Safety Targets for the Year 2005 – Preliminary study

Introduction

The CAA is in the process of developing safety targets for the year 2005. In the September/October issue of the CAA News the industry is asked for their input. This paper summarises some of the CAA’s background work so far.

The safety targets are a goal for the country; a goal that can only be reached as a result of the aviation industry’s efforts. The CAA’s contribution is to establish safety initiatives to influence the aviation industry’s outcomes. The existing safety targets (for the year 2000) were measured by accident rates per 100,000 hours. The levels were set following consultation with industry and agreed by the Minister of Transport.

As the first step in the process of developing safety targets for the year 2005, the CAA identified the benefits of a safety target and the characteristics of an effective target.

The benefits identified were:

1. The targets will provide a strategic goal for the CAA and also provide links with its Mission and Vision.

2. The targets will guide the aviation industry as it seeks to improve its safety performance.

3. The Ministry of Transport see the benefit being - Safety targets enable Government, the public and industry to measure safety performance against appropriate yardsticks. The targets will implicitly provide a means for monitoring CAA’s success in influencing safety outcomes as well as guiding industry as it seeks to improve its safety performance.

The characteristics identified were:

1. An outcome of industry

2. Simple
3. Measurable

4. Acceptable to Industry, CAA and the Public

5. Consistent with the Government’s desired outcomes

Clearly a lot is expected of a safety target, and to meet all party’s requirements may require more than one safety target.

**Safety Targets**

A CAA review team has examined various industry outcomes and their assessed acceptability as safety targets. About 30 industry outcomes were identified, but many were rejected because they were not closely linked to safety. The remaining outcomes were examined to see how many of the “effective target characteristics” they meet. A short list of possible targets is:

1. Accident Rates

2. Social Cost of Accidents

3. Risk levels
   
   Note: Naming this last target was difficult. The intention is to measure potential failure. Some of the concepts are risk levels, safety culture, safety performance and safety effort. The CAA’s work in this area includes the “quality index” and a project to identify the potential for risk in an aviation organisation.

The items in the short list have different characteristics. The accident rates and social costs of accidents are the end result of failure and can be measured by the CAA. The risk level target is a measure of the potential (latent) failure. The CAA is still working to find acceptable ways of measuring this outcome. Research here and overseas indicates that measuring and then controlling latent failure is better than using the end result only. The CAA will therefore be attempting to develop indicators of industry risk levels in the future.
**Accident rates**

If accident rates are used for a safety target there are two further questions:

1. What rates to use?

2. What different safety target groups to set targets for?

The rates that could be used are accident rates; fatal accident rates, fatality rates or a composite that gives different weights to damage to aircraft and injuries to people. Measuring accident rates alone gives little indication of the importance to the nation of each accident. Some accidents such as the fatal DC10 accident on Mount Erebus are clearly more significant than non-injury accidents to small helicopters or aeroplanes.

The present Safety Target Groups are based on the type of aircraft, the weight of the aircraft and the type of operation being carried out at the time of the accident. Other possible groupings are by CAA rules or, for comparison purposes, using similar groupings to that of other CAAs (note: there are no consistent groupings amongst the other CAAs).

**Social Cost of Accidents**

The social cost of accidents measures the cost to the nation of safety failure. It measures in dollar terms the cost of:

1. Aircraft Damage

2. Fatal and Serious injuries

3. Search and Rescue costs

4. Accident Investigation costs

5. Costs to Operators

   The costs of aircraft downtime and system rescheduling costs are estimated to be much higher than the direct aircraft damage costs in some cases up to 70 times higher.
The social cost of accidents is used by the Land Transport Safety Authority and the FAA but is a new concept to New Zealand aviation.

**Setting the Safety Target Levels**

The CAA’s vision aims for “..a level of achievement that matches or exceeds the foremost aviation nations…”. If accident rates were used for a safety target then the CAA would aim for accident rates at least as low as countries such as United States, Australia and Britain. A recent comparison of New Zealand air transport accident rates shows our rate to be above those of the United States, Australia and Britain. New Zealand aviation has therefore not yet reached the safety levels envisaged by the CAA. Further evidence of this is that less than half of the agreed safety targets for the year 2000 are likely to be achieved.

Would New Zealand aviation safety levels achieve the CAA’s vision if the year 2000 safety targets were achieved? The answer is no, we would have to reduce the accident rates even further. Examination of the United States accident rates for 1998 show that their accident rates are below the safety targets set for the year 2000.

Given the CAA’s vision and our performance so far, what levels should we set for the year 2005?

**Industry’s Views**

This paper summarises background work carried out by the CAA. If you have any comments, or points of view you would like us to take into account, please forward them by **29 October 99** to either:

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