion of the accident, time is often not a factor with government agencies

The need of interface with airports is simple In most cases, an airline does not have sufficient staff at an airport to handle both routine and emergency operations. The carrier and the airport must work to pool resources until additional personnel can be brought in Then they must work in full co-ordination to insure an efficient operation.

Identification of victims

It should also be noted that airport rules regarding responsibility vary from place to place. In some airports, for example, identification of the dead is defined as the carrier's function, whereas in other places that activity belongs to the police or to the medical examiner. It is essential that a carrier have a clear picture of its responsibilities under local law and custom before an accident response can be contemplated In any event, however, the air carrier should have a trained victim identification expert on call to look after its interests

Identification of deceased victims must be done in co-operation between airline and forensic staff The airline holds passenger lists and billing information which can often be a source of addresses Although there are often mistakes in the lists (both intentional and accidental), access to these lists should be blocked in the reservations computer immediately upon hearing even of an incident, since they constitute a reporter's treasure. Working papers with passenger names should also be confiscated On the other hand, the lists should be made available to the medico-legal personnel handling the operation, since they constitute an excellent beginning for identification investigations.

Over the past few years, there has been no international uniform criteria for identification of the dead. Methods have ranged from visual recognition by friends and relatives to pure forensic methods such as fingerprints and odontology. A conscientious decision concerning identification criteria should be made, aiming at a practical balance between time-saving methods with an error potential and time-consuming means which are error-safe.

Time is a precious business commodity which should be used judiciously, yet it should be remembered that haste can be more costly. When a major accident occurs, the airport involved might be closed for several hours Its activities can be limited for a significant amount of time Airport managers who threaten to bulldoze the runway clear, are only kidding themselves, that approach simply will not be allowed.

The physically injured who are removed to a hospital are often not the only persons needing treatment Earlier, it was mentioned that sometimes the survivors suffer psychological consequences. But, they are not the only ones. The rescue staff, the responders! They often need help

As can be seen, airport response to an air disaster goes well beyond putting out the fire and evacuating the wounded. The response requires careful planning and co-ordination The best approach airport management can take is to have a clear picture of what happens at an accident. Then it can adapt those lessons to specific local conditions

U.K. CAA starts explosion research programme

Hardening aircraft structures and systems, cargo containers and cargo compartments to survive an explosion is the aim of a research programme undertaken by the British Civil Aviation Autority. Called the 'Aircraft Hardening Against Explosions Research Programme', the GBP 4 3 million effort is being jointly funded by the Department of Transport, the Department of Trade and Industry, and the CAA.

Most of the work will be carried out by the U.K. Defence Research Agency, which has proven experience in aircraft and equipment design, explosives, testing, and computer modelling. Civil aircraft manufacturers will be involved to provide an essential source of aircraft design information, and coordination is being sought by the CAA with other complementary work being carried out in Europe and the United States. It is planned that new, harmonized design standards will be proposed within the next three years.

The programme is a response to a safety recommendation made in August 1990 by the Air Accidents Investigation Branch following the Lockerbie disaster of December 1988. *mmo*

Stinar's rapid-access emergency vehicles

The Stinar Corporation in the USA specially built three new Rapid-Access Emergency Vehicles for the police of the Port Authority of New York & New Jersey for use at its JFK, Newark, and LaGuardia airports to ensure a quicker response to onboard aircraft emergencies. The vehicles include hydraulically powered stairways which can be quickly and accurately adjusted to the door sill height of any airplane; fire suppression systems consisting of two preconnected, telescoping waterways, one of which is hooked to a 150-ft long fire hose; spotlights and floodlights; aviation radio, all-facility radio and siren/public-address communications. *kmo*

CONFERENCE REPORT

Major Air Disaster, Seminar, Ramat Gan, Israel

The Seminar on Major Air Disaster, which took place in Ramat Gan, Israel, on September 4, 1991, was sponsored by the Israeli Ministry of Transportation, and was moderated by Mr Gideon Livnie, secretary of a special committee nominated to co-ordinate Israeli government policy on air disaster response.

General Amos Lapidot, committee chairman and former head of the Israel Air Force, explained that the purpose of the seminar was to clarify agency responsibilities and review work procedures as part of the final preparations leading to an exercise to be held at a later date.

