

Comparative Analysis Of The Bellview And Sosoliso Air Crashes in Nigeria: Matters Arising

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Abstract

Introduction: Aviation history in Nigeria actually began in 1925 when the first airplane was said to have landed in Lagos, Nigeria. After that historic landing, several commercial airlines ranging from the ADC, Okada Air, Bellview, EAS, Chanchangi, and Al Barka amongst others have taken over the commercial aviation industry in Nigeria. The growth of the aviation industry in Nigeria has also led to a concomitant rise in aviation disasters. Since November 20, 1969 when the first fatal aviation mishap occurred, Nigeria has experienced 48 other serious air crashes. Of notable memory are the ADC Boeing 727 plane crash (Nov.7, 1996) at Ejinrin in Lagos and more recently the Bellview air crash that took place at Lisa-Igbore village in Ogun State. Unfortunately, development in the aviation industry has not been reciprocated with growth in safety regulation, thus leading to unnecessary air disaster accompanied by unimaginable lapses in disaster response.

Methods: This paper analyses the various aviation disasters in Nigeria and repeated lapses in the management of each disaster. Documented lapses from our investigation range from obsolete communication equipment, epileptic or non-functional radar, over-age and poorly maintained air craft, prolonged delay in responding to distress calls, poor search and rescue efforts, poor coordination of effort coupled with repeated conflicts in the information disseminated to the public and other agencies. The print/ electronic media and internet were the main sources of information.

Results: The consequences of these lapses are unnecessary and avoidable deaths, loss of property, agony, and unacceptable apprehension on the part of families of the victims. There is clear evidence of buck passing from one agency to another responsible for the management of such disasters.

Conclusion: This paper highlights the deficiencies in the Nigerian aviation sector with particular emphasis on the most recent air crashes while providing positive suggestions to remedy these abnormalities, with the intent of making air travel safer for all.

ABBREVIATIONS

NAMA=Nigeria Airspace Management Agency
FAAN=Federal Airports Authority of Nigeria
NIMET=Nigeria Meteorological Agency
AON=Airline Operators of Nigeria
NEMA=National Emergency Management Agency
JAPCO=Joint Aviation Practitioners Coalition
NASI=Nigeria Aviation Initiative
NUATE=National Union of Air Transport Employees
ART=Aviation Round Table
AIPB=Accident Investigation and Prevention Bureau
FDR=Flight Data Recorder
CVR=Cockpit Voice Recorder
CFIT=Controlled Flight into Terrain.
NCAA=Nigeria Civil Aviation Authority

IATA=International Air Transport Association
ICAO=International Civil Aviation Organization
AOC=Air Operator License

INTRODUCTION

Since the birth of flight, aircraft have crashed, often with serious consequences. September 17th, 1908 recorded the first fatal injury in a powered airplane piloted by Lt. Thomas E.Selfridge who was flying with Orville Wright. (<http://www.wikipedia.org/> accessed Nov.8, 2005)

Commercial air transport developed in the 1920s and expanded rapidly between 1930 and 1939. With the development of commercial air transport, the potential for human casualties from plane crashes increased drastically. Other than the high mortality, the grand scale destruction of

property and the attendant socio-economic costs have made air crashes a feared event. Because of this, aircraft design is concerned with minimizing the chance of failure, pilots are trained with safety as a primary consideration, and generally air travel is closely regulated. Governments and regulatory agencies worldwide play a major role in ensuring air safety and in conjunction with airlines act to preserve the public trust and belief in the safety of air travel. Despite this, accidents still occur. The International Air Transport Association (IATA) states that 71% of aviation accidents are due to human error, with other causes being ageing aircraft, poor weather and deficiencies in safety management systems. (the Punch, Friday Dec.30, 2005)

Nigerian aviation history has recorded black days a number of times due to plane crashes which have led to severe loss of lives and property. The first major air crash in Nigeria's aviation history is that of a Federal Government owned VC-10 aircraft on the 20th of November, 1969. It was flying in from London and crashed as it prepared to land at the then Ikeja Airport. All 87 passengers and crew were killed. (The Guardian, Oct.24, 2005) .Nigeria has experienced 48 other serious air crashes, the most recent being the Bellview Airline Flight 210 and Sosoliso Airline Flight 1145.

