



International Civil Aviation Organization

**FOURTH MEETING OF THE ASIA PACIFIC ACCIDENT INVESTIGATION GROUP
(APAC-AIG/4)**

Tokyo, Japan, 1-2 September 2016

Agenda Item 5: AIG Developments in Member States

INVESTIGATION IN HIGH ALTITUDE ENVIRONMENT

(Presented by the People's Republic of China)

SUMMARY

With international flights flying over and landing at almost every part of the globe, air accidents could occur at almost every corner around the world, be it in the airport, plateau, mountain area, jungle, or desert or in the ocean. Different terrain, especially in very high altitude terrain, such as higher than 3000 meters could severely influence the investigation and impact the performance and health of investigators.

A special investigation procedure manual should be developed to provide guidance to investigation authorities and investigators on how to protect any personnel who work at the accident site under high altitude environment.

1. INTRODUCTION

1.1 China is a country which has large area of high altitude terrain. The travel demand for people living in the high altitude regions has been increasing rapidly, resulting in the increased of air traffic.

1.2 At present, China has more than 25 airports high altitude airports in the southwest and northwest region. In the Southwest region alone, there are 20 airports which are higher than 1500 meters (5000ft), 10 airports higher than 2500 meters (8000ft) and some airports higher than 4000 meters. In total, China has 62 air routes that relates to airports with altitude higher than 2500 meters.

1.3 A high altitude terrain does not only include mountainous area, but high plateau region such as Tibet in China. Investigators working at mountainous area have the option of siting their rest area at the bottom of the mountain and returning to the wreckage site repeatedly to complete their investigative work. Unlike working at mountainous area, investigators working on high altitude plateau areas such as Tibet will be constantly exposed to the high altitude conditions during their field investigation.

2. DISCUSSION

2.1 The Civil Aviation Administration of China (CAAC) believes that exposure to high altitude environment can affect the well-being of investigators thereby, reducing their efficiency. In this respect, the CAAC has developed specific training plans/courses for its investigators and will be developing a special procedure manual for investigation in high altitude environment.

2.2 On 1st May, 2016, a serious incident involving a Chinese registry Airbus 319 aircraft occurred during final approach to Kangding airport (ZUKD), Sichuan Province, Southwest region of China where the elevation of the airport is more than 4200 meters (13905ft). The incident was a near CFIT. Fortunately, the flight crew managed to pull up the aircraft successfully after touching the ground off the runway and hitting 4 approach lights. The CAAC investigation team, together with BEA and Airbus team are conducting the investigation (BEA has nominated a non-travel Accredited Representative). While conducting the field investigation for this occurrence, some lessons on working in high altitude region were learnt:

- The CAAC investigation team that made up of investigators from both Chengdu and Beijing who performed a site survey at the runway felt the effects of altitude sickness which affected their efficiency. There were concerns that the immediate physical activities on arrival at that high altitude without acclimatisation could pose a serious health hazard to investigators. A special plan other than a normal procedure manual (DOC9756) should be made before the team departed from the office.
- The investigation team should be deployed with medical support to provide adequate treatment onsite when required. The Investigator-in-charge should ensure that there is no time pressure exerted on investigators to complete the field investigation works.
- The investigation tasks at high altitude should not involve heavy mental loads such as analysis, decision making or carrying out of work procedure from memory as the effects of altitude could impair the quality of the work carried out. Checklist should be provided to aid data collection tasks such as site mapping and measurement. Intense mental work such as interviewing of witnesses should be performed by telephone or with written statement from witnesses.

2.3 The CAAC is currently drafting a policy and procedure manual that addresses the issue of conducting investigation in high altitude environment. The manual would contain procedures for normal investigation and investigation at high altitude environment. . Some of the topics for the manual includes:

- To provide more time for the investigators to acclimatise to the altitude instead of starting investigation activities immediately after reaching the accident/incident site.
- To create a detailed checklist for different types of investigation tasks for investigator to use when working in high altitude environment. This will help investigators to avoid having to rely on memory when performing the tasks, which may be affected by the effects of high altitude environment.
- To provide guidelines for Investigator-in-charge to consider the effects of high altitude when planning the onsite work schedule so as to avoid exerting time pressure in completing the works.
- To ensure that adequate medic support is deployed together with the investigation team and to allocate more equipment for the investigators, such as oxygen generator (much better than the oxygen can/bag).
- To create a special alert for all the foreign participants.
- To request for a special local transportation arrangement for the team such as helicopter, vehicle, or even animal-power vehicle to assist the investigation team to access to the high altitude area.

3. CONCLUSIONS

3.1 In preparation for any future investigation, continual training and gaining of experience in operating under different challenging environment is important. The CAAC will continue to organize trainings and exercises as well as to actively participate in any training courses and exercises abroad.

3.2 The CAAC will continue to encourage international and regional cooperation through the sharing our experience with the accident investigation community.

3.3 The Meeting is invited to:

- a) Note the challenges in conducting an investigation in the high altitude terrains.
- b) To encourage States to consider in organising and opening such special training for APAC State in helping to build up capacity in investigating in high altitude terrains

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