

Trend Analysis of HANARO Safety Culture Attitude

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1. Introduction

HANARO has emphasized and implemented a safety culture as one of the safety management activities for the reactor operation and utilization. A survey in a nuclear plant is a good method to understand the safety culture attitude. The questionnaire for a survey was developed based on IAEA documents in 2008. During the last 2 years the survey was conducted two times for the personnel of the reactor and subsidiary facilities. This paper summarizes 2008 and 2010 survey results and analyzes the trend of a safety culture attitude.

2. Questionnaire for the Safety Culture

In 2008 a questionnaire was developed based on the HANARO safety culture indicators for measuring safety attitudes [1]. Using the new questionnaire, the survey on the safety culture was conducted two times in 2008 and 2010. It consists of 68 questions composed of 55 objective questions, 8 subjective questions and 5 basic questions [2]. A 5-point scale was applied for the grade of the answers. In cases of “strongly agree”, 5 points were assigned, while 1 point was allotted to cases of “strongly disagree.” The subjective questions are for the importance of the indicators, the frequency of training and field inspections, the safety culture activities, the status of the organizational culture and the operational safety performance. The basic questions include the division of duty, age, position and experience. The questionnaire was given to HANARO personnel, 146 out of the 175 (83.4%) and 150 out of the 193 (77.7%) were returned in 2008 and 2010 respectively.

3. Survey Results

According to the survey results, the average score of the safety attitude was 3.44(68.8%) in 2008 and 3.58(71.6%) in 2010. It means that safety culture attitudes improved by 2.8% over 2 years. There are some differences in the score depending on the position, age, experience and working group. In general the safety consciousness of the managers is higher than that of the other personnel. 55 objective questions from the survey can be grouped into 5 categories; policy, management, individual, research and design. Figure1 indicates that the average scores of the safety attitude of 5 categories are between 3.26(65.2%) and 3.72(74.4%). The safety level of an individual’s attitude is a little higher than the others.

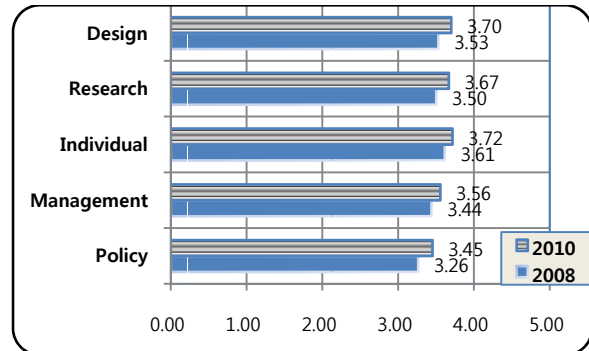


Figure1. Score of 5 categories

The 2010 organizational culture was improved by 4.2% over that of 2008. Respondents have an overall positive attitude towards work relations with managers and colleagues. While on the other hand when accidents occur a more reasonable resolution by management is required. Figure 2 shows the improvement of organizational culture of 5 elements.

- OC1: All accidents and failures are due to the mistakes of my team.
- OC2: When problems occurred the manager solved them reasonably.
- OC3: To reach a conclusion the rationality and efficiency are prior to the social situation or external point of view.
- OC4: People who work together always take and harmony among colleagues, into consideration.
- OC5: Management is always concerned about my working conditions and takes care of me.

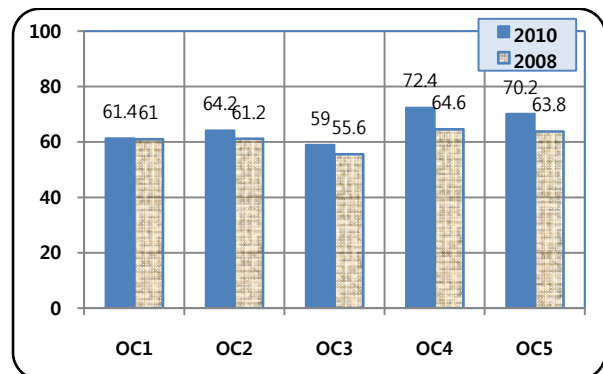


Figure2. Improvement of organizational culture

Most employees think that the safety culture activities contribute positively to the safety of reactor operation and utilization. Figure3 shows the positive attitudes for safety improvement, role of safety support, effort on safety.

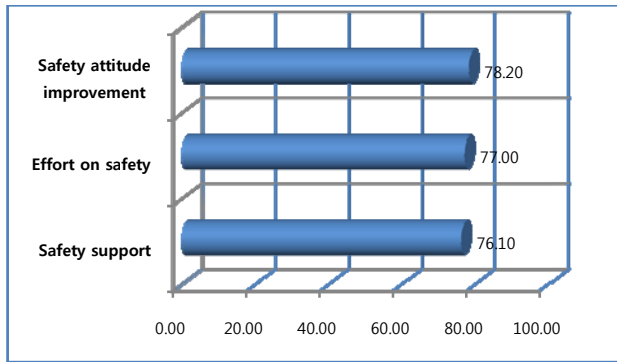


Figure3. Contribution of Safety Culture Activities

The satisfaction level of young persons from 20 to 29 is higher than the other ages as shown in Figure 4. The reason is that the junior employees are more concerned about their jobs and have a more positive attitude than these in the other age groups.

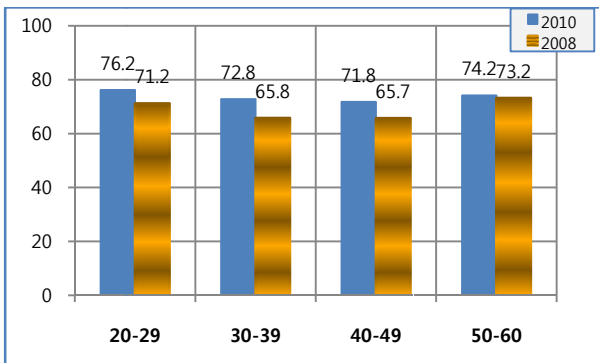


Figure4. Job satisfaction by age group

4. Summary

A periodic survey on safety culture is helpful to understand the general safety attitudes of the employee and to set the safety culture activities necessary for the improvement of safe operation and utilization. During the last two years the survey was conducted based on the new indicators developed in 2008 to understand the safety culture attitudes of HANARO. The results indicate that in general the employees have an overall positive attitude towards the organization itself. They care about what happens to the organization, and they are generally satisfied with their job.

Keynotes of HANARO safety culture as result of the survey can be summarized as follows;

- 1) General attitude:
 - 9.6% improvement during the last two years
 - Need for the improvement of safety attitudes at the level of policy and management
- 2) Operational safety performance (PI):
 - Need for improvement of PI for systems and components
 - Need for emergency preparedness program for users
- 3) Organizational culture:
 - A 9.4% improvement during the last two years

- To reach a conclusion the rationality and efficiency should be prior to the social situation or external point of view.
- 4) Safety activity:
 - Need of improvement of the safety culture activity for reactor users
 - The safety culture activities contribute positively to the reactor operation and utilization.
- 7) Satisfaction:
 - Young generation (age 20 to 29) is generally satisfied their work condition.
 - Need of improvement of working condition and environment

References

[1] J. S. Wu, K. H. Lee, KAERI/TR/3432/2007, HANARO Safety Culture Indicators in HANARO, 2007
 [2] J. S. Wu, S. H. An, KNS-P09B09/2009, Survey Result for the Safety Culture Attitude of HANARO in 2008, 2009