Figure 1

Figure 1: The remnants of the Sosoliso Plane after the crash at the Port Harcourt International Airport. (Courtesy of The Guardian, Nigeria 2005)



The IATA states that Africa accounts for only 4% of global aircraft and yet, its accident rate is way up at 25% making it six times less safe than the world rate (the Punch, Friday Dec.30, 2005). These figures are comparable to findings by the British Broadcasting Corporation stating that Africa generated only 3% of all flights in 2003 but accounted for 28% of all air crashes. (British Broadcasting Corporation.

Fact of the Day. Available at <http://www.bbc.co.uk/>. Accessed 9 December 2005).

The IATA which represents 265 airlines (93% of global air traffic), says that only three of Africa's 39 IATA members have completed their operational and safety audit to date, namely: South Africa Airways, Egypt Air and Kenya Airways. (the Punch, Friday Dec.30, 2005) No Nigerian airline is in this category. It is no wonder then that the accident rate is so high.

A combination of skyrocketing costs of maintaining old aircraft and Europe's strictly enforced aviation regulations are forcing aircraft out of European airspace and into developing countries like Nigeria. Hence, Nigeria has a lot of 'Tokunbo' planes (old aircraft). A notable example is the recently crashed Sosoliso DC-9 aircraft that was 32 years old. It had been sold to Sosoliso Airline by JAT Airline when it could no longer meet European aviation standards due to loud noise levels. Likewise, the Bellview Boeing 737-200 aircraft that crashed was 24 years old. (Friday Punch 30th Dec 2005)

The effect of plane crashes on the people and the economy of a country are usually enormous especially in a country like Nigeria where there is no functional search and rescue organization capable of rising to the challenges at a moment's notice after an aircrash. In fact the dramatic outcome of plane crashes is one reason why they always make headline news. However, certain peculiarities of the Bellview aircrash of October 22nd, 2005 resulted in a hitherto unprecedented media coverage, including:

- Its coincident occurrence on the same date as the death of the Nigeria First Lady.
- The multiplicity of conflicting, contradictory information on the time and location of the crash, the location of the black box, the number and identity of the passengers, airworthiness of the airplane, and the condition of the pilot amongst others, that abounded.
- The associated magnitude of looting at the crash site to the extent that the chief of the village was even apprehended by the police. (The Punch, 4/11/05)
- The resultant massive restriction to the crash site and environs such that some of the villagers were complaining of hunger as they subsist on farming.

(The Punch,4/11/05)5

The nation had barely recovered from the Bellview aircrash of 22nd October, 2005 when another commercial plane went down. This time it was a Sosoliso airplane carrying mainly children going home for the holidays. A brief summary of both crashes is provided below, highlighting their differences.

