



## **GUIDANCE MATERIAL:**

# **IDENTIFICATION OF HAZARD EFFECTS**

### **1 SAFETY SIGNIFICANCE OF A HAZARD**

The loss or degradation of system function(s) could impair the safety of the Air Navigation Service which the system provides or contributes towards, and subsequently, could impact aircraft operations.

A "Cause-Consequence" approach is proposed to determine the effects of the loss or degradation of system function(s).

The following sections identify some factors that could improve or worsen the consequences of hazards (due to system failure and/or external event occurrence(s)).

They are classified according to three major headings:

- Effects on Air Navigation Services;
- Exposure and;
- Recovery.

## 1.1 Effects on Air Navigation Services

- **Safety of Provided Air Navigation Services:** Effects on the ability to provide or maintain safe Air Navigation Service(s).
- **Working Conditions:** Effects on the ATCOs and Flight Crew ability to cope with the reduction in functional capability, especially, impacts on their workload.
- **Adverse Operational and Environmental Conditions:** Effects on the ability for ATCO and/or Flight Crew to cope with adverse operational and environmental conditions.
- **Functional Capabilities:** Effects on the functional capabilities of the ground part of the ATM System and aircraft functional capabilities.

## 1.2 Exposure

- **Exposure time:** the amount of time the hazard exists.
- **Number of exposed aircraft:** Number of aircraft exposed to the hazards.

### 1.3 Recovery

- **Annunciation, Detection and Diagnosis:** When appropriate, the assessment could also consider the possibility of detection of and recovery from hazard(s).
- **Rate of development of the hazardous condition:** Rate of development of the hazardous condition (e.g., sudden, moderate, slow) compared to the average time required for recovering from unsafe conditions.
- **Contingency Measures:** In some cases, it may be also possible to consider the availability of alternative procedures, fall-back equipment and ability to apply contingency measures.

These factors help to understand how much operational staff (ATCO, Flight crew) are controlling the developing occurrence.