

Impact of Fukushima NPPs Accident on Young Generation's Understanding of Radiation

Yoon-Seok Choi^{a*}, Wook Kim^a, Yeon-Jung Joo^a, No-Woon Choi^a

^a Korea Academy of Nuclear Safety, Rm 307 KOFST Bldg., Teheran-ro 7 Gil 22, Seoul, Korea

*Corresponding author : chys@kans.re.kr

1. Introduction

This study aimed to develop an effective educational scheme for the young generation to make students understand radiation as it is. The first-hand measurement of radiation with hand-carry type radiation detectors were conducted. Students of elementary, middle, and high schools participated in this program were subjected to the relevant Q&A before and after the implementation in order to assess the consequent impact on understanding of radiation[1]~[3]. As this study project has been conducted continuously before and after the breaking-out of the Fukushima NPPs accident (FNPPA), accumulated data were analyzed to seek impact of the accident.

2. Methods and Results

The procedures for performing this study are divided into two: One is measurement of background radiation, and the other is support for schools to organize and run Radiation Study Circle(RSC). Questionnaire data obtained in some previous years(June 2007~May 2010) were analyzed as well as those in the latest year of 2012(July 2011~June 2012) in view of seeking impacts of FNPPA.

2.1 Implementation of the first-hand measurement of natural background radiation

Prior to the practical measurement of radiation, students are invited to a fifty minutes' lecture on which some basic subjects of radiation as well as the principle of radiation measurement were explained. Also, the measurement of background radiation was demonstrated. Overall 18,168 students in 222 schools[1], and 6,592 students in 139 schools[3] were taken part in the program in 2008~2010 and 2012, respectively(Fig 1).

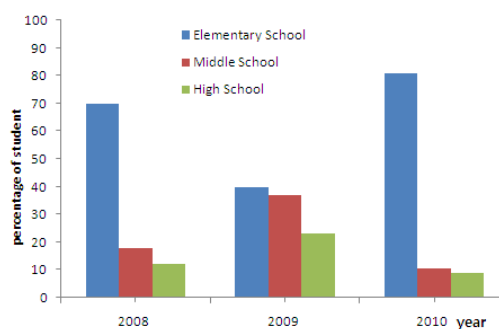


Fig. 1. The students participated in the program in 2008~2010.

2.2 Support to operate RSC at schools

Each enrolled RSC were provided radiation detectors, cloud chambers and radiation measuring kits as well as various teaching materials concerning the relevant equipments to let them study on some basic aspects throughout the RSC activities. Brief three hours' lecture was presented for the teachers involved to let them directly guide the study circle at school.

2.3 Assessment of the impact consequent on the implementation

Representative data obtained during the year 2008~2010 were as follows[1]:

- The average ratio of students who believes "the radiation level near the NPPs is higher than the other sites" was 46 % before the implementation.
- The average ratio of the participated students who were well aware of radiation was about 5 % before the implementation.
- The average ratio of the participated students who were aware of application and safe handling of radiation were increased from 16 to 42 % in application, and from 34 to 64 % in safe handling, respectively.

- d) The ratio of the participated students who were in fear of radiation showed decrease from 36 to 11 %.
- e) The ratio of the participated students who were not in fear of radiation showed a considerable increase from 27 to 72 %.
- f) The impact of FNPPA was as shown in Table 1.

measurement of radiation carried out so far was turned out to be an effective means for mitigation of students' over-sensitive radiation fear even though some influence of the FNPPA was identified in analysis of questionnaire data. The FNPPA brought about radiation fear to the people all over the country. However, it is believed that radiation together with nuclear energy will favorably be understandable by the

Table 1. Representative Q&A results obtained before and after the FNPPA[1][3]

Q/A	Before implementation			After implementation		
	Before FNPPA '08~'10* % (A)	After FNPPA '12* % (B)	B/A	Before FNPPA '08~'10 % (A')	After FNPPA '12 % (B')	B'/A'
• How much do you aware of radiation? /Well aware of.	5	9	1.8	-	-	-
• Do you think radiation is fearful? / Yes.	36	59	1.6	11	27	2.5
• Do you think radiation level near the NPPs are higher than those of the other sites? /Yes.	46	59	1.3	-	44	-

*Study project period: A, A': June 2008~May 2010, and B, B': July 2011~June 2012,

As shown in Table 1, there were significant changes in three representative questionnaire data before and after the FNPPA showing the B/A and B'/A' ratios of more than 1.0. As we can identify in Table 1, The percentage value of the second Q/A item varied from 36 to 11 by program implementation before FNPPA. However, they increased to 59 and 27 after FNPPA. Also, The consequent impact of the program implementation was decreased by the FNPPA as the B/A=1.6 became B'/A'= 2.5.

3. Conclusion

Results indicated that the first-hand

public through implementation of this first-hand experience program.

REFERENCES

- [1] Y.K. Lim et al., Research Report on "Promotion of Radiation Safety Culture", submitted to MEST, June, 2008, 2009, 2010
- [2] D.H. Yoo et al., Practice and Assessment for the Young Generation's Understanding of Radiation, Transactions of KNS Autumn Mtg, Gyeongju, Korea Oct 25~26, 2012
- [3] J.R. Kim et al., Research Report on "Promotion of Radiation Safety Culture", submitted to MEST, June, 2012