TABULATED DIFFERENCES BETWEEN THE TWO RECENT COMMERCIAL AIRLINE CRASHES IN NIGERIA

Figure 2

BELLVIEW AIRLINE Flight 210	SOSOLISO AIRLINE Flight 1145
<ul style="list-style-type: none"> ⊗ Saturday 22nd Oct. 2005 ⊗ Took off at 8:35pm ⊗ Crashed at 8:38 pm ⊗ Site of crash was Lisa in Ogun State 	<ul style="list-style-type: none"> ⊗ Saturday 10th Dec. 2005. ⊗ Took off at 12:18pm ⊗ Crashed at 2:08 pm ⊗ Crashed at destination site in Port Harcourt. The plane burst into flames 1200 m to the P.H International Airport Runway.
<ul style="list-style-type: none"> ⊗ Departed Lagos. ⊗ Expected destination was Abuja. 	<ul style="list-style-type: none"> ⊗ Departed Abuja. ⊗ Expected destination was Port Harcourt.
<ul style="list-style-type: none"> ⊗ Bellview-Boeing 737-200 series Aircraft ⊗ Reg. No. 5N-BFN ⊗ Age of Aircraft: 24yrs ⊗ Manufactured- 1981 ⊗ 6 crew members ⊗ Total passengers; 117 ⊗ All passengers died immediately. ⊗ The families were never aware. 	<ul style="list-style-type: none"> ⊗ Sosoliso-McDonnell Douglas DC-9 Aircraft ⊗ Reg. No. 5N-BFD ⊗ Age of Aircraft: 32yrs. ⊗ Manufactured- 1973 ⊗ 7 crew members ⊗ Total passengers; 109 ⊗ 7 survived initially ⊗ Families of passengers witnessed the crash and burning of their loved ones. ⊗ Bodies were recovered with majority burnt beyond recognition. ⊗ Several eyewitnesses to events ⊗ Families fought over dead bodies due to lack of identification. ⊗ Aircraft was at ground level with no excavation required. Cost of recovery was minimal. Response was swift but lack of water delayed extinguishing fire.
<ul style="list-style-type: none"> ⊗ Bodies were never recovered. ⊗ No eyewitnesses to crash ⊗ There were no corpses to fight over ⊗ Aircraft buried about 20m below ground level that required excavation 	<ul style="list-style-type: none"> ⊗ Foreigners were not involved in recovery of the aircraft. ⊗ The black box was found within 3-5 hours. No controversy on the black box.
<ul style="list-style-type: none"> ⊗ Foreigners were called to recover /excavate the buried part of aircraft. ⊗ Major controversies trailed the black box, from initially being found, to not being found to request for the local villagers to assist with recovery with the sum of two hundred thousand naira. ⊗ Accident speculated to be caused by a bomb blast. A militant group has even claimed responsibility for the crash. ⊗ From onset till this paper, the crash was characterized by conflicting information about time of departure, cause of crash, location of crash, human survivors of the crash, manifest of the plane etc. ⊗ Mainly adults involved 	<ul style="list-style-type: none"> ⊗ Not much speculation about the cause of accident, majority believed it was due to bad weather. ⊗ Information management was better and more synchronized. ⊗ Mainly children from a particular high school involved

the flight of a plane, from altitude, attitude, the state of the engines and auxiliary equipment, to commands given by the cockpit and a record of all communications in the cockpit and with the control tower or other aircraft. It is usually made of durable steel and high impact plastics and is designed to survive impacts, immersion and even immolation. This is to provide investigators with vital information that may help to unravel the cause of the accident and prevent future disasters.

The mental trauma to parents and other relatives and friends of victims of the Bellview and Sosoliso airline crashes can only be guessed at. Of course, a lot of attention was now focussed on the aviation sector and numerous lapses discovered. This paper will attempt to highlight as many of these lapses as possible and it is hoped that they will be addressed by the necessary authorities thus minimizing the number of crashes due to man made problems. It is also hoped that other developing countries will be able to learn something from our experience and improve their own situation. A common quotation from the World War I era states that, "Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect."

LAPSES IN AVIATION DISASTER MANAGEMENT IN NIGERIA

The recurrent lapses in the management of aviation disasters in Nigeria can be classified into lapses in the pre-disaster phase, the disaster phase and the post disaster phase. This is summarized in the table below.

Why black box? The reasons are speculative, some believe because early recorders were painted black, while others attribute the name to charring that occurs in post accident fires. Aviation recorders are actually painted bright orange, with strips of reflective tape to give distinct color and facilitate identification by investigators in the event of an accident.

The "black box" or flight recorder is a piece of electronic equipment that keeps a record of all the information about

