

# STIF 活動実績 2022年度 - IAEA NST Virtual Education Exhibition

## Development of Modules and Tools for Public Radiation Literacy by JVET

Japanese Volunteer's Expert Team contributing to international HRD in the field of NST

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### Activities for Improvement of Radiation Safety Culture of Public

Development of human resources is important to improve international and domestic radiation safety culture. One of the effective measures is to improve public radiation literacy in addition to develop excellent radiation experts. In order to discuss safety framework and its countermeasures from the both viewpoints of science/technology and social science, education of the young generation and development of motivated teachers become the keys as a long-term strategy.

### JVET's Activities Supporting Asian Countries Challenge

- Providing assistance from JVET to Asian Countries in the implementation of the Compendium resources and developed under the Technical Cooperation Programme of IAEA (IR-450095 - RAS007).
- Participating and assisting the implementation of Radiation workshop for teachers and Radiation Education Programme for Upper Secondary, both based on Japanese module.
  - Providing lectures to assist a working group developing/designing instructional teaching and learning methods.
  - Providing hands-on experiment and DVD/video session to give better understanding about radiation topics.
  - Reviewing and assisting each country's nuclear education outreach development.
  - Discussion and exchanging information with teachers, students and nuclear communicators on radiation related nuclear issues.



### Evaluation of the Kick-off Activity at the Time after the each WS

- The activity became one of the triggers to start to really cooperate among relating ministries, agencies and organizations in the human resource development activity focusing on the secondary school education on nuclear science and technology in Asian countries.
- Asian countries have started their first education trials in secondary schools based on the Japanese module (2-hour Radiation Education Module) in Compendium developed by IAEA, which are done by participant teachers from 2014. The cooperating activity and movement will continue and accelerate more with strongly supported by IAEA and relating international experts.
- For the early piloting stage, each participant country can import education modules, tools including textbook, movies, PPTs, experimental goods such as cloud chamber kits and simple survey-meters (for example, Mr. Gamma or KIND) from nuclear advanced countries. However, we believe that the most important point in order to sustain the qualified and effective education is to modify or newly develop their own systematic programs, modules and tools based on the background situation like policy, history and culture. We found out that a lot of experts in each country had already been active with their excellent knowledge, skills and experiences to proceed the mission by themselves.
- National framework or system to support teachers is needed to perform attractive radiation education with WOW factor. Radiation experiment in classroom costs, teachers and schools need funds. Information web platform like RADI operated by Japan Science Foundation in Japan is also effective. Instruction movies, a learning systems, teaching materials, model education programs, etc. could be cost-free shared among teachers and experts through this website.



The study and activity are supported by JSPS Grants in Aid for Scientific Research (KAKENHI) JP19647472 "Development of Systematic Improvement Method of Radi. Literacy Based on Global Communication"

## Education Tools Developed by JVET

### Survey Meter /Cloud Chamber/ GM tube



## Two-hour radiation education programme for secondary school students

### an example

Part I. Lecture (80 min)	Part II. Two Experiments (80 min)
<ul style="list-style-type: none"> <li>5 min - Program explanation</li> <li>45 min - Basic radiation lecture                             <ul style="list-style-type: none"> <li>Radiative and dose handling etc.</li> <li>Radiation application</li> <li>Radiation and biodiversity</li> <li>Radiation type</li> <li>Hall effect</li> <li>Unit of Bq and Sv</li> <li>Human effect</li> <li>Radiation protection</li> </ul> </li> <li>10 min - Break time</li> </ul>	<ul style="list-style-type: none"> <li>20 min - Cloud chamber observation</li> <li>30 min - Environmental survey by a radiation detector                             <ul style="list-style-type: none"> <li>Instruction to use survey-meter: 5min</li> <li>Surveying activity: 25 min</li> </ul> </li> <li>10 min - Conclusion</li> </ul>

### Instruction Movies Assisting Educators/Teachers

## Movies

### Web platform on Radiation Education Information: "RADI"

Let's try radiation experiments by yourself! <http://www.radi-edu.jp/>

- 5 min short movie + 8 stories
- Movie instruction manual on experiments
- Preparation for experiment or showing these movies to students in the class in place of doing experiments
- English subtitles are ready. ★ Let's see example movies.

Basic lecture on radiation

- 20 min movie: O&A attractive talk-show between students and an expert
- Focusing on the radiative keywords in junior high school textbook
- Showing the movie to students in place of teachers' explanation

### Effective Use of Radiation in Various Fields

放射線の利用 Radiation Application

- 30 min movie, recommended officially by MEXT in 2010
- Secondary school students reports the real situation of radiation usage in industry, medical, agriculture, archeology, and other fields.
- Radiation-related experiments by experts
- O&A attractive talk-show between students and an expert
- Showing the movie to students in place of teachers' explanation

実施日：優秀教員最終発表会2023年2月8日（会期は2か月間）  
 実施者：飯本、高木、戸田  
 IAEAが主催したNST Virtual Education Exhibitionに参加した。当フォーラムの支援を受け開発してきたNST教育ツールを紹介すると共に、キャリアフェアではNST分野の学習経験が将来にどのような進路につながるかを紹介。また、飯本理事がアジア太平洋地域諸国から選抜された優秀教員10名による、NST教育活動成果に関する最終発表競技会の冒頭挨拶を務め、審査委員を務めた。