

## Strategic accident prevention with applied human factors theories

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### **Abstract**

Almost 100% of aviation accidents and incidents can be attributed to any human error of personnel who is working in the aviation system. This is because humans have incentives, capabilities and responsibility for safe and effective operation of the system. Human factors has, therefore, become a major concern for many operational and management personnel in all fields of aviation systems. Their attention is mainly focused on eliminating human error itself. (Error resistance)

It is recognized that human error would never be eliminated since it is a part of normal human behavior and an unfortunate result of the challenging activities that are inherent to human beings. If this is so, what should we do to achieve the goal of 'zero accidents'? As an attempt to answer this question, a new idea has unveiled itself, which intends not to eliminate but to control human error by intervening accidents. (Error tolerance)

It should be recalled that our true objective for enhancing flight safety is not necessarily to eliminate human error but to prevent the accident that is a result of human error. In this respect, error tolerance is considered the most reasonable and realistic approach to realizing our permanent goal of 'zero accidents', however, there still is a fear that tolerating human error might be a double-edged sword.

In this paper, the author will challenge the construction of an accident prevention strategy by integrating various human factors knowledge and skills including the human factors investigation process of using the 'Downhill model', which I myself have developed in 1998 when the Winter

Olympic Games was held at Nagano City in Japan.

The process of human factors investigation presented in this paper has proved to be effective by the author's demonstrations that were applied in several cases of actual aviation occurrences involving the failure of human behavior. There, however, exist some problems that a sufficient level of proficiency is required in human factors and other related disciplines to carry out the process.

The author believes that the most urgent issue in achieving the goal of 'zero accidents' is at this time to provide as many operational and management personnel as possible with sufficient skills and knowledge of human factors that will enable them to carry out an integrated process for investigation.