Figure 3

PRE-DISASTER PHASE LAPSES			
Airports	Aircraft/Personnel	Emergency Services	
A) Infrastructure	A) Aircraft	Absent/ Bad emergency Equipment	
-Runways	-Old	Poor communication	
-Lights	-Not certified	No Disaster Plans	
-Radar	-No maintenance logs	No emergency drills	
-Security/Fencing	-Poor maintenance and Repair (worn out tires, defective landing gear)	Poor motivation	
-Water	B) Personnel	No co-ordination between branches	
-Electricity	-Overworked flight and ground crew	Poorly trained staff with no defined hierarchy.	
-ILS Beacons	-Poor maintenance cultures		
-Tower Consoles bad	-Poorly trained staff		
B) Airport Registration with The IATA	-No re-certification or upgrading of technical staff		
-Poor management and oversight	-Shortage of technical staff		
C) Understaffed	-Alleged falsification of flight logs		
	-Breaches of operating protocol (weather minimum, etc)		
	-Poor motivation and condition of service		
DISASTER PHASE LAPSES			
Airports	Aircraft/ Personnel	Emergency Services	
Communication (inter- and intra-airport communication, with the police, fire and medical services)	Suspect functionality of safety equipment	Response times	
Standby emergency services	Radio beacons/transponders	Co-ordination	
	Emergency radios	Communication	
	Emergency doors, slides	Equipment	
	Understaffed emergency service	Responsibility for action	
	Poor training		
POST-DISASTER PHASE LAPSES			
Airports	Aircraft/ Personnel	Emergency Services	
Infrastructure	Poor staffing	Response time	
	Investigation	Transportation	
	Recommendations for prevention		Equipment
			Poor Training
			No co-ordination
			No medical evacuation
			No contact with emergency medical services
			Poorly equipped hospitals
			Nominal search and rescue service
			Communication
	No PR information management		

The science of disaster medicine is ever in search of an appropriate tool which would be used to analyze risk factors that contributed to previous disasters while prospectively assessing those that may contribute to future ones with a view to nipping them in their buds and averting disaster. It really would be of no use if research could not improve the quality of human life.

The first volume of Health Disaster Management Guidelines for Evaluation and Research in the Utstein Style (Guidelines) proposed a conceptual model of how a disaster occurs, in which a hazard leads to an event, an event leads to health damage and health damage leads to a health disaster. The

Guidelines also defined risk as the objective or subjective probability that something negative will occur. (TFQCDM, Sundnes KO, Birnbaum ML(eds): Health Disaster Management: Guidelines for Evaluation and Research in the Utstein Style. 1st ed. Madison, Wisconsin: Prehosp Disast Med, 1003, pp 1-177.) These were married together to produce a conceptual model of the risk of a health disaster, according to which, the risk of a health disaster is actually the product of four component risks:

1. the risk that a hazard exists (or will exist within the time frame of the risk assessment);
2. the risk that the hazard will be transformed into an event;
3. the risk that the event will be transformed into some specified health damage; and
4. the risk that the health damage will overwhelm the local community's ability to adequately respond and require external resources.

(Arnold JL. Risk and Risk Assessment in Health Emergency Management. Prehosp Disast Med 2005; 20: 143-154) The Haddon matrix is a tool that facilitates the identification and classification of the various factors that contribute to an injury before, during, and after an injury-creating event occurs such that by their possible modification, injury might be prevented. JL Arnold was able to combine the Haddon matrix with the conceptual model of disaster risk to create a matrix of risk factors for each component risk. In this application, each risk has a before, during and after phase, which in turn may be analysed from the perspective of its human, material, physical environmental, and social environmental factors. (Arnold JL. The 2005 London Bombings and the Haddon Matrix. Prehosp Disast Med 2005; 20: 279- 281.) Below an attempt has been made to incorporate the factors endangering the Nigerian aviation sector into JL Arnold's "Modified Haddon matrix for the Risk of a Disaster."

MODIFIED HADDON MATRIX FOR THE RISK OF A NIGERIAN AVIATION DISASTER

Figure 4

Risk	Phase	Human	Machine	Physical Environment	Social Environment
HAZARD	Pre-hazard	Overworked staff, Untrained, poorly maintained staff, poorly trained staff, No training, re-certification or retraining of personnel staff including pilots.	Old and poorly maintained planes, insufficient safety, poor maintenance, poor safety checks, No water, electricity.	Any physical environment factor affecting hazard production	Failure to address pressing social issues, Poor maintenance conditions of service of staff, Inadequate oversight of Airport management, Allegations of wide spread corruption in the aviation sector.
	Hazard	Pilot Error: Breaching of operating procedures and other safety protocols by personnel including pilots.	Mechanical/Structural malfunction of aircraft, Bad runways with poor or no lighting, Bad tires, Crows on the runway, Unstable (due to the sabotage threat), Badly damaged controls.	Any physical environment factor affecting hazard production	Alleged reduction of flight logs and maintenance logs, A generally poor maintenance record culture.
EVENT	Post-hazard	Alleged bribery, Corruption of officials in charge of controlling airworthiness of planes or officials in charge of maintaining airport operations.	Use of substandard materials in repairing planes, airport runways for instance.	Any physical environment factor affecting hazard	Non-certification of planes and non-verification of airports with separate bodies as and when due.
	Pre-event	These practices by aviation officials in allowing a plane with a problem to go on air.	Any external factor affecting hazard delivery	Bad weather (Thunderstorms, Darkness (at night))	Social unrest (as in sabotage threat), Poor aviation policies on regular air show protocol and punishment of offenders.
EVENT	Event	Malfunction of pilot if flight crew training for disaster situations.	Unavailability the service of airports & in most circumstances, No water at airport, No medical for emergencies above system.	Bad weather, Darkness (poor visibility), Location (roads, mountainous areas)	Any social environment factor affecting the energy release in the hazard.
	Post-event	Slow response of emergency services staff, Poor communication between stakeholders.	Partly radio towers, ILS Beacons, Helicopters, water, etc., Bad tower controls, Unavailable fire services at airports and in most circumstances.	Any physical environment factor affecting energy propagation.	No disaster plan in the face of perceived disaster, Inadequacy of airport disaster emergency services.
HEALTH DAMAGE	Pre-damage	7 Pilot if flight crew training emergency in simulated situations (to suitably simulate planes, to offer first aid, for example).	7 Functional emergency radio.	Bad weather	No airport disaster plan.
	Damage	7 Readily available first aid and personnel to effect a specific first aid plan.	7 Functional safety equipment on aircraft, 7 Functional emergency downblades on the aircraft.	Bad weather, Darkness, Location.	No airport disaster plan, Understaffing of airport emergency services.
HEALTH RESPONSE	Post-damage	Slow response of airport emergency staff, Poorly trained (deactivated) emergency staff.	Poorly equipped airport emergency services, No (or fewer) medical centers, No water at airports.	Bad weather, Darkness, Location.	No grass roots development (as in the case of the Bellview disaster), Poor public relations information management (Inadequate information → ability to receive greater health damage).
	Pre-response	Four individuals of staff No previous emergency drills.	Adequate first emergency equipment, inadequate communication tools.	—	No disaster plan, Poor organization, No defined hierarchy of operations, No coordination between stakeholders (NEMA, NATA, etc), No grass roots development.
HEALTH RESPONSE	Response	Slow emergency response, No responsibility for action, confusion as to what to do in the face of a disaster.	Adequate first emergency equipment, inadequate communication tools.	Four broken road roads delaying accessibility to crash site.	No grass roots development, Understaffed emergency units, Poor public relations information management, Poor organization and communication between agencies involved.
	Post-response	Information, inadequate handling or release of victims by the necessary authorities, Late payment of compensation packages, Pocket money by victims relatives.	Hospitals that are ill-equipped to handle mass casualties.	Bad roads, Identity card delaying recovery of plane parts, body of victims, and also delaying the investigation.	Four public relations information management, Poor aviation and health sector policies for handling a disaster.

LAPSES IN THE PRE-DISASTER PHASE

Starting from the airports, a number of problems were already existent which might have prevented or at least reduced the effects of these disasters if only they had been corrected earlier. The airport infrastructure is in a very poor state. The runways are poorly maintained to the extent that some of them are riddled with potholes. The runway lights, which are especially necessary in the night and in poor weather, are mostly not functional. The radar is epileptic and does not work on weekends (Friday Punch, 30/12/05). There's also poor security with little or no perimeter fencing in most Nigerian airports. This lack of perimeter fencing was responsible for the July 7, 2005 Air France Airbus taxiing into a herd of cows on the runway of the Port Harcourt International Airport, killing 7 of the cows. (The Guardian, Oct.24th) Though there were no human casualties, this is still a safety hazard.

