

## Survey Result for the Safety Culture Attitude of HANARO in 2008

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### 1. Introduction

One of the important aims of a nuclear management system is to foster a strong safety culture [1]. The safety culture activities for HANARO have been implemented and the importance of safety management in nuclear activities has also been emphasized since its first operation. HANARO developed its own safety culture indicators by referring to the IAEA's documents for the purpose of the evaluation of the safety culture attitude. In June 2008 a survey on the safety culture was conducted based on the new safety culture indicators.

The result of the survey shows that the safety culture activities contribute positively to its safe operation. But it is necessary to encourage some activities like training, resources and organizational culture. The survey was helpful to understand the general trends of the safety attitudes and to set the safety culture activities necessary for the improvement of its safe operation.

### 2. Safety Culture Indicators

The safety culture evaluation indicators were developed by the IAEA-TECDOC-860, ASCOT Guidelines for measuring a nuclear power plant's safety attitude in 1996. HANARO developed its own safety culture indicators based on the IAEA's documents to understand the safety culture status of a research reactor operation and utilization in 2007. The following table shows the 15 evaluation indicators for 3 organization groups in HANARO [2], [3].

Table1. HANARO Safety Culture Indicators

Organization	15 Indicators
Operating organization	Safety policy, Safety practices, Highlighting safety, Definition of responsibility, Selection of managers, Relations with regulators, Review of safety performance, Education and training , Local practices, Field supervision, Work-load, Attitudes of managers, Attitudes of individuals
Research organization	Research input to safety analyses
Design organization	Design review process

### 3. Survey for the Safety Culture Attitude

Using the new questionnaire prepared in 2008, a survey on the safety culture was conducted for all HANARO employees in the reactor operation, utilization and research groups. The survey consisted of 68 questions composed of 55 objective questions, 8 subjective questions and 5 basic questions. Each objective question requested two answers, a level of importance and a level of safety attitude. Table2 shows the number of questions for the 3 organizational groups.

Table2. No. of Questions for 3 Organizations

Organization		No. of Indicators	No. of Questions
1. Operation	Policy and Cooperation	6	14
	Management	6	25
	Individual	1	12
2. Research		1	2
3. Design		1	2
Total		15	55

5 point scale was applied for the grade of the answers. In the case of "strongly agree" for the safety culture, 5 points was assigned, while 1 point was allotted to the case of "strongly disagree." The subjective questions were 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 safety performance. The basic questions included the division of duty, age, position and experience. HANARO has 248 employees including regular staff and irregular staff, outsourced workers and students. 181 out of the 248 replied to this survey which is 73%.

### 4. Survey Results

According to the survey result, the average score of the safety attitude is 3.44(out of 5.0) while the average score of the importance level is 3.85(out of 5.0). It means that they think the level of the actual safety attitude is lower than that of the safety importance. 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 regular staff and irregular staff. 55 questionnaires from the survey can be grouped into 5 components; policy, management, individual, research and design.

Figure1 indicates that the average scores of the safety attitude for 5 components are between 3.26 and 3.61.

Safety level of an individual's attitude is a little higher than the others.

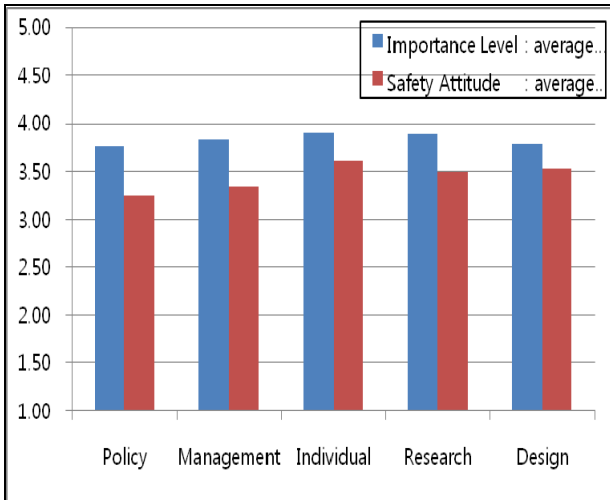


Figure1. Score based on safety culture components

From the answers, 3 good attitudes and 3 bad attitudes of the safety culture could be derived as follows.

Table3. Important Attitudes

	Good attitudes	Bad attitudes
1	Question3-1(score3.96) Emphasis on the safety subjects in team	Question8-2(score2.54) Interference between work and safety education and training
2	Question13-2(score3.95) Collaboration with colleague in case of abnormal conditions	Question11-2(score2.73) Demand of side works
3	Question8-1(score3.87) Periodic education and training on the matters of safety	Question5-2(score2.79) Lack of the evaluation tool for the safety attitude of manager

The good attitudes indicate that the management is concerned with the safety education and most employees have a conscious mind about safety on a cooperation level. Meanwhile the bad attitudes indicate there is conflict between the safety and the job result. The success of a safety culture depends on the commitment and performance provided both the managerial intention and the individual practice. There are two remarkable results from the subjective questions. The attitude of the organizational culture is not so good, 3.06 out of 5, 61%. The other one is that the staff thinks that an evaluation of the status of the operational safety performances (safety performance and status, accident and events, ability to respond to a challenge, plant risk, etc.) is very important, 4.06, 81%.

## 5. Summary

The survey was conducted based on the new safety culture indicators to understand the current trend of the safety culture attitudes of HANARO in 2008. The result shows that the safety culture activities contribute positively to the reactor operation and utilization. But an effort is necessary to improve the overall safety understanding to enhance the safety culture. The result of survey can be summarized in Table4.

Table4. Keynotes of HANARO safety culture

Attitudes	Keynotes
1.General attitude of safety culture	Need of improvement of safety attitude at the level of policy and management
2.Education and training	Minimize the absence on education and training program
3.Work load	Eliminate side jobs
4.Resource and budget	Increase of resource and budget for the safety management
5.Organizational culture	Propagation of positive cultural mind and work harmony with colleague
6.Safety activity	Promotion of the safety culture activity for reactor users
7.Satisfaction	Improvement of working condition and environment

The major concern is how to harmonize the two sides, work achievement and safety guarantee. The survey is helpful to understand the general safety attitudes of the staff and to set the safety culture activities necessary for the improvement of safe operation. The results will be used to prepare the concrete activities necessary for the improvement of the safety culture. Periodic survey will be conducted continuously to follow up the trends of the attitude of the safety culture and to promote the safety culture of HANARO.

## REFERENCES

- [1] IAEA Safety Requirement No. GS-R-3, The Management System for Facilities and Activities, IAEA Vienna, pp. 1, 2006
- [2] J.S. Wu, K.H. Lee, Development of safety culture in HANARO, KNS, Oct. 2007
- [3] J.S. Wu, K.H. Lee, KAERI/TR/3432/2007, HANARO Safety Culture Indicators in HANARO, 2007