In reviewing the committee's work he noted that many agencies had general mass disaster response plans, but very few had contingency programmes specifically for an air disaster. The net result is the intention to set up an all-purpose command centre in the field, then play the incident by intuition or gut feeling. Lapidot rejected this approach as poor planning. He noted that an air crash is unusual in that it can cover a wide area with several focal points. Particularly in accidents related to bad weather, the actual site can be hard to reach.

Lapidot suggested there are three typical scenarios which must be considered. 1 mid-air crash at high altitude with no survivors, 2 low altitude or ground crash with survivors and casualties, and 3 a mid-air explosion where the pilot attempts to land. The current committee concentrated on the last scenario in its discussions (a plane taking off from Tel Aviv, experiencing trouble and trying to double back, but breaking up over a wide residential/commercial area. In the committee's work it was necessary to distinguish quickly between side effects on the ground (fires caused by broken utility lines and airline fuel) and the main crash. This was complicated by the reality of numerous events taking place simultaneously with sketchy, if not panicked, reporting from numerous non-co-ordinated sources.

In conclusion, Lapidot stressed the need for a multiple-agency response with a central command post. Lapidot stressed that the aim of the seminar was to assure that everyone understood his role.

Dr. Gad Sadowsky, of the Army Medical Corps, explained that the army contingency plan for mass disaster includes liaison officers in all hospitals. This is critical in keeping track of patient location, particularly when medical considerations dictate that a crash victim be transported from one hospital to another. Sadowsky said that ideally a hospital should not be called upon to dedicate more than 20 per cent of its bed space to a disaster.

Dr. Jackob Adler, former deputy director of the Army Medical Corps and now head of the emergency room at Jerusalem's Shaarei Tzedek Hospital, challenged Sadowsky's emphasis on army response to air disaster in the Tel Aviv area. According to Adler, civilian emergency services will have evacuated most if not all air crash victims before the army can mobilise a large number of personnel and vehicles.

In Israel there is a general inclination to expect the army to respond in instances where large amounts of manpower with supporting logistics are needed. Col. Imri Ingberg of the Israel Defense Force emphasised that the army is not built to respond to a civilian air crash. Although the army can and will assist if requested, primary responsibility remains with the Israel National Police and other civilian agencies.

Dr. Yoel Donchin of Haddassah Hospital conducted a quick simulated crash exercise to highlight some of the co-ordination problems. At 4.23 pm a large fire was reported in Tel Aviv, followed by an almost simultaneous message from air control that contact had been lost with a flight over Tel Aviv. Discussion followed on how agencies would respond and put all information together. Brig. Gen. Aryeh Amit, deputy commander of Operations at the police said that National Headquarters would probably be the first to put all information together. Dr. Jay Levinson noted that in the case of a Galaxy Airlines flight which crashed near Reno, Nevada, that process of piecing together information from various sources took the police only seven minutes. Levinson also reminded that the fire need not be the main site crash.

Yaackov Markovitz, head of the Israel Fire Fighting Service, said that any number of fires can accompany an air crash. These fires can also continue for an extended period of time. Such a situation will require both reinforcement of local fire-fighting units and close fire/police communication. Markovitz noted that fire response is not merely calling out the trucks. In a major incident extensive logistics can be required. This can include, for example, bringing in extra water supplies, particularly if water lines are unavailable or broken at the disaster site.

In assessing police readiness to handle a major air crash, Yehiel Omer of the Operations Department stressed that the police must establish a greatly expanded public inquiries capability to handle the large number of telephone calls which can be expected.

After screening the training film, "Are You Prepared?," Gideon Livnie picked up on Omer's call for a public inquiries capability. He noted that there are three categories of information following a crash: 1 operational, 2 general (traffic instructions, revised airport schedules, etc), and 3 personal (regarding victims). Livnie stated that general information must be distributed as quickly as possible, personal information requires extreme sensitivity.

Col. Ron Bloomer of the Army Spokesman's Office detailed the need for openness towards the press, allowing them to bring a maximum of information to the public. C/Supt. Ehe Shneltzer of the police then detailed contingency plans for identification of fatalities. He was very clear that the press must not release pictures possibly identifying victims until families are properly notified.

In the last formal presentation of the day-long seminar Mr. Kochav Hess, chief accident investigator for the Israel Civil Aviation Authority, explained that the police force looks for criminal acts in an air crash, his agency reconstructs the incident from a technical perspective. The first part of his job is photograph, and evidence collection in the field (best done in co-ordination with the police), the second part is analysis and laboratory testing.

SUMMARY BY
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