Water supply and electricity at the airports is at best epileptic. Based on anecdotal reports it is said that the airport at Bauchi spent 15 million naira on water in 2005. In fact, one of the major delays in extinguishing the fire from the Sosoliso Airline crash was the unavailability of water at the Port-Harcourt International Airport where the crash occurred. Also, there was no electricity supply in this airport for 6 hours prior to the air-crash. The beacons currently in use at our airports are mostly out-dated and are in fact known to transmit false signals or no signals at all. About 3 hrs after the Bellview airline crash, NEMA got an initial

alert on the 121.5 Beacon. However, this particular beacon habitually transmits false signals and instead of getting it changed or at the worst repaired, the practice over time has been to wait until the satellite resolves the alert before swinging into action. (The Daily Sun, Wed.26/10/05). It took a disaster to showcase the hazards of such a laissez-faire attitude. ILS Beacons. The tower consoles are also reported to be bad.

During the Presidential Task Force inspection and auditing of airports it was discovered that the Nnamdi Azikiwe International Airport at the nation's capital, Abuja, had been operating for the past 23 years without formal registration with the IATA. Their facilities were found not to be up to par with international standards and their staffs were described as incompetent. The Port Harcourt international Airport was also noted by the same Task force to be below standard. (The Punch, 24/12/05) This can only be explained by gross mismanagement and oversight on the part of Airport authority and any other person in charge of the day-to-day running of these airports. Most Nigerian airports are understaffed. At the Nnamdi Azikiwe International Airport, there are just 37 staff instead of the 58 airport staff recommended by the IATA. ? source

Most aircraft in Nigeria are old. No fewer than 29 aircraft out of 53 operating commercial flights in the country have exceed the 22 yr age limit stipulated by the Ministry of aviation. The Federal Government had on the heels of the 2002 crash of an EAS BAC 1-11 aircraft in Kano, directed that aircraft aged 22 yrs and above should no longer be registered by the NCAA. However owners of overage aircraft that were already registered were given 5 yrs to get rid of them. Airlines having aircraft over 22yrs include Albarka Air Services, Associated Aviation Ltd, Sosoliso Airlines, ADC, Aero contractors, Bellview, Chanchangi Airlines, EAS, IRS Airlines, and Spaceworld International (The Punch, Friday, 4/11/05)11. Some are not even certified (who is in charge of certification?) There's a poor maintenance culture in the aviation industry. Maintenance logs are not kept for the planes and there's a tendency to 'manage' planes instead of repairing them as and at when due. Thus, instead of changing worn out tires the airline management or whoever is in charge would prefer to keep using those tires until they burst as in the case of an ADC Airlines Boeing 737 whose rear tires burst at the Yola Airport on the 25th of February, 2005. Luckily, the 86 passengers on board escaped unhurt. (Insider Weekly, Nov.7, 2005) Another example is the recent Sosoliso airline

crash in which strange loud noises were being emitted by the aircraft during an earlier flight only for that same plane to be sent back into flight without sorting out the problem adequately. In this case unfortunately, everyone on board died. While most died immediately, the 7 survivors died at various times, in different hospitals. This unwillingness to spend money in maintenance, regular check-up and repair of aircraft signifies indiscipline and a lack of value for human lives.

The story is no less pitiful with the personnel. Since the industry is generally understaffed, flight and ground crew (including technical staff) are overworked. The International civil aviation organization standards on flying hours state that if a pilot is on duty for 12 hours, he must also rest for 12 hours before the next flight. According to aviation industry sources, flying hours depends on the number of landings. The more the number of landings, the less the total number of hours the pilot should be on duty. 100 hours in 28 days is the maximum allowable. The pilot of the crashed Bellview Aircraft is said to have made 180 hours 2 Months prior to the crash. The airline allegedly pays N3000 to pilots for every extra hour of flight. Such flights are not recorded in the pilots' logbooks. (The Punch, Thursday, 27/10/05) As such, the flight logs are not a true picture of the number of hours flown by a pilot or the total flight hours of an aircraft. Staffs are poorly trained and there's hardly any retraining, recertification or upgrading of technical staff including pilots. Operating protocols are arbitrarily breached thus unduly placing human lives at risk. For example, there are minimum weather requirements for flight but we find planes taking off in thunderstorms provided there are passengers. The conditions of service are poor and it is no wonder that the staffs are poorly motivated as well.

With all the above time bombs ticking away, it is unfortunate that the emergency services currently on ground are practically useless. First of all, there's no laid down protocol for disaster management, neither is there a defined hierarchy of staff so a situation of no one being in charge or everyone attempting to take charge usually occurs with a disaster. There's apparently no coordination between the staff and between all agencies in some way involved with handling such disasters. Like other aviation industry staff, the emergency staffs are also poorly motivated and poorly trained, having had no prior emergency drills or simulations of disaster situations. To top it off, emergency equipment are bad or absent, and communication within the airport and with planes in transit is also poor.

LAPSES IN THE DISASTER PHASE

Once a disaster is definitely occurring, there is still a lot that can be done to reduce the extent of loss of life and property. However, in the Nigerian situation, a lot of the previously mentioned lapses still come into play and more, such that a disaster necessarily results in massive property destruction and death.

First of all, there isn't adequate communication at the time of a disaster both within and outside the airport. In most airports there are no emergency radios to speak of. In fact there are anecdotal reports that something might be happening at one section of the airport with another section being in total oblivion. This inadequacy in communication results in a delay in arrival of the fire service, police and emergency medical service at the time of a disaster. In Nigeria where the airports' fire and emergency medical services leave much to be desired, there's even greater need for communication with the fire services and hospitals within the town or state where the crash occurred. But then, there's the problem of unpaid telephone bills in most government parastatals as well as poor connection/network resulting in an inability to contact all the necessary bodies. Other than that, the standby emergency services at the airport are so poor as to be declared absent. These services are also under staffed; and as mentioned previously these staffs are poorly motivated and poorly trained. This is in marked contrast to the Chang-Kai Chek airport crash on 31st Oct.2000. Here, the airport alert was almost immediate, and the 32 men at the airport's fire brigade, who 4 months earlier had trained on a similar scenario, were prepared. They responded instantly by being at the scene of the accident in 1 minute, 38 seconds. The disaster alert also was sent to the dispatch centre in the county of Tao-Yuan, which further alerted the 17 emergency hospitals in the area. Emergency medical teams from each hospital were gathered rapidly and sent to the airport. (L.Riddez Air line Accident at the Chang- Kai Chek Airport, 31 October, 2000. *Prehosp Disast Med* 2001; 16(2): s60.)

As many of our aircraft are old and poorly maintained, it is uncertain if the emergency doors and other safety equipment are functional. However there's no survivor report to confirm or disprove this. The Sosoliso aircraft that crashed may not have had any lightning deflectors as eyewitnesses present at the airport reported that it sustained a direct lightning strike. (Sat. Punch, Dec.24, 2005.) Radio beacons/ transponders also play a role in the disaster phase as they could help locate a missing plane immediately. Unfortunately, as

previously explained the beacons currently available in the country are obsolete, faulty or simply not working.

Finally, all the lapses in the emergency services previously highlighted in the pre-disaster phase, also apply here, viz: poor training with no experience in similar simulated scenarios (resulting in poor response times and poor coordination), no responsibility for action, poor communication and equipment. The Sosoliso Airline crash at the Port Harcourt International Airport brought these lapses to the fore. It was the Shell Petroleum Fire Brigade that provided fire support to the airport, as the airport's fire service was ill equipped to handle the inferno especially as it had no water. The Airport Medical Center, major hospitals and trauma centers in Port Harcourt were ill equipped to deal with the mass casualty situation and the dead victims were not treated with dignity and professional care. (Saturday Punch, Dec.24, 2005)

LAPSES IN THE POST- DISASTER PHASE

These refer to those lapses coming into play after the disaster had already occurred. i.e. lapses in the management of the consequences of the disaster. Some of the lapses mentioned in the pre-disaster and disaster phases continue to play a role in the disaster phase. Factors like poor infrastructure at our airports, poor staffing of aircraft personnel and emergency services, slow response times and lack of coordination of emergency services, as well as lack of necessary equipment (in our airports, various emergency units and hospitals) still affect the post-disaster phase.

Transportation, both for medical evacuation and for search and rescue was also a major lapse in this phase. There were no helicopters for medical evacuation. Following the Sosoliso air crash, it was private helicopters operated by oil companies that facilitated the initial 7 survivors, as there were no rescue helicopters at the airport. (The Guardian, Wed.14th Dec. 2005). It appears that NEMA has one helicopter, which they use for search and rescue. However, it is said that this helicopter is not even meant for search and rescue, being of the type used in transporting relief materials like blankets, rice and other foodstuffs. (The News, Vol.25, No.18, Nov.7 2005)

The public relations information management left much to be desired. The CNN initial report of 50 survivors from the Bellview airline crash initially raised the hopes of the relatives of the victims. Early on Sunday morning (23/10/05) media reports quoted officials of FAAN as saying that the Bellview plane might have crashed into the Atlantic Ocean

due to bad weather. The Federal government promptly directed the Nigerian Navy to comb the Lagos Atlantic shore. But, the sea search was called off when the Navy found a distressed ship instead of an aircraft. Another of the early reports claimed that the plane had been sighted in Moshi-Gada in Kaiama L.G.A.of Kaduna State. (The News, Vol.25, No.18, Nov.7 2005) It was the African Independent Television that eventually gave the first accurate reports on the Bellview air crash but were immediately shut down for their effort by the National Broadcasting Commission who accused them of 'professional misconduct' in showing offensive photographs to the public and reporting that all aboard had died when foreign media and our own top government officials (including the Health Minister) were reporting that there were survivors. (The Guardian, Oct.24, 2005) In fact the handling of information about the Bellview air crash in particular was disorganized, uncoordinated (with various government officials shooting off their mouths to the press when nothing was ascertained) and downright embarrassing. Of course, this mishandling of information further compounded the psychological trauma experienced by relatives of victims.

Of particular note in the aftermath of the Bellview airline crash is the need for grass roots development. Lack of electricity, communication, network and enlightenment of the inhabitants of Lisa, site of the Bellview air crash, contributed to the delay in locating the crashed airline. Since the crash occurred at night, and there was no electricity, it was too dark to go out and investigate what the loud explosion they had heard signified. When the villagers discovered the crashed plane the next morning (Sunday, 23/10/05), the absence of telephone services delayed the transmission of this information to the police station in nearby Sango. Also, poverty, lack of enlightenment and respect for human lives resulted in the massive looting that characterized this crash.

Following the recent spate of air crashes in the country, the presidential task force was set up to look into the problems in the aviation sector and make recommendations for preventing future disasters. The big question is whether any definitive steps will be taken on these recommendations. Investigations are still being carried out on the Bellview and Sosoliso airlines' crashes. While the black box (helpful in post crash investigations) of the Bellview airline is still at large, that of the Sosoliso airline has been sent to England for expert evaluation but there's still no news almost 8 weeks after. If eventually, something can be learnt from these black

boxes, will this information be used to prevent further crashes or will it just be stored in a file labeled “Nigerian Aviation Disasters” until the next crash? The experience from past crashes casts doubts on the purpose of these investigations. Following the 2002 crash of an EAS BAC 1-11 aircraft in Kano, the Nigerian Federal Government directed that aircraft aged 22 yrs and above should no longer be registered by the NCAA; however, they were given a 5 yr period of grace such that today a lot of these old planes are still plying the Nigerian airspace (The Punch, Friday 4/11/05)11.

For years, the Nigerian Aviation Safety Initiative (NASI) has complained of sharp practices by airline operators and poor aviation policies. Through petitions, seminars, and workshops, the group attempted to needle the government into providing better aviation facilities but to no avail. (The News, Vol.25, No.18, Nov.7 2005) It is hoped that these recent spate of crashes and the increased awareness will finally effect the speedy rectification of the abnormalities in the aviation